

PART SIX – ATTACHMENTS

Attachments

**P707 Embassy Security Guard, BEQ and
Ops Facility**

Marine Corps Base, Quantico, Virginia

FY16

eProject #: N40080-16-1354717

PWB#: 2014150

**Category Codes: 72125, 61010, 14345,
17125**

RFP, 5 May 2016

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Part 3 contains the project description, functional and performance requirements, scope items, and expected quality levels that exceed Part 4. Part 4 identifies design criteria, verification requirements, and performance and quality requirements of products. See "Order of Precedence" paragraph in Part 2 for relationships between all parts of this RFP.

PRELIMINARY JURISDICTIONAL DETERMINATIONS (USACE, NORFOLK DISTRICT)

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DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

November 12, 2015

PRELIMINARY JURISDICTIONAL DETERMINATION

Northern Virginia Regulatory Section
NAO-2015-01894 (Quantico P707)

Mr. Tom Fitzgerald
Wiley|Wilson
127 Nationwide Drive
Lynchburg, Virginia 24502-4272

Dear Mr. Fitzgerald:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on property known as Quantico Wetlands, located on an approximately 1.5 acre parcel, in Quantico, Stafford County, Virginia.

The map entitled "Quantico Wetlands", by Wiley|Wilson dated October 15, 2015 (*copy enclosed*) provides the location of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the determination, or you may request and obtain an approved jurisdictional determination. "This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application."

Enclosed is a copy of the "Preliminary Jurisdictional Determination Form". Please review the document, sign, and return one copy to Ms. Theresita Crockett-Augustine either via email (theresita.m.crockett-augustine@usace.army.mil) or via standard mail to US Army Corps of Engineers, Northern Virginia Field Office at 18139 Triangle Plaza, Suite 213, Dumfries, Virginia 22026 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

If you have any questions, please contact Ms. Theresita Crockett-Augustine at (703) 221-9736 or theresita.m.crockett-augustine@usace.army.mil.

Sincerely,



Theresita Crockett-Augustine
Environmental Scientist
Northern Virginia Regulatory Section

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Wiley Wilson	File Number: NAO-2015-01894	Date: 11/12/2015
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input checked="" type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the Norfolk District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations (JD) associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the Norfolk District Engineer. Your objections must be received by the Norfolk District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the Norfolk District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the Norfolk District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the Norfolk District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Norfolk District Engineer.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Norfolk District Engineer.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the North Atlantic Division Engineer, ATTN: CENAD-PD-PSD-O, Fort Hamilton Military Community, Building 301, General Lee Avenue, Brooklyn, NY 11252-6700. This form must be received by the North Atlantic Division Engineer within 60 days of the date of this notice with a copy furnished to the Norfolk District Engineer.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:
U.S. Army Corps of Engineers, Norfolk District
ATTN: Ms. Theresita Crockett Augustine (CENAO-WR-R)
18139 Triangle Plaza, Suite 213
Dumfries, Virginia 22026
Phone: (703) 221-9736
Email: theresita.m.crockett-augustine@usace.army.mil

If you only have questions regarding the appeal process you may also contact:
Mr. James W. Haggerty
Regulatory Program Manager
U.S. Army Corps of Engineers
CENAD-PD-OR
Fort Hamilton Military Community
301 General Lee Avenue
Brooklyn, NY 11252-6700
Telephone: (347) 370-4650
Email: james.w.haggerty@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.	Date:	Telephone number:
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PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): Thursday, November 12, 2015

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Mr. Tom Fitzgerald
Wiley|Wilson
127 Nationwide Drive
Lynchburg, Virginia 24502-4272

C. DISTRICT OFFICE: Norfolk District (CENAO-REG)

FILE NAME: Quantico P707

FILE NUMBER: NAO-2015-01894

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: **VIRGINIA** County/parish/borough: Stafford City:

Center coordinates of site (lat/long in degree decimal format):

Latitude: 38.527 ° N Longitude: 77.438 ° W

Universal Transverse Mercator:

Name of nearest waterbody:

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 267 linear feet; width (ft); and/or acres.

Cowardin Class: Riverine

Stream Flow:

Wetlands: 0.035 acres

Cowardin Class: Palustrine

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date: October 15, 2015

Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

3. This preliminary JD finds that there "*may be*" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA:

Data reviewed for preliminary JD (check all that apply) - checked items should be included in case file and, where checked and requested, appropriately reference sources below.

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:
- USDA Natural Resources Conservation Service Soil Survey.

Citation:
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):

or Other (Name & Date):
- Previous determination(s):

File no. and date of response letter:
- Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.



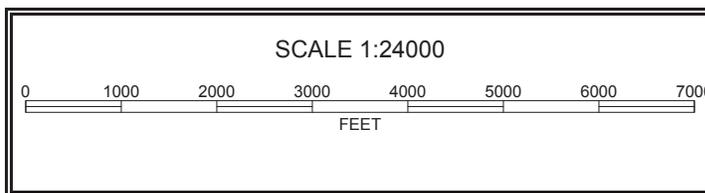
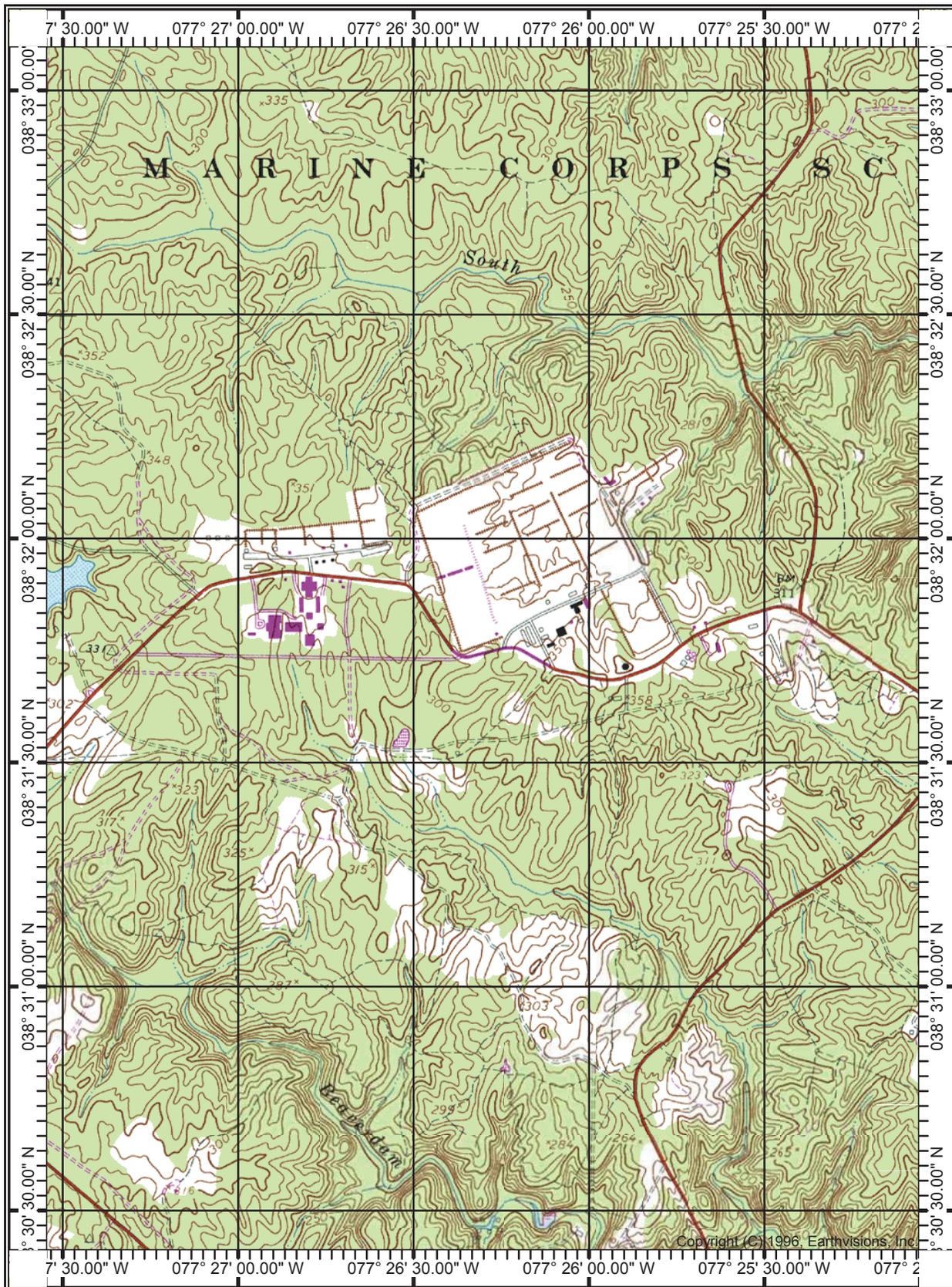
 Signature
 Regulatory Project Manager
 (REQUIRED)

2015-11-12

 Date

 Signature of person requesting
 Preliminary JD
 (REQUIRED, unless obtaining the signature is impracticable)

 Date



Legend

 Project Location

Bureau Pkwy

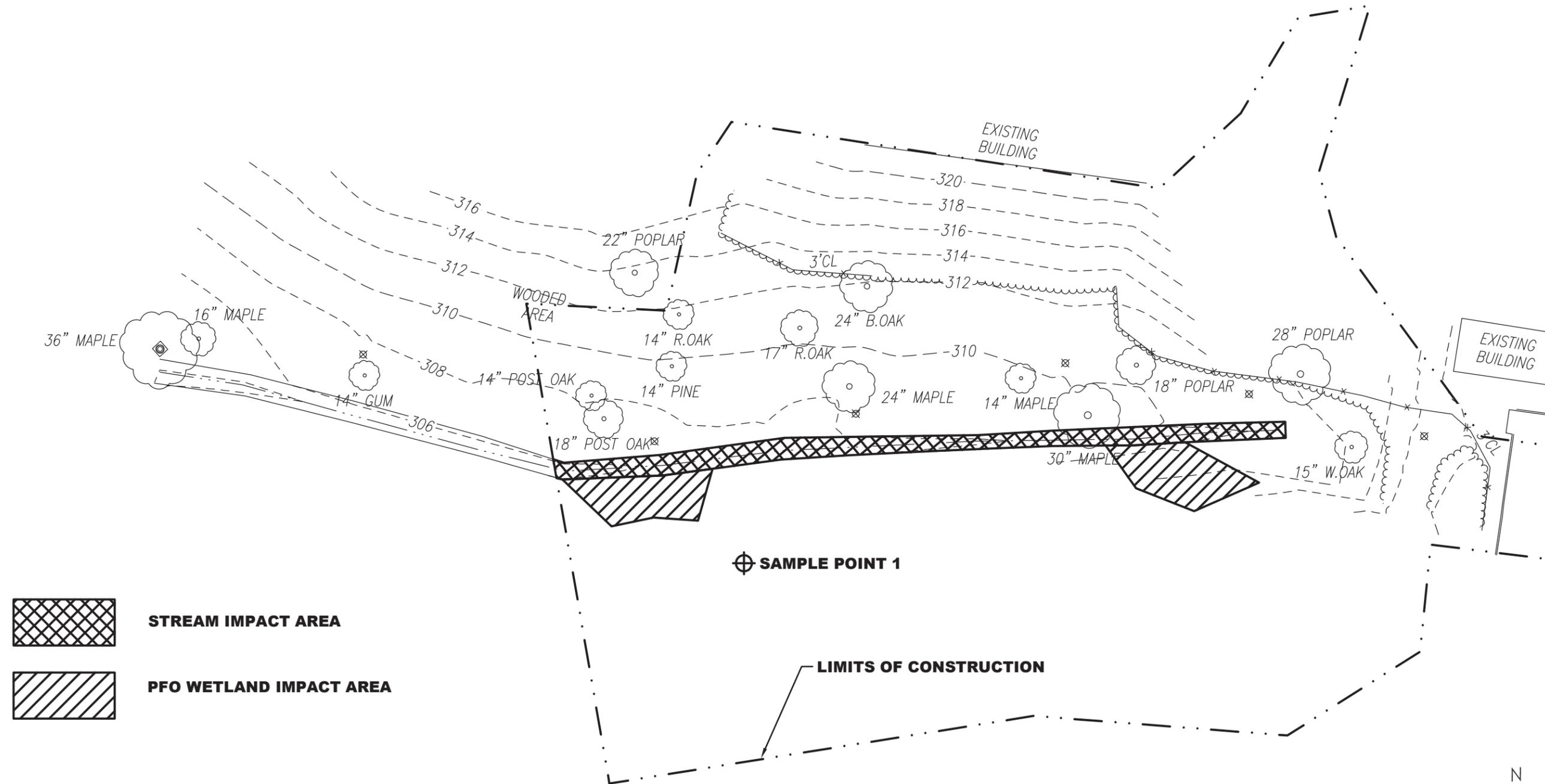
McB 4

Google earth

© SPOT IMAGE
© 2015 Google

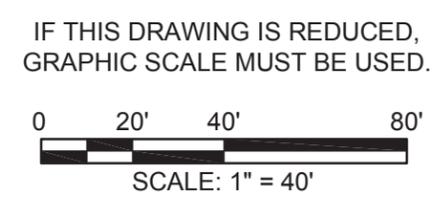


400 ft



TOTAL IMPACTS OF WATERS OF THE US

1,526 SF	PFO WETLAND
267 LF	STREAM



PROJECT	QUANTICO WETLANDS	
TITLE	LIMITS OF WATERS OF THE US WETLANDS AND IMPACTS	
COMM. NO.	215074	
DRAWN	CHECKED	
BSH	BSH	
DWG. REFERENCE NO.		
SHEET TITLE		
CSK-001		
DATE	REV.	
10/15/15		



DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VIRGINIA 23510-1011

NOVEMBER 12, 2015

Supplemental Preapplication Information

Project Number: NAO-2015-01894 (Quantico P707)
Applicant: Wiley|Wilson
Project Location: Stafford County, Virginia

1. A search of the Virginia Department of Historic Resources data revealed the following:
 - No known historic properties are located on the property.
 - The following known architectural resources are located on the property:
 - The following known archaeological resources are located on the property:
 - The following known historic resources are located in the vicinity of the property (potential for effects to these resources from future development):

NOTE:

- 1) *The information above is for planning purposes only. In most cases, the property has not been surveyed for historic resources. Undiscovered historic resources may be located on the subject property or adjacent properties and this supplemental information is not intended to satisfy the Corps' requirements under Section 106 of the National Historic Preservation Act (NHPA).*
 - 2) *Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.*
2. A search of the data supplied by the U.S. Fish & Wildlife Service, the Virginia Department of Conservation and Recreation and the Virginia Department of Game and Inland Fisheries revealed the following:
 - No known populations of threatened or endangered species are located on or within the vicinity of the subject property.
 - The following federally-listed species may occur within the vicinity of the subject property.
See attached.
 - The following state-listed (or other) species may occur within the vicinity of the subject property:

Please note this information is being provided to you based on the preliminary data you submitted to the Corps relative to project boundaries and project plans. Consequently, these findings and recommendations are subject to change if the project scope changes or new information becomes available and the accuracy of the data.

My project

IPaC Trust Resource Report

Generated November 12, 2015 10:18 AM MST

This report is for informational purposes only and should not be used for planning or analyzing project-level impacts. For projects that require FWS review, please return to this project on the IPaC website and request an official species list from the Regulatory Documents page.



US Fish & Wildlife Service

IPaC Trust Resource Report



Project Description

NAME

My project

PROJECT CODE

ZIEWN-M4U5Z-HNVOD-O56P4-EDDQW4

LOCATION

Stafford County, Virginia

DESCRIPTION

No description provided



U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the [Endangered Species Program](#) and should be considered as part of an effect analysis for this project.

This unofficial species list is for informational purposes only and does not fulfill the requirements under [Section 7](#) of the Endangered Species Act, which states that Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action." This requirement applies to projects which are conducted, permitted or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can be obtained by returning to this project on the IPaC website and requesting an official species list on the Regulatory Documents page.

Flowering Plants

Harperella *Ptilimnium nodosum* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=Q2H9>

Small Whorled Pogonia *Isotria medeoloides* Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=Q1XL>

Mammals

Northern Long-eared Bat *Myotis septentrionalis* Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

<https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=A0JE>

Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

There is no critical habitat within this project area

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

American Bittern <i>Botaurus lentiginosus</i> Season: Wintering https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B0F3	Bird of conservation concern
Bald Eagle <i>Haliaeetus leucocephalus</i> Year-round https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B008	Bird of conservation concern
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> Season: Breeding https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B0HI	Bird of conservation concern
Fox Sparrow <i>Passerella iliaca</i> Season: Wintering	Bird of conservation concern
Kentucky Warbler <i>Oporornis formosus</i> Season: Breeding	Bird of conservation concern
Least Bittern <i>Ixobrychus exilis</i> Season: Breeding	Bird of conservation concern
Pied-billed Grebe <i>Podilymbus podiceps</i> Season: Breeding	Bird of conservation concern
Prairie Warbler <i>Dendroica discolor</i> Season: Breeding	Bird of conservation concern
Prothonotary Warbler <i>Protonotaria citrea</i> Season: Breeding	Bird of conservation concern
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> Year-round	Bird of conservation concern
Rusty Blackbird <i>Euphagus carolinus</i> Season: Wintering	Bird of conservation concern
Short-billed Dowitcher <i>Limnodromus griseus</i> Season: Wintering	Bird of conservation concern
Short-eared Owl <i>Asio flammeus</i> Season: Wintering https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=B0HD	Bird of conservation concern
Snowy Egret <i>Egretta thula</i> Season: Breeding	Bird of conservation concern

Wood Thrush *Hylocichla mustelina*

Season: Breeding

Bird of conservation concern

Worm Eating Warbler *Helmintheros vermivorum*

Season: Breeding

Bird of conservation concern

Refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

There are no refuges within this project area

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate [U.S. Army Corps of Engineers District](#).

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

There are no wetlands identified in this project area

GEOTECHNICAL EVALUATION

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February 9, 2016

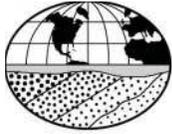
Geotechnical Data Report

**Embassy Security Guard
BEQ and Ops Facility
Browning Road
Marine Corps Base
Quantico, Virginia**



**GeoConcepts
Engineering, Inc.**

19955 Highland Vista Drive, Suite 170
Ashburn, VA 20147
Phone 703 726 8030 • www.geoconcepts-eng.com



GeoConcepts Engineering, Inc.

19955 Highland Vista Dr., Suite 170
Ashburn, Virginia 20147
(703) 726-8030
www.geoconcepts-eng.com

February 9, 2016

Mr. William Sprauer, PE, LEED AP
Wiley|Wilson – Burns & McDonnell Joint Venture
119 Norfolk Avenue, Suite 100
Roanoke, Virginia 24011

**Subject: Geotechnical Data Report, Embassy Security Guard BEQ
and Ops Facility, Browning Road, Marine Corps Base,
Quantico, Virginia (GeoConcepts Project No. 13216.03)**

Dear Mr. Sprauer:

GeoConcepts Engineering, Inc. (GeoConcepts) is pleased to present the following geotechnical data report prepared for Embassy Security Guard BEQ and Ops Facility, Marine Corps Base, Quantico, Virginia.

We appreciate the opportunity to serve as your geotechnical consultant on this project. Please do not hesitate to contact me if you have any questions or want to meet to discuss the findings and information contained in the report.

Sincerely,

GEOCONCEPTS ENGINEERING, INC.

Rebecca L. Smith-Zakowicz, PG
Associate
rsmith@geoconcepts-eng.com

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Figure 1: Site Vicinity Map

Appendix A: Subsurface Investigation

Appendix B: Soil Laboratory Test Results

1.0 Scope of Services

This geotechnical data report presents the results of the field investigation and soil laboratory testing. This report specifically addresses an evaluation of subsurface conditions within the area of the proposed site development, including a seismic site classification and site-specific spectral response acceleration parameters per the International Building Code, metal corrosion and concrete attack potential of on-site soils, and estimated infiltration rates based on field tests and published correlations with soil classifications.

Services not specifically identified in the contract for this project are not included in the scope of services.

2.0 Site Description and Proposed Construction

The site is located at the intersection of Browning Road and Garand Road at the Marine Corps Base in Quantico, Virginia. A site vicinity map is included as Figure 1 at the end of this report. The existing building is approximately 30,460 SF, with surrounding parking lots. The elevation (EL) at the site ranges from approximately EL 330 to EL 341.



Imagery provided by Google Earth © 2014

We understand that the proposed project consists of the demolition of the existing building and the construction of new barracks and operations buildings. This includes a 75,000 SF 4-story barracks building and a separate approximately 9,000 SF 2-story MCEGS Annex facility. According to plans provided to us, we understand that the barracks building and the annex will have finished floor elevations of approximately EL 341 and EL 322, respectively. This will require maximum fills of approximately 9 and 13 feet to reach the finished floor levels for the barracks building and the annex, respectively. Site improvements also include a site retaining wall, parking lot, stormwater management (SWM), and irrigation system.

3.0 Subsurface Conditions

Subsurface conditions were investigated by drilling a total of 14 test borings in the proposed site development area. Test boring logs and a boring location plan are presented in Appendix A of this report.

3.1 Geology

The site lies within the Piedmont Physiographic Province of Virginia. The Piedmont is bordered to the east by the Coastal Plain Physiographic Province and to the west by the Blue Ridge Physiographic Province and contains several fault bordered basins. Bedrock in the Piedmont typically consists of highly weathered metamorphic and igneous bedrock. Surface topography in the Piedmont is the result of millions of years of erosion. In some places, terrace deposits associated with the nearby Potomac River cap Piedmont strata.

According to local geologic maps, the site is mapped in Miocene Sand and Gravel of the Tertiary geologic period overlying the Lunga Formation of the Cambrian Geologic Period. Based on our subsurface investigation, the sediments and strata correspond favorably to the geologic publication; however, the Miocene Sand and Gravel was encountered in only one of the test borings. The Lunga Formation soils mainly consisted of generally loose to medium dense silty sand. Bedrock was encountered at a depth of approximately 76.5 feet in test boring B-8 and consisted of metadiamicite rock.

3.2 Stratification

The subsurface materials encountered have been stratified for purposes of our discussions herein. These stratum designations do not imply that the materials encountered are continuous across the site. Stratum designations have been established to characterize similar subsurface conditions based on material gradations and parent geology. The generalized subsurface materials encountered in the test borings completed at the site have been assigned to the following strata:

Stratum A (Existing Fill)	very loose to loose, sandy silt, sandy fat clay, clayey sand, silty sand, FILL, moist, brown, tan
Stratum B (Alluvial)	medium dense, silty SAND (SM) with gravel, moist, orange, tan
Stratum C1 (Residual)	loose to medium dense, clayey SAND (SC), silty SAND (SM), micaceous, moist, brown, orange, red, tan
Stratum C2 (Weathered Rock)	very dense, silty SAND (SM), moist, gray, red, tan
Stratum C3 (Rock)	hard, METADIAMICTITE, moderately weathered, slightly fractured, gray

Two estimated subsurface diagrams A-A' and B-B' have been prepared to illustrate the subsurface conditions indicated by the test borings and their relations to the proposed building grades. The subsurface diagrams are presented as Figures 2 and 3 in Appendix A, with the diagram locations presented on Figure 4 in Appendix A.

The two letter designations included in the strata descriptions presented above and on the test boring logs represent the Unified Soil Classification System (USCS) group symbol and group name for the samples based on laboratory testing per ASTM D-2487 and visual classifications per ASTM D-2488. It should be noted that visual classifications per ASTM D-2488 may not match classifications determined by laboratory testing per ASTM D-2487.

3.3 Groundwater

Groundwater level observations were made in the field during drilling and 24 hours or longer after the completion of the test borings. A summary of the 24-hour or longer water level readings rounded off to the nearest 0.5 feet elevation is presented in the table below.

Test Boring No.	Depth to Groundwater (ft)	Groundwater Elevation (ft)
B-1	2.5	EL 311.5
B-2	0.2	EL 309.0
B-3	18.5	EL 315.5
B-4	20.0	EL 316.0
B-5	20.4	EL 319.5
B-6	17.7	EL 322.5
B-7	17.6	EL 322.5
B-8	12.0	EL 320.0
P-1	Dry	--
P-2	Dry	--
RW-1	Dry	--

As shown in the table above, groundwater was encountered at depths of about 0.2 to 20.4 feet below the existing ground surface, or at about EL 309.0 to EL 322.5.

The groundwater observations presented herein are considered to be an indication of the groundwater levels at the dates and times indicated. Where more impervious Stratum C silt and clay soils are encountered, the amount of water seepage into the borings is limited, and it is generally not possible to establish the location of the groundwater table through short term water level observations. Accordingly, the groundwater information presented herein should be used with caution. Also, fluctuations in groundwater levels should be expected with seasons of the year, construction activity, changes to surface grades, precipitation, or other similar factors.

3.4 Soil Laboratory Test Results

Selected soil samples obtained from the field investigation were tested for grain size distribution, Atterberg limits, compaction characteristics using modified effort, California Bearing Ratio (CBR), shear strength, and natural moisture contents. A summary of soil laboratory test results is presented in the table below, and the results of natural moisture content tests are presented on the test boring logs in Appendix A.

Test Boring No.	Depth (ft)	Sample Type	Stratum	Description of Soil Specimen	Sieve Results		Atterberg Limits			Natural Moisture Content (%)	Remarks
					Percent Retained #4 Sieve	Percent Passing #200 Sieve	LL	PL	PI		
B-3	1-3	Jar	C1	silty SAND (SM)	0.0	46.1	41	32	9	15.5	--
B-5	2-4	Jar	C1	silty SAND (SM)	3.4	36.9	32	24	8	20.7	--

Test Boring No.	Depth (ft)	Sample Type	Stratum	Description of Soil Specimen	Sieve Results		Atterberg Limits			Natural Moisture Content (%)	Remarks
					Percent Retained #4 Sieve	Percent Passing #200 Sieve	LL	PL	PI		
B-8	2-4	Jar	A	sandy SILT (ML)	0.0	63.3	44	27	17	19.8	--
B-8	4-6	Tube	A	sandy SILT (ML)	0.3	54.6	39	NP	NP	27.1	--
B-8	6-8	Jar	C1	silty SAND (SM)	0.0	43.6	39	31	8	22.3	--
B-8	10-12	Jar	C1	silty SAND (SM)	0.6	45.4	41	35	6	23.0	--
B-8	33.5-35	Jar	C1	silty SAND (SM)	0.0	31.9	33	28	5	15.0	--
P-1	0-5	Bulk	A	sandy FAT CLAY (CH)	0.4	52.6	51	26	25	19.5	CBR=7.4%
P-2	0-5	Bulk	A	sandy FAT CLAY (CH)	1.6	56.4	50	28	22	18.5	CBR=6.4%

Notes:

1. Soil tests are in accordance with applicable ASTM standards
2. Soil classification symbols are in accordance with Unified Soil Classification System
3. Visual identification of samples is in accordance with ASTM D-2488
4. Key to abbreviations: LL = liquid limit; PL = plastic limit; PI = plasticity index; NP = nonplastic; N/T = not tested

The table below shows the results of the USDA classification testing.

Test Boring No.	Sample Depth (ft)	Percent Sand	Percent Silt	Percent Clay	USDA Soil Texture Classification
SWM-1	4.0	62.4	33.6	4.0	Sandy Loam
SWM-1	6.0	66.4	31.6	2.0	Sandy Loam
SWM-2	4.0	64.4	29.6	6.0	Sandy Loam
SWM-2	6.0	64.4p	29.6	6.0	Sandy Loam

One direct shear test under consolidated drained conditions was performed on undisturbed tube samples of the Stratum A soils. The results of the direct shear test is presented in the table below.

Test Boring No.	Sample Depth (ft)	USCS Symbol	Effective Angle of Internal Friction (degrees)	Effective Cohesion (psf)
B-8	4-6	ML	30.0	340

3.5 Seismic Site Classification

Based on the results of the subsurface investigation and our knowledge of local geologic conditions, the site soils have been assigned to a site class D per the International Building Code (IBC).

The site coefficients and adjusted Maximum Considered Earthquake (MCE) spectral response acceleration parameters were obtained from the United States Geological Survey (USGS) website and are presented in the table herein.

Mapped Spectral Accelerations for Site Class B and 5% Damping (Step 1)	Site Coefficients to Modify Accelerations Based on Site Classification D (Step 2)
$S_s = 0.133(g)$	$F_a = 1.6$
$S_1 = 0.054(g)$	$F_v = 2.4$
MCE Spectral Response Accelerations (Step 3)	Design Spectral Response Accelerations (Step 4)
$S_{MS} = 0.212(g) (=S_s * F_a)$	$S_{DS} = 0.141(g) (=2/3 * S_{MS})$
$S_{M1} = 0.129(g) (=S_1 * F_v)$	$S_{D1} = 0.086(g) (=2/3 * S_{M1})$

3.6 Metal Corrosion/Concrete Attack Test Results

In addition to standard geotechnical soil laboratory testing, two samples were submitted to an analytical laboratory for metal corrosion and concrete attack testing. Corrosion testing consisted of analysis for moisture content (ASTM D-2216), pH (EPA 9045), resistivity (ASTM G57), sulfides (EPA 9030), and reduction-oxidation potential (ASTM D-1498 mod.). The results of these tests are presented below:

Test Boring No.	Sample Depth (ft)	Moisture Content (%)	pH	Resistivity (ohm – cm)	Sulfides (ppm)	Red-ox Potential (mV)	Point Total
B-1	0-5	26	4.4	78,000	<1.2	+420	3
RW-1	0-5	24	4.5	47,000	<1.2	+457	3

For each test presented above, points are assigned based on the range of the test results. If the total points from the five tests completed for a particular sample are 10 or more, the soil is considered to be corrosive. The methods described herein are based on information from the American Water Works Association (AWWA). Using the methods described by AWWA, the point total for the samples tested averaged 3. Accordingly, the site soils are considered non-corrosive.

Sulfate (CA Test 417) tests were performed on selected soil samples to determine the severity of sulfate attack on concrete structures. The results of sulfate testing are presented in the table below.

Test Boring No.	Sample Depth (ft)	Sulfate Concentration (ppm)
B-1	0-5	< 5.0
RW-1	0-5	6.6

Based on correlations between sulfate concentrations and severity of sulfate attack as presented in American Concrete Institute (ACI) 318, the above sulfate concentrations are considered to pose a negligible threat of sulfate attack on concrete.

3.7 Infiltration Analysis

Two methods were used to estimate infiltration capabilities on the subject site: in-situ infiltration testing and published correlations with soil classifications. Details regarding the in-situ infiltration and classification test techniques, the estimated infiltration rates from the individual methods, and the recommended design infiltration rate for the site soils are presented herein.

3.7.1 Field Infiltration Test Results

In-situ infiltration tests are performed in the field to observe the rate at which water will permeate the soil under saturated conditions. Two test borings were drilled in the area of planned infiltration. Test borings were initially drilled to depths of at least 4 feet below the planned infiltration invert elevations, and allowed to remain open for a period of approximately 24 hours to allow any groundwater levels within the boreholes to stabilize. After 24 hours, offset infiltration test holes were drilled at the boring locations to planned infiltration invert elevations. Four-inch diameter PVC casing was set to the bottom of the test holes. The purpose of the casing is to prevent caving of test hole sidewalls. After setting the PVC casing, the borehole was filled with water to saturate the bottom subsoils. The following day, the test hole was refilled with water and the water level in each test hole was recorded every hour for a 4-hour period. Using this procedure, the average change in the water level over the 4-hour period is considered the infiltration rate. Based on the results of the in-situ infiltration tests, the infiltration rates that have been calculated and are presented in the table below:

Test Boring No.	Approximate Test Depth (ft)	Approximate Test Elevation (ft)	Field Infiltration Rate (inches/hour)
SWM-1	4.0	EL 309	0.0
SWM-2	4.0	EL 310	0.0

3.7.2 Classification Test Results

The classification test method is performed with grain-size sieve analyses including hydrometer testing on samples obtained from corresponding proposed infiltration depths, to determine the USDA soil texture classifications. Published correlations between USDA classifications and infiltration rates were used to provide estimated hydraulic conductivity values. Since hydraulic conductivity and infiltration values are essentially equal at no head conditions, using the hydraulic conductivity values to estimate the infiltration rates provides a conservative estimate of infiltration for use in design. Estimated infiltration rates using the USDA soil texture classifications are presented below.

Test Boring No.	Approximate Test Depth (ft)	USDA Soil Texture Classification	Estimated Infiltration Rate (inches/hr)
SWM-1	4.0	Sandy Loam	1.02
SWM-1	6.0	Sandy Loam	1.02
SWM-2	4.0	Sandy Loam	1.02
SWM-2	6.0	Sandy Loam	1.02

4.0 General Limitations

Information contained in this report are based upon the data obtained from the relatively limited number of test borings. This report does not reflect conditions that may occur between the points investigated, or between sampling intervals in test borings. The nature and extent of variations between test borings and sampling intervals may not become evident until the course of additional investigations.

This report has been prepared to aid in the evaluation of the site and to assist your office and the design professionals in the design of this project. It is intended for use with regard to the specific project as described herein. Changes in proposed construction, grading plans, etc. should be brought to our attention so that we may determine any effect on the information presented herein.

This report should be made available to bidders prior to submitting their proposals to supply them with facts relative to the subsurface conditions revealed by our investigation. In addition, this report should be given to the successful contractor and subcontractors for their information only.

We recommend the project specifications contain the following statement: "A geotechnical data report has been prepared for this project by GeoConcepts Engineering, Inc. This report is for informational purposes only and should not be considered part of the contract documents. The opinions expressed in this report are those of the geotechnical engineer and represent their interpretation of the subsoil conditions, tests and results of analyses that they performed. Should the data contained in this report not be adequate for the contractor's purposes, the contractor may make their own investigations, tests and analyses prior to bidding."

This report was prepared in accordance with generally accepted geotechnical engineering practices. No warranties, expressed or implied, are made as to the professional services included in this report.

We appreciate the opportunity to be of service for this project. Please contact the undersigned if you require clarification of any aspect of this report.

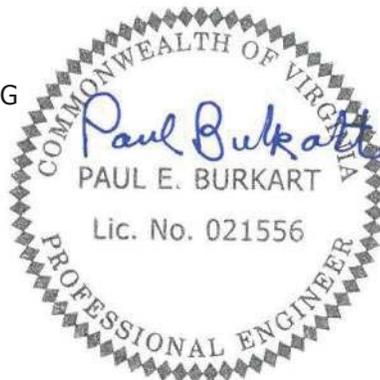
Sincerely,

GEOCONCEPTS ENGINEERING, INC.



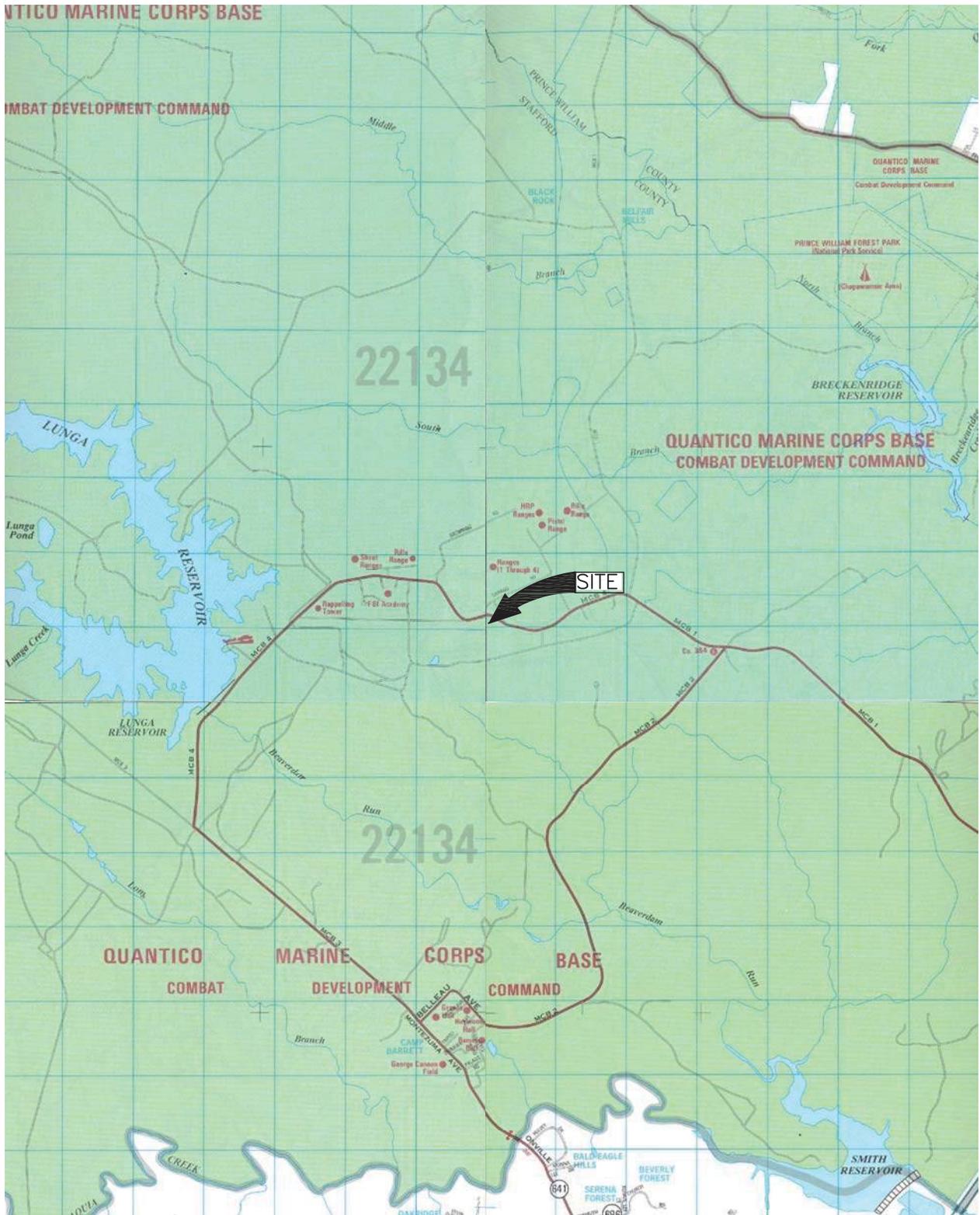
Rebecca L. Smith-Zakowicz, PG
Associate

Paul E. Burkart, PE
Principal



KF/RSZ/PEB/shm

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EMBASSY SECURITY GUARD BEQ AND OPS FACILITY
BROWNING ROAD, MARINE CORPS BASE, QUANTICO, VA

SITE
VICINITY MAP

Scale:
N.T.S.

Fig.

Date:
FEB. 2016

Drawn By:
K.N.F.

Checked By:
P.E.B.

Project No.:
13216.03

1

Appendix A

Subsurface Investigation

Subsurface Investigation Procedures (1 page)

Identification of Soil (1 page)

Engineering Descriptions of Rock (2 pages)

Test Boring Notes (1 page)

Test Boring Logs (15 pages)

Subsurface Diagrams A-A' to B-B', Figures 2 and 3 (2 pages)

Boring Location Plan, Figure 4 (1 page)

Subsurface Investigation Procedures

1. Test Borings – Hollow Stem Augers

The borings are advanced by turning an auger with a center opening of 3-¼ inches. A plug device blocks off the center opening while augers are advanced. Cuttings are brought to the surface by the auger flights. Sampling is performed through the center opening in the hollow stem auger, by standard methods, after removal of the plug. Usually, no water is introduced into the boring using this procedure.

2. Standard Penetration Tests

Standard penetration tests are performed by driving a 2-inch O.D., 1-¾ inch I.D. sampling spoon with a 140-pound hammer falling 30 inches, according to ASTM D-1586. After an initial 6 inches penetration to assure the sampling spoon is in undisturbed material, the number of blows required to drive the sampler an additional 12 inches is generally taken as the N value. In the event 30 or more blows are required to drive the sampling spoon the initial 6 inch interval, the sampling spoon is driven to a total penetration resistance of 100 blows or 18 inches, whichever occurs first.

3. Rock Core Drilling

Rock is core drilled using NQ (NX) size core bits set with carbide steel or diamond, depending upon the rock texture. The bit is fitted onto a double tube swivel-type core barrel in which an exterior tube and bit rotate, and an interior barrel remains stationary to receive the rock core. Water is circulated between the barrels and across the bit face to cool the core bit and to flush away cuttings.

4. Test Boring Stakeout

The test boring stakeout was provided by GeoConcepts personnel using available site plans. Ground surface elevations were estimated from topographic information contained on the site plan provided to us and should be considered approximate. If the risk related to using approximate boring locations and elevations is unacceptable, we recommend an as-drilled survey of boring locations and elevations be completed by a licensed surveyor.

Identification of Soil

I. DEFINITION OF SOIL GROUP NAMES		ASTM D-2487	Symbol	Group Name
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines	<i>GW</i>	WELL GRADED GRAVEL
			<i>GP</i>	POORLY GRADED GRAVEL
		Gravels with Fines More than 12% fines	<i>GM</i>	silty GRAVEL
			<i>GC</i>	clayey GRAVEL
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	<i>SW</i>	WELL GRADED SAND
			<i>SP</i>	POORLY GRADED SAND
		Sands with fines More than 12% fines	<i>SM</i>	silty SAND
			<i>SC</i>	clayey SAND
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid Limit less than 50	Inorganic	<i>CL</i>	LEAN CLAY
			<i>ML</i>	SILT
		Organic	<i>OL</i>	ORGANIC CLAY
				ORGANIC SILT
	Silts and Clays Liquid Limit 50 or more	Inorganic	<i>CH</i>	FAT CLAY
			<i>MH</i>	ELASTIC SILT
		Organic	<i>OH</i>	ORGANIC CLAY
				ORGANIC SILT
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor	<i>PT</i>	PEAT	

II. DEFINITION OF MINOR COMPONENT PROPORTIONS

<u>Minor Component</u>	<u>Approximate Percentage of Fraction by Weight</u>
Gravelly, Sandy (adjective)	30% or more coarse grained
Sand, Gravel	15% to 29% coarse grained
Silt, Clay	5% to 12% fine grained

III. GLOSSARY OF MISCELLANEOUS TERMS

SYMBOLS	Unified Soil Classification Symbols are shown above as group symbols. Use "A" Line Chart for laboratory identification. Dual symbols are used for borderline classification.
BOULDERS & COBBLES	Boulders are considered pieces of rock larger than 12 inches, while cobbles range from 3 to 12 inches.
WEATHERED ROCK	Residual rock material with a standard penetration test (SPT) resistance of at least 60 blows per foot.
ROCK/SPOON REFUSAL	Rock material with a standard penetration test (SPT) resistance of 50 blows for 1 inch.
ROCK FRAGMENTS	Angular pieces of rock which have separated from original vein or strata and are present in a soil matrix. Only used in residual soils
QUARTZ	A hard silicate mineral often found in residual soils. Only used when describing residual soils.
CEMENTED SAND	Usually localized rock-like deposits within a soil stratum composed of sand grains cemented by calcium carbonate, iron oxide, or other minerals. Commonly encountered in Coastal Plain sediments, primarily in the Potomac Group sands (Kps).
MICACEOUS	A term used to describe soil that "glitters" or is shiny. Most commonly encountered in fine-grained soils.
ORGANIC MATERIALS (Excluding Peat)	Topsoil - Surface soils that support plant life and contain organic matter.
FILL	Lignite - Hard, brittle decomposed organic matter with low fixed carbon content (a low grade of coal).
CONTAINS	Man-made deposit containing soil, rock, and other foreign matter.
WITH	This is used when a fill deposit contains a secondary component that does not apply to a USCS classification. Only used for fill deposits
PROBABLE FILL LAYERS	This is used when a residual soil contains a secondary component that does not contribute to its USCS classification. Only used for natural soils.
COLOR	Soils which contain no visually detected foreign matter but which are suspect with regard to origin.
MOISTURE CONDITIONS	1/2 to 12 inch seam of minor soil component.
f-m-c	Two most predominant colors present should be described.
	Wet, moist, or dry to indicate visual appearance of specimen.
	Fine-medium-coarse

Engineering Descriptions of Rock

The terminology used by GeoConcepts to describe rock cores can also be applied to rock outcrops and hand sized specimens.

Rock Hardness

Very Hard	Specimen cannot be scratched with a knife.
Hard	Specimen can be scratched with a knife with difficulty.
Moderately Hard	Specimen can be scratched with a knife with ease.
Soft	Specimen can be scratched with a fingernail.
Very Soft	Specimen can be deformed by hand.

Rock Weathering

Unweathered	No evidence of chemical or mechanical alteration
Slightly Weathered	slight discoloration on surface, slight alteration along fractures, <10% of the rock volume altered
Moderately Weathered	Obvious discoloration, iron and magnesium minerals look rusty, 10-50% of the rock volume altered
Highly Weathered	Entire mass discolored, alteration through most of the rock, some pockets of slightly weathered rock, some minerals leached away
Decomposed	Rock reduced to soil with relic rock structure. Can be molded and crumbled by hand

Fracturing (excludes mechanical breaks)

Very widely fractured:	No observed fractures. Spacing >5 ft.
Slightly Fractured:	Core recovered mostly in lengths of 2 ft. to less than 5 ft.
Moderately Fractured:	Core recovered mostly in lengths of 0.7 ft. to less than 2 ft.
Highly Fractured:	Core recovered mostly in lengths of 0.2 ft. to less than 0.7 ft.
Intensely Fractured:	Core recovered mostly in lengths of less than 0.2 ft.

Percent Core Recovery and Rock Quality Designation

Percent Core Recovery: Percent of recovered core calculated as the length of the core recovered, divided by the length of the core run, times 100.

Rock Quality Designation: RQD is the summed length of individual rock core pieces 4 inches or greater divided by the length of the rock core run times 100. Based on the percent RQD the following designations are assigned:

RQD	Designation
0 to 25 %	Very Poor Rock
25 to 50 %	Poor Rock
50 to 75 %	Fair Rock
75 to 90 %	Good Rock
90 to 100 %	Excellent Rock

For example, the sum of the rock core pieces greater than 4 inches in length from a core run of 5.0 feet equals 3.5 feet, then the RQD equals 3.5 feet, divided by 5.0 feet, times 100, or 70 % - Fair Rock.

Test Boring Notes

1. Classification of soil is by visual inspection and is in accordance with the Unified Soil Classification System.
2. Estimated groundwater levels are indicated on the logs. These are only estimates from available data and may vary with precipitation, porosity of soil, site topography, etc.
3. Sampling data presents standard penetrations for 6-inch intervals or as indicated with graphic representations adjacent to the sampling data.
4. The logs and related information depict subsurface conditions at the specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occurring at the test locations. Also, the passage of time may result in a change in the subsurface conditions at the test locations.
5. The stratification lines represent the approximate boundary between soil types as determined in the sampling operation. Some variation may be expected vertically between samples taken. The soil profile, groundwater level observations and penetration resistances presented on the logs have been made with reasonable care and accuracy and must be considered only an approximate representation of subsurface conditions to be encountered at the particular location.
6. Weathered rock is defined as residual earth material with a penetration resistance between 60 blows per foot and refusal. Spoon refusal at the surface of rock, boulders, or obstructions is defined as a penetration resistance of 100 blows for 2 inches penetration or less. Auger refusal is taken as the depth at which further penetration of the auger is not possible without risking significant damage to the drilling equipment.
7. Rock Quality Designation (RQD) represents the sum of cores recovered with lengths of 4-inches or longer, divided by the total length of rock core, expressed in percentage.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: B-1
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/30/15 - 12/30/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 314.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
314.0					Topsoil = 0.5ft.				
313.5			A		Fill, brown, fine, clayey SAND, loose, moist, SC	4	1+1+2+3	12	
312.0					Residual, tan and brown, fine, clayey SAND, loose, moist, SC	7	2+3+2+3	15	
310.0					Residual, tan and brown, fine, silty SAND, micaceous, loose, moist, SM	5	1+2+2+3	24	
308.0	5				Red brown and tan, medium dense	12	3+4+5+7	24	
304.0	10				Loose	15	2+5+6+7	21	
302.0					Medium dense	12	2+3+6+9	24	
			C1			15	4+5+6+4	24	
295.5	20				Tan and orange	24	5+7+11	18	
290.5	25				White tan and orange	25	5+8+11	15	
289.0	25				Bottom of Boring at 25.0 ft				

GROUND WATER LEVELS:				SAMPLE TYPES:	
▽ ENCOUNTERED:	<u>12.0</u> ft	ELEV. <u>302.0</u>		<input checked="" type="checkbox"/>	Split Spoon
▽ UPON COMPLETION:	<u>11.0</u> ft	ELEV. <u>303.0</u>	CAVED: <u>17.0</u> ft	ELEV. <u>297.0</u>	
▽ 12/31/2015	<u>2.5</u> ft	ELEV. <u>311.5</u>			

REMARKS: Coordinates: 38°31'40.19" N, 77°26'17.42" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter	BORING NUMBER: B-2
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling	
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel	DATES DRILLED: 12/30/15 - 12/30/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 309.0 ±	DRILLING METHOD: Automatic hammer 3.25"	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
309.0	0.0		A		Topsoil = 0.5ft.	3	1+1+1+2	13	
308.5	0.5				Fill, tan and brown, fine, clayey SAND, contains roots, very loose, moist, SC	7	2+3+2+11	15	
307.0	2.0				Residual, tan and brown, fine, clayey SAND, loose, moist, SC	7	4+2+3+2	24	
	5.0								
301.0	10.0				Medium dense	12	2+4+5+7	24	
299.0	12.0				Loose	16	3+5+7+11	24	
297.0	14.0				Medium dense	13	2+2+8+11	24	
	15.0		C1			23	4+9+8+12	24	
	20.0				Orange tan and gray	17	7+6+7	18	
290.5	20.5								
	25.0				Bottom of Boring at 25.0 ft	25	4+8+11	18	
284.0	25.0								

GROUND WATER LEVELS:	SAMPLE TYPES:
▽ ENCOUNTERED: <u>23.5</u> ft ELEV. <u>285.5</u> ▽ UPON COMPLETION: <u>12.0</u> ft ELEV. <u>297.0</u> CAVED: <u>13.0</u> ft ELEV. <u>296.0</u> ▽ 12/31/2015 <u>0.2</u> ft ELEV. <u>308.8</u>	☒ Split Spoon

REMARKS: Coordinates: 38°31'40.11" N, 77°26'16.06" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: B-3	
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		SHEET 1 OF 1	
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/28/15 - 12/28/15	
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 334.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:	

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL				MC (%)	
							SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)			
								20	40	60	80	
334.0					Asphalt = 0.6ft.							
333.4					Crushed stone = 0.4ft.							
333.0					<i>Residual, orange, fine, silty SAND, micaceous, loose, moist, SM</i>	11	4+4+4+5	20				15.5
331.0					Red orange and tan	8	2+3+3+5	20				
329.0	5				With gravel, medium dense	16	3+6+6+7	18				
327.0					Red and tan, loose	12	2+4+5+7	17				
325.0	10				Medium dense, without gravel	16	4+5+7+8	22				
						17	3+6+7	18				
						13	3+5+5	18				
	15											
	20		C1			21	5+7+9	18				
	25					24	5+7+11	18				
	30					28	6+9+12	18				
	35					28	5+8+13	14				
295.5					Dense	47	5+12+23	18				
294.0	40				Bottom of Boring at 40.0 ft							

GROUND WATER LEVELS:				SAMPLE TYPES:			
▽ ENCOUNTERED:	24.5 ft	ELEV. 309.5		☒	Split Spoon		
▽ UPON COMPLETION:	26.5 ft	ELEV. 307.5	CAVED: 27.2 ft ELEV. 306.8				
▽ 12/29/2015	18.5 ft	ELEV. 315.5					

REMARKS: Coordinates: 38°31'43.72" N, 77°26'13.35" W

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter	BORING NUMBER: B-4
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling	
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel	DATES DRILLED: 12/28/15 - 12/28/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 336.0 ±	DRILLING METHOD: Automatic hammer 3.25"	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
336.0 335.8					Crushed stone = 0.2ft. <i>Residual, red tan and orange, fine, silty SAND, micaceous, medium dense, moist, SM</i>	15	8+6+5+9	19	
	5					17	3+6+7+9	21	
	10					17	3+6+7+8	20	
	15					16	3+5+7+8	24	
	20		C1			17	4+6+7+11	24	
	25					16	3+5+7+8	24	
	30					15	3+5+6+7	24	
	35					15	3+5+6	18	
	40					15	3+5+6	18	
						21	4+9+7	18	
						36	7+12+15	14	
						31	5+9+14	16	
296.0	40				Bottom of Boring at 40.0 ft				

GROUND WATER LEVELS:	SAMPLE TYPES:
▽ ENCOUNTERED: <u>28.0</u> ft ELEV. <u>308.0</u> ▽ UPON COMPLETION: <u>27.0</u> ft ELEV. <u>309.0</u> CAVED: <u>27.0</u> ft ELEV. <u>309.0</u> ▽ 12/29/2015 <u>20.0</u> ft ELEV. <u>316.0</u>	<input checked="" type="checkbox"/> Split Spoon

REMARKS: Coordinates: 38°31'43.27" N, 77°26'12.18" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: B-5
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/29/15 - 12/29/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 340.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL					
							SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)		MC (%)	
								20	40	60	80	
340.0			A		Topsoil = 0.2ft.	17	3+8+5+2	20				
339.8					Fill, tan and black, fine, silty SAND with gravel, micaceous, medium dense, moist, SM	5	2+2+2+2	18				20.7
338.0					Residual, red and tan, fine, silty SAND, micaceous, loose, moist, SM	5	1+2+2+2	18				
336.0	5				Red tan and orange	3	1+1+1+2	20				
334.0	10				Very loose	3	2+1+1+2	18				
	15				Loose	5	2+2+2+2	20				
326.5	20				Medium dense	5	2+1+3+5	21				
321.5	25		C1			19	3+6+8	18				
	30					21	4+6+10	18				
	35					36	6+10+17	18				
	40					25	6+9+10	18				
						24	5+7+11	18				
300.0					Bottom of Boring at 40.0 ft							

GROUND WATER LEVELS:

▼ ENCOUNTERED: 34.0 ft ELEV. 306.0
 ▼ UPON COMPLETION: 29.0 ft ELEV. 311.0 CAVED: 30.0 ft ELEV. 310.0
 ▼ 12/20/2015 20.4 ft ELEV. 319.6

SAMPLE TYPES:

Split Spoon

REMARKS: Coordinates: 38°31'43.70" N, 77°26'11.34" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: B-6
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/29/15 - 12/29/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 340.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
340.0					Topsoil = 0.3ft.	8	2+2+4+4	20	
339.7					Residual, red brown and tan, fine, silty SAND, micaceous, loose, moist, SM	12	2+4+5+7	21	
	5				Medium dense	13	4+4+6+9	24	
334.0						15	3+5+6+7	21	
	10					15	4+5+6+11	24	
	15					16	3+4+8+8	21	
	20		C1			16	4+5+7+7	24	
	25					17	4+5+8	18	
	30					17	4+5+8	18	
	35					17	4+5+8	18	
	40					20	4+6+9	18	
300.0						Bottom of Boring at 40.0 ft			

GROUND WATER LEVELS:				SAMPLE TYPES:	
▽ ENCOUNTERED:	<u>33.0</u> ft	ELEV. <u>307.0</u>		<input checked="" type="checkbox"/>	Split Spoon
▽ UPON COMPLETION:	<u>29.0</u> ft	ELEV. <u>311.0</u>	CAVED: <u>29.9</u> ft	ELEV. <u>310.1</u>	
▽ 12/30/2015	<u>17.7</u> ft	ELEV. <u>322.3</u>			

REMARKS: Coordinates: 38°31'44.80" N, 77°26'10.48" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: B-7
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/29/15 - 12/29/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 340.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
340.0					Topsoil = 0.5ft.				
339.5					Residual, red, fine, silty SAND, micaceous, loose, moist, SM Medium dense	11	2+3+5+7	22	
338.0						13	4+5+5+6	20	
	5				Red and tan, with gravel Without gravel	13	4+5+5+2	20	
334.0						13	4+5+5+7	18	
332.0						16	4+5+7+9	24	
	10					19	3+6+8+9	21	
	15					15	4+5+6+7	24	
	20		C1			16	3+5+7	18	
	25					16	4+5+7	18	
	30					13	3+4+6	18	
	35					25	6+8+11	14	
	40					29	5+9+13	18	
300.0					Bottom of Boring at 40.0 ft				

GROUND WATER LEVELS:	SAMPLE TYPES:
▽ ENCOUNTERED: <u>34.0</u> ft ELEV. <u>306.0</u> NOT ENCOUNTERED UPON COMPLETION CAVED: <u>22.7</u> ft ELEV. <u>317.3</u>	<input checked="" type="checkbox"/> Split Spoon
▽ 12/30/2015 <u>17.6</u> ft ELEV. <u>322.4</u>	

REMARKS: Coordinates: 38°31'43.92" N, 77°26'10.29" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: B-8
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/30/15 - 12/31/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 332.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	ROCK		SOIL					
							REC %	RQD %	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)			MC (%)
										20	40	60	80	
332.0					Topsoil = 0.1ft.	7			1+3+4+3	19				
331.9			A		Fill, red orange and tan, fine, sandy SILT, firm, moist, ML	8			4+4+4+4	24				19.8
330.0					Red and orange, micaceous					24				27.1
326.0	5									24				
					Residual, red tan and gray, fine, silty SAND, loose, moist, SM	9			3+4+5+5	24				22.3
						9			3+4+5+8	24				
					Medium dense	9			3+4+5+8	24				23.0
320.0	10					12			3+4+8+9	24				
	15													
	20													
										13				
	25		C1			16			5+7+9	18				
	30					14			4+6+8	14				
298.5	35				Orange tan and gray	28			7+12+16	18				15.0
	40					24			8+9+15	15				
288.5					Dense	30			9+13+17	18				

GROUND WATER LEVELS:				SAMPLE TYPES:			
▽ ENCOUNTERED:	28.0 ft	ELEV. 304.0			Split Spoon		Shelby Tube
▽ UPON COMPLETION:	22.0 ft	ELEV. 310.0	CAVED: 28.4 ft	ELEV. 303.6			Rock Core
▽ 12/31/2015	12.0 ft	ELEV. 320.0	CAVED: 27.0 ft	ELEV. 305.0			

REMARKS: Coordinates: 38°31'42.81" N, 77°26'10.08" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility	LOGGED BY: M. Showalter	BORING NUMBER: B-8
LOCATION: Marine Corps Base, Quantico, Virginia	DRILLING CONTRACTOR: Recon Drilling	

SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	ROCK		SOIL			
							REC %	ROD %	SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)	MC (%)
	50	⊗	C1	[Dotted Pattern]	<i>Residual, red tan and gray, fine, silty SAND, loose, moist, SM (continued)</i>	50			12+22+28	18	40	
	55	⊗				39			12+19+20	18	40	
273.5	60	⊗	C2	[Dotted Pattern]	<i>Weathered rock, red tan and gray, fine to coarse, silty SAND, very dense, moist, SM</i>	111			21+48+63	16	>>	
	65	⊗						29+100/6	12	>>		
	70	⊗						100/3	3	>>		
	75	⊗						100/4	4	>>		
255.5	80	■	C3	[Red Dashed Pattern]	Moderately weathered, hard, gray, METADIAMICTITE, slightly fractured		92	75				
250.5	81.5				Bottom of Boring at 81.5 ft							

GROUND WATER LEVELS:	SAMPLE TYPES:
∇ ENCOUNTERED: <u>28.0</u> ft ELEV. <u>304.0</u> ▼ UPON COMPLETION: <u>22.0</u> ft ELEV. <u>310.0</u> CAVED: <u>28.4</u> ft ELEV. <u>303.6</u> ▼ 12/31/2015 <u>12.0</u> ft ELEV. <u>320.0</u> CAVED: <u>27.0</u> ft ELEV. <u>305.0</u>	⊗ Split Spoon ■ Shelby Tube ■ Rock Core

REMARKS: Coordinates: 38°31'42.81" N, 77°26'10.08" W

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: P-1
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/29/15 - 12/29/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 344.0 ±	DRILLING METHOD: Automatic hammer 3.25"		SHEET 1 OF 1

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL					
							SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)		MC (%)	
							20	40	60	80		
344.0					Topsoil = 0.2ft.	13	4+5+5+6	16				
343.8			A		Fill, orange and tan, fine, sandy FAT CLAY, stiff, moist, CH	16	4+7+5+5	18				19.5
342.0					Micaceous							
340.0	5		B		Alluvial, orange and tan, fine to coarse, silty SAND with gravel, medium dense, moist, SM	19	3+6+8+9	19				
						21	4+6+10+6	24				
336.0	10		C1		Residual, red orange and tan, fine to coarse, silty SAND, loose, moist, SM	12	3+4+5+6	24				
334.0					Bottom of Boring at 10.0 ft							

GROUND WATER LEVELS: NOT ENCOUNTERED DURING DRILLING NOT ENCOUNTERED UPON COMPLETION 12/30/2015: NOT ENCOUNTERED	SAMPLE TYPES: <input checked="" type="checkbox"/> Split Spoon
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REMARKS: Coordinates: 38°31'44.28" N, 77°26'08.23" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: P-2
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 1/4/16 - 1/4/16
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 345.0 ±	DRILLING METHOD: Automatic hammer 3.25"		SHEET 1 OF 1

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL				
							SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)		MC (%)
							20	40	60	80	
345.0 344.6 343.0			A		Topsoil = 0.4ft. Fill, brown, fine, sandy FAT CLAY, soft, moist, CH	4	1+1+2+6	12			
	5		C1		Residual, red tan and orange, fine, clayey SAND, medium dense, moist, SC	31	9+9+14+18	18			
						20	4+5+10+14	14			
						16	4+5+7+10	18			
						13	4+5+5+8	18			
335.0	10				Bottom of Boring at 10.0 ft						

GROUND WATER LEVELS: NOT ENCOUNTERED DURING DRILLING NOT ENCOUNTERED UPON COMPLETION 1/5/2016: NOT ENCOUNTERED	CAVED: <u>5.7</u> ft ELEV. <u>339.3</u>	SAMPLE TYPES: <input checked="" type="checkbox"/> Split Spoon
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REMARKS: Coordinates: 38°31'41.75" N, 77°26'07.61" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: RW-1
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/28/15 - 12/28/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 333.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
333.0					Topsoil = 0.3ft.				
332.7					<i>Residual, red - brown, fine, silty SAND, loose, moist, SM</i> Red orange and tan	9	2+3+4+4	10	
331.0						9	2+3+4+4	16	
329.0					<i>Residual, red, LEAN CLAY, stiff, moist, CL</i>	12	2+4+5+5	18	
327.0	5					9	2+3+4+6	18	
					<i>Residual, red and orange, fine, silty SAND, loose, moist, SM</i> Medium dense	12	3+4+5+7	18	
321.0	10		C1			12	2+4+5+8	18	
	15					13	3+5+5+8	24	
	20					19	4+5+9	8	
313.0	20				Bottom of Boring at 20.0 ft				

GROUND WATER LEVELS: NOT ENCOUNTERED DURING DRILLING NOT ENCOUNTERED UPON COMPLETION 12/29/2015: NOT ENCOUNTERED	CAVED: <u>13.0</u> ft ELEV. <u>320.0</u>	SAMPLE TYPES: <input checked="" type="checkbox"/> Split Spoon
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REMARKS: Coordinates: 38°31'42.91" N, 77°26'12.81" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: RW-2
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 1/4/16 - 1/4/16
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 334.0 ±	DRILLING METHOD: Automatic hammer 3.25"		OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL		
							SPT BLOW COUNTS	REC (ft)	STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80
334.0					Topsoil = 0.2ft.				
333.8					Residual, orange and red, fine, silty SAND, micaceous, medium dense, moist, SM Red orange and tan Contains quartz Loose Medium dense	15	2+5+6+8	21	
332.0				19		4+7+7+7	24		
330.0	5			15		4+4+7+8	24		
328.0				12		3+3+6+7	20		
326.0	10		C1	17		3+6+7+10	14		
	15			15		3+4+7+9	24		
	20			17		4+6+7+8	24		
314.0	20				Bottom of Boring at 20.0 ft	23	8+7+10	18	

GROUND WATER LEVELS: NOT ENCOUNTERED DURING DRILLING NOT ENCOUNTERED UPON COMPLETION	CAVED: <u>13.1</u> ft ELEV. <u>320.9</u>	SAMPLE TYPES: <input checked="" type="checkbox"/> Split Spoon
--	--	--

REMARKS: Coordinates: 38°31'42.64" N, 77°26'11.39" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: SWM-1
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/30/15 - 12/30/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 313.0 ±	DRILLING METHOD: Automatic hammer 3.25"		SHEET 1 OF 1

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL					
							SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)		MC (%)	
								20	40	60		80
313.0			A		Topsoil = 0.3ft.	7	3+2+3+2	24				
312.7					Fill, brown, fine, LEAN CLAY with sand, contains roots, firm, moist, CL	5	3+2+2+2	18				
311.0					Residual, red brown and orange, fine, silty SAND, micaceous, loose, moist, SM	7	2+2+3+4	24				18.3
	5		C1			12	2+4+5+8	24				21.2
305.0					Medium dense	16	4+6+6+9	24				
303.0	10				Bottom of Boring at 10.0 ft							

GROUND WATER LEVELS: NOT ENCOUNTERED DURING DRILLING NOT ENCOUNTERED UPON COMPLETION	CAVED: <u>6.2</u> ft ELEV. <u>306.8</u>	SAMPLE TYPES: <input checked="" type="checkbox"/> Split Spoon
--	---	--

REMARKS: Coordinates: 38°31'38.63" N, 77°26'16.22" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.



PROJECT: Embassy Security Guard BEQ and Ops Facility		LOGGED BY: M. Showalter		BORING NUMBER: SWM-2
LOCATION: Marine Corps Base, Quantico, Virginia		DRILLING CONTRACTOR: Recon Drilling		
OWNER/CLIENT: Wiley Wilson - Burns & McDonnell Joint Venture		DRILLER: C. Gudiel		DATES DRILLED: 12/30/15 - 12/30/15
PROJECT NUMBER: 13216.03	GROUND SURFACE ELEVATION (ft): 314.0 ±	DRILLING METHOD: Automatic hammer 3.25"		SHEET 1 OF 1

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	N ₆₀	SOIL						
							SPT BLOW COUNTS	REC (in)	STANDARD PENETRATION TEST RESISTANCE (BPF)			MC (%)	
								20	20	40	60	80	
314.0			A		Topsoil = 0.5ft.	5	1+1+3+2	20					
313.5					Fill, tan and orange, SILT, soft, moist, ML	5	2+2+2+3	24					
312.0					Residual, tan and orange, fine, silty SAND, micaceous, loose, moist, SM	7	2+2+3+4	24					16.2
308.0	5		C1		Red tan and orange	7	3+2+3+4	24					20.0
304.0	10				Bottom of Boring at 10.0 ft	12	3+4+5+6	24					

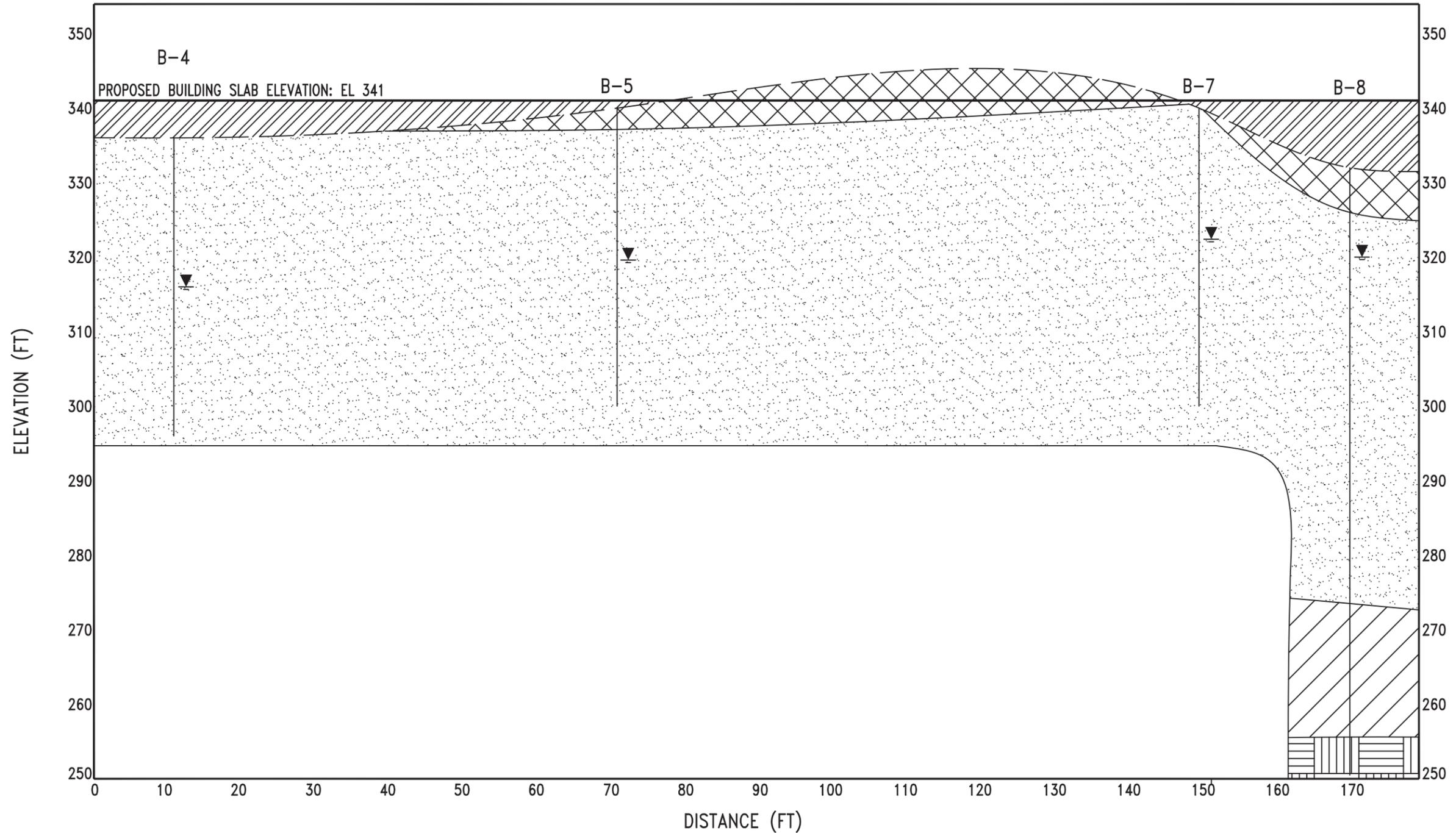
GROUND WATER LEVELS: NOT ENCOUNTERED DURING DRILLING NOT ENCOUNTERED UPON COMPLETION	SAMPLE TYPES: <input checked="" type="checkbox"/> Split Spoon
--	--

REMARKS: Coordinates: 38°31'40.13" N, 77°26'14.71" W

BOREHOLE/TEST PIT EMBASSY SECURITY GUARD BEQ AND OPS FACILITY LOGS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 2/8/16

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

n:\projects\active 13 projects\13216.03, embassy security guard beq and ops facility\cad\subsurface diagram a-a'.dwg



L E G E N D

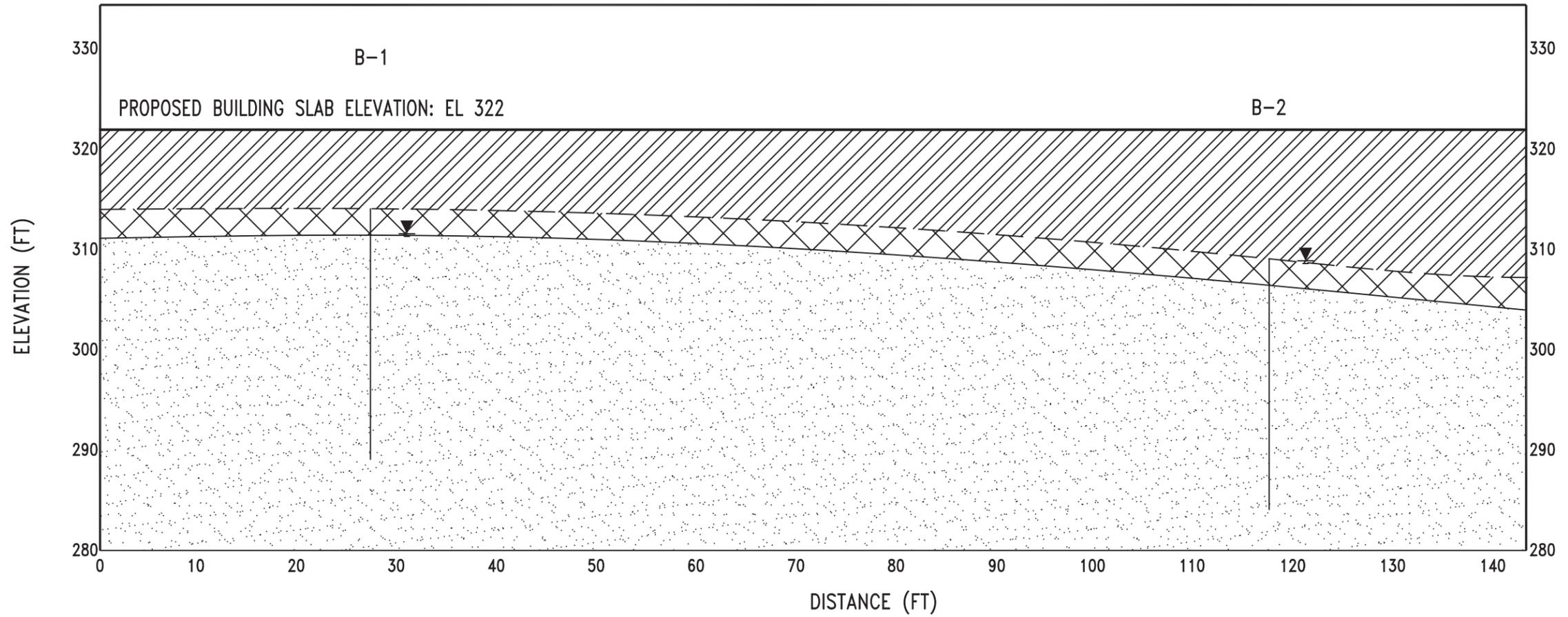
- | | | | | | |
|-----|---|---|---------------------------|---|---------------------------------|
| — | PROPOSED SLAB ELEVATION |  | NEW FILL |  | WEATHERED ROCK (STRATUM C2) |
| - - | EXISTING GROUND ELEVATION |  | EXISTING FILL (STRATUM A) |  | METADIAMICITE ROCK (STRATUM C3) |
| ▼ | LONG TERM GROUNDWATER READING ELEVATION |  | RESIDUAL (STRATUM C1) | | |



19955 Highland Vista Dr., Suite 170 (703) 726-8030
 Ashburn, Virginia 20147 (703) 726-8032 fax

EMBASSY SECURITY GUARD BEQ AND OPS FACILITY BROWNING ROAD, MARINE CORPS BASE, QUANTICO, VIRGINIA			
SUBSURFACE DIAGRAM A-A'		Scale: AS SHOWN	Fig. 2
Date: FEB. 2016	Drawn By: K.N.F.	Checked By: P.E.B.	Project No.: 13216.03

n:\projects\active 13 projects\13216.03, embassy security guard beq and ops facility\cad\subsurface diagram b-b'.dwg



L E G E N D

- | | | | |
|-----|---|---|---------------------------|
| — | PROPOSED SLAB ELEVATION |  | NEW FILL |
| - - | EXISTING GROUND ELEVATION |  | EXISTING FILL (STRATUM A) |
| ▼ | LONG TERM GROUNDWATER READING ELEVATION |  | RESIDUAL (STRATUM C1) |



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 Ashburn, Virginia 20147 (703) 726-8032 fax

EMBASSY SECURITY GUARD BEQ AND OPS FACILITY
 BROWNING ROAD, MARINE CORPS BASE, QUANTICO, VIRGINIA

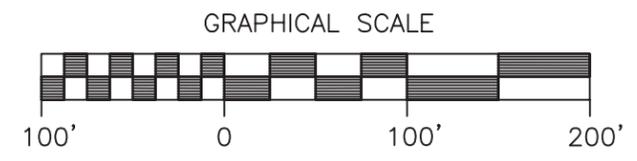
SUBSURFACE DIAGRAM B-B'		Scale: AS SHOWN	Fig. 3
Date: FEB. 2016	Drawn By: K.N.F.	Checked By: P.E.B.	



NOTE: AERIAL PROVIDED BY GOOGLE EARTH (C) 2016.

LEGEND

-  TEST BORING LOCATION
B-1, P-1, RW-1, SWM-1
-  SUBSURFACE DIAGRAM
CROSS SECTION



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 19955 Highland Vista Dr., Suite 170 (703) 726-8030
 Ashburn, Virginia 20147 (703) 726-8032 fax

EMBASSY SECURITY GUARD BEQ AND OPS FACILITY BROWNING ROAD, MARINE CORPS BASE, QUANTICO, VIRGINIA				Fig. 4
BORING LOCATION PLAN			Scale: AS SHOWN	
Date: FEB. 2016	Drawn By: K.N.F.	Checked By: P.E.B.	Project No.: 13216.03	

Appendix B

Soil Laboratory Test Results

Liquid and Plastic Limit, and Grain Size Analysis Test Data (18 pages)

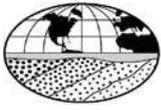
Moisture Density Relationship Test Data (2 pages)

CBR Test Data (2 pages)

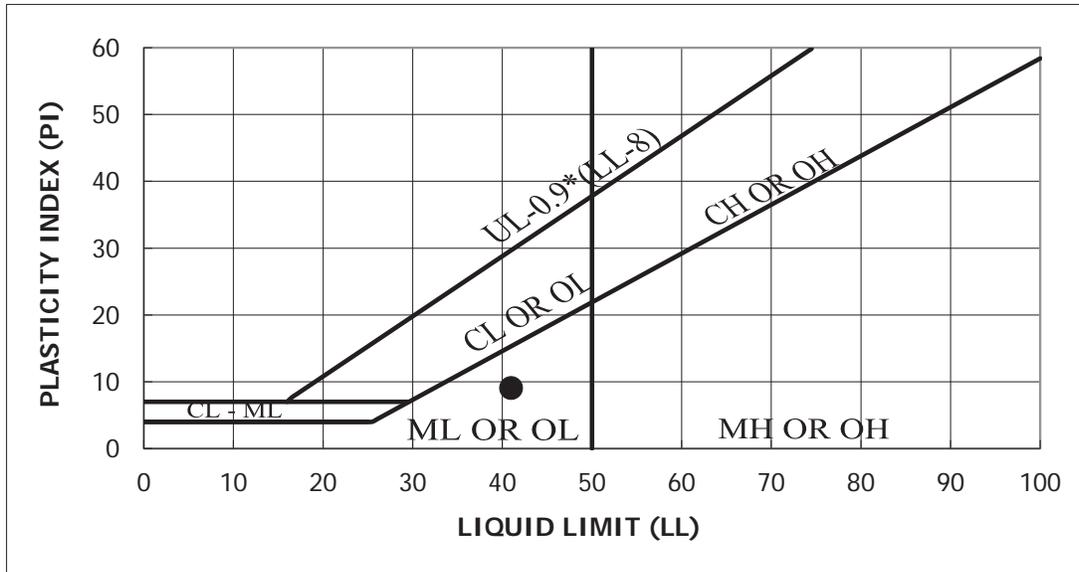
Corrosion Series Test Results (1 page)

Direct Shear Test Data (1 page)

Texture Analysis (1 page)



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-3	Depth (Feet)	1.0'-3.0'
Lab Order No.	3712-1	Date	1/19/2016



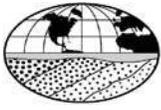
Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
SILTY SAND	41	32	9	100.0	46.1	SM	15.5
Color	Brown		AASHTO Classification		A-5		

Test Method: ASTM D 4318

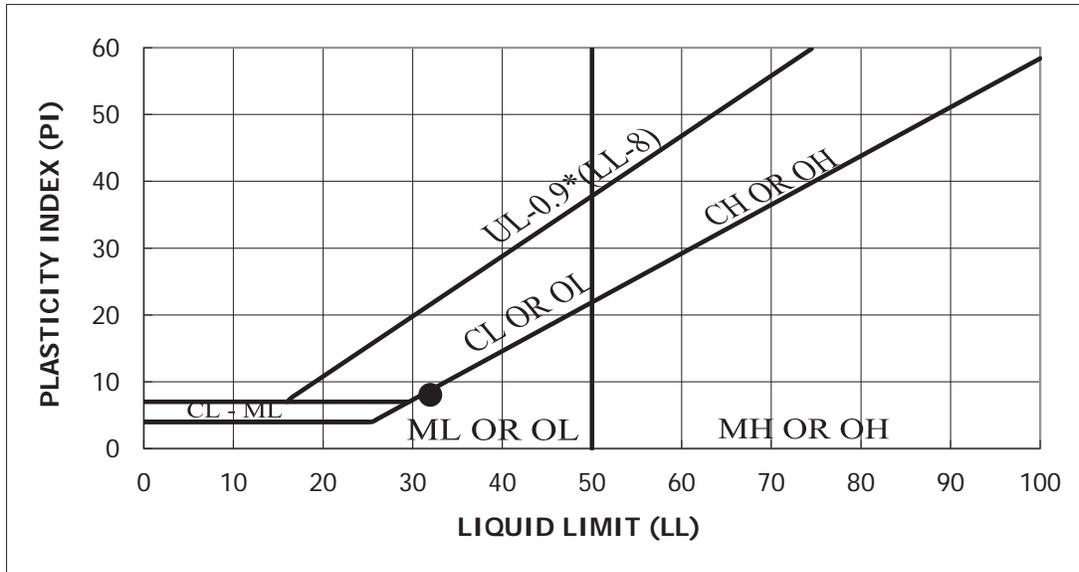
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bantz



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-5	Depth (Feet)	2.0'-4.0'
Lab Order No.	3712-2	Date	1/19/2016



Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
SILTY SAND	32	24	8	96.6	36.9	SM	20.7
Color	Brown		AASHTO Classification			A-4	

Test Method: ASTM D 4318

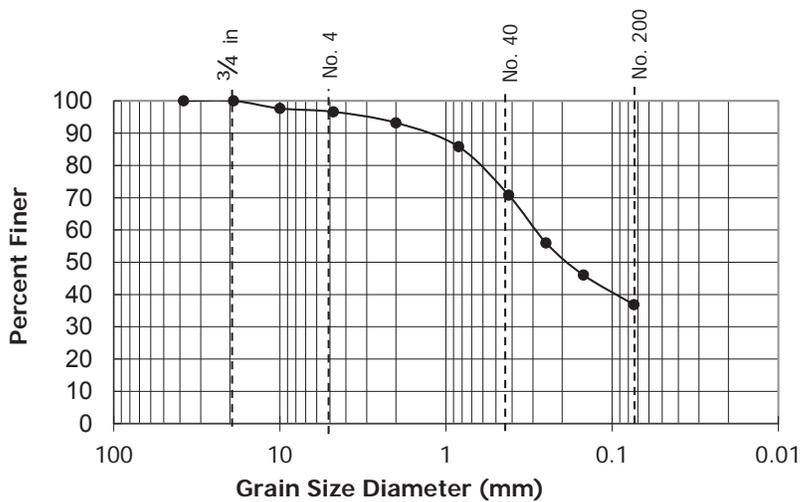
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bartz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-5	Depth (Feet)	2.0'-4.0'
Lab Order No.	3712-2	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	98
#4	97
#10	93
#20	86
#40	71
#60	56
#100	46
#200	37
Pan	--

USCS Group Symbol	SM
USCS Group Name	SILTY SAND
Cu	---
Cc	---
LL	32
PI	8
Gravel	3.4
Sand	59.8
Fines	36.9
AASHTO Classification	A-4
Color	Brown

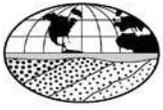
Test Method: ASTM D 422

Soil Classification by ASTM D2487 and AASHTO M 145

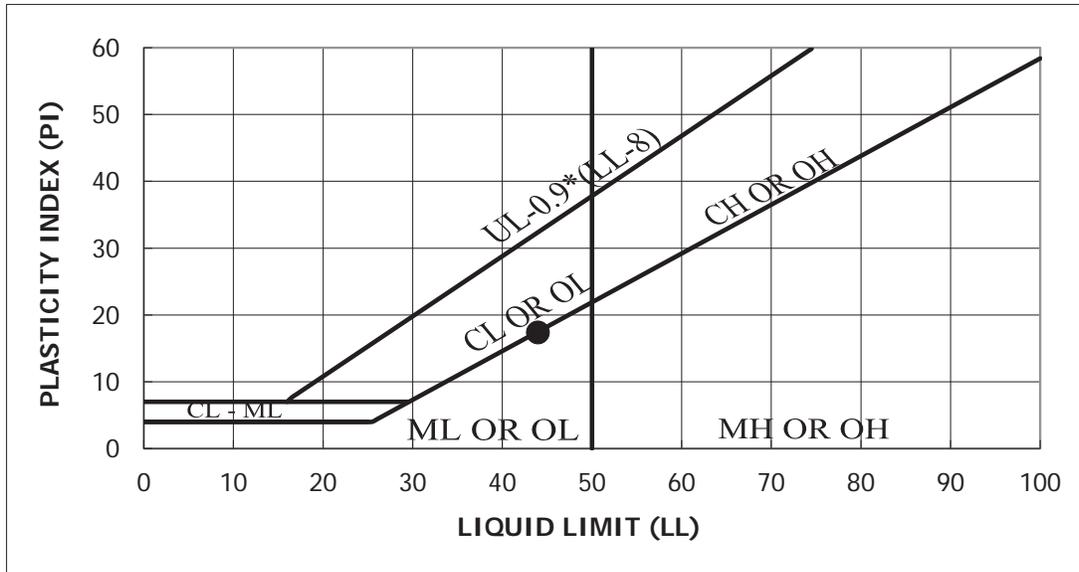
Tested by: _____

Reviewed by:

Lindsay Bantz



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	2.0'-4.0'
Lab Order No.	3712-3	Date	1/19/2016



Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
sandy Silt	44	27	17	100.0	63.3	ML	19.8
Color	Brown		AASHTO Classification		A-7-6		

Test Method: ASTM D 4318

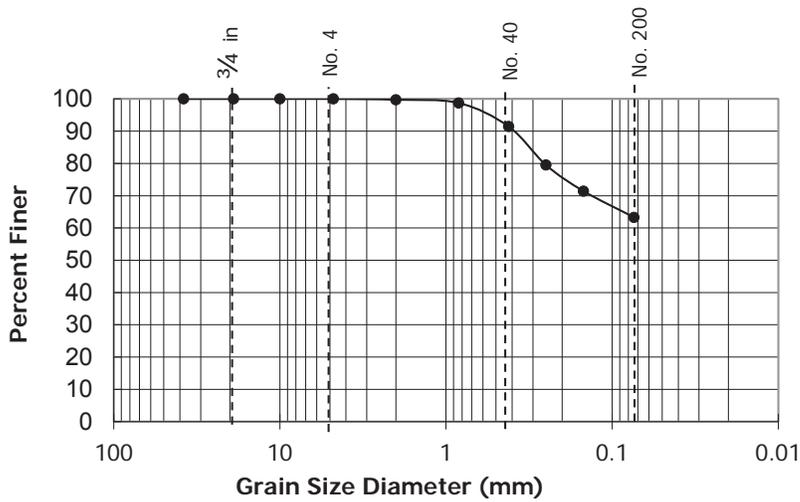
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bartz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	2.0'-4.0'
Lab Order No.	3712-3	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	100
#4	100
#10	100
#20	99
#40	91
#60	79
#100	71
#200	63
Pan	--

USCS Group Symbol	ML
USCS Group Name	sandy Silt
Cu	---
Cc	---
LL	44
PI	17
Gravel	0.0
Sand	36.7
Fines	63.3
AASHTO Classification	A-7-6
Color	Brown

Test Method: ASTM D 422

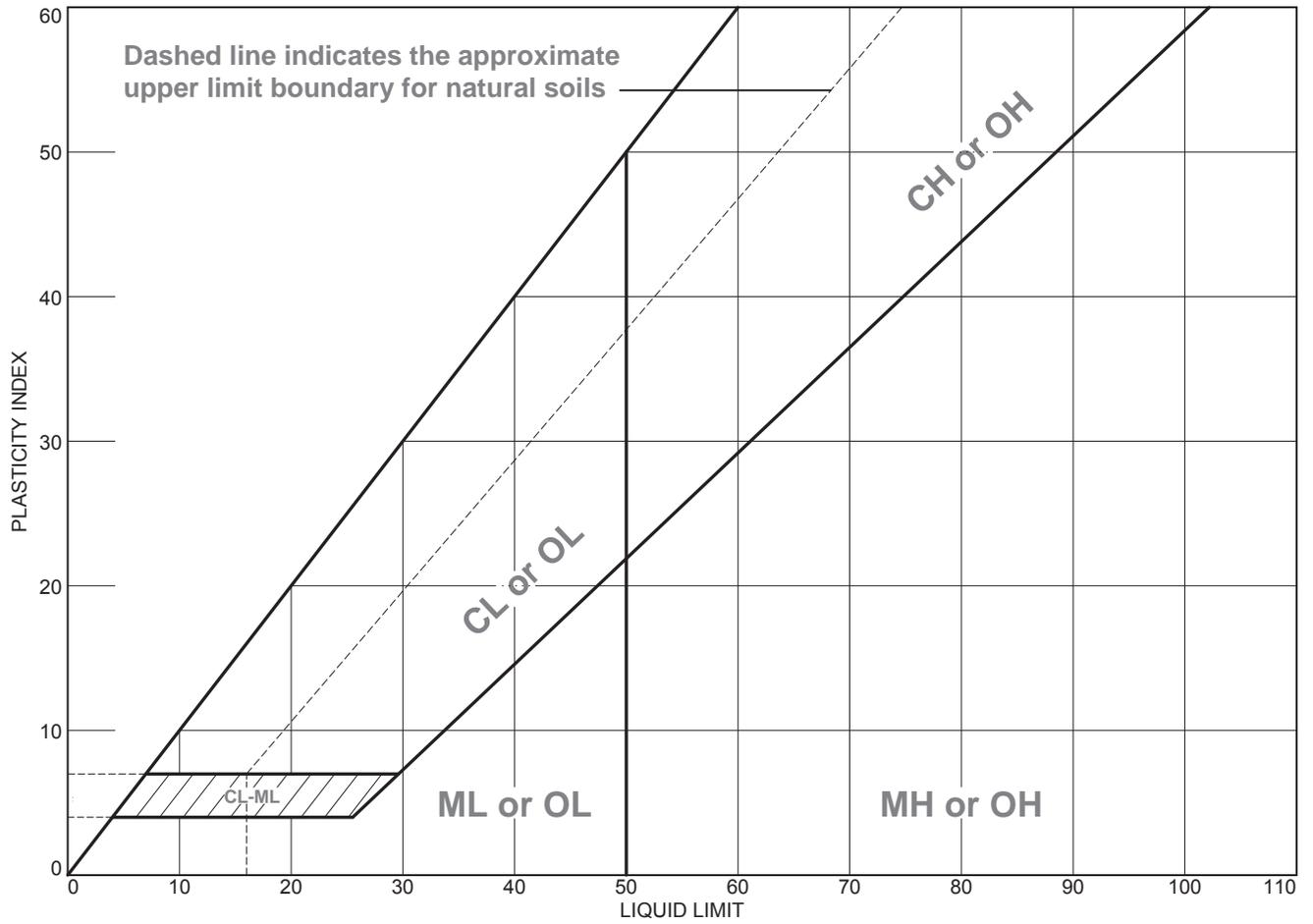
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by: _____

Reviewed by:

Lindsay Bartz

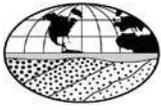
LIQUID AND PLASTIC LIMITS TEST REPORT



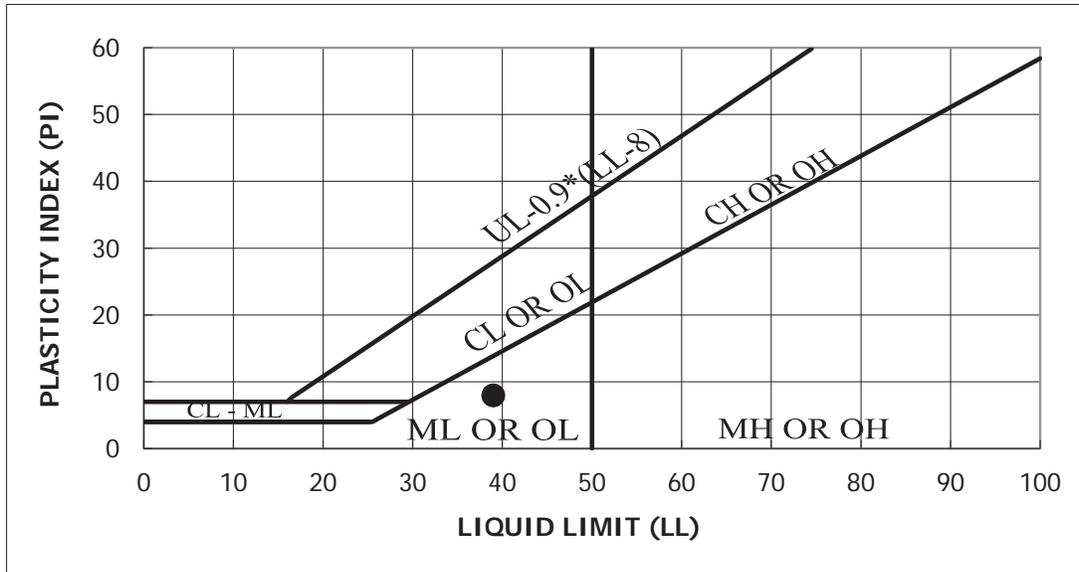
MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● Reddish brown sandy SILT	39	NP	NP	89.1	54.6	ML

<p>Project No. 33088_95 Client: GeoConcepts Engineering, Inc.</p> <p>Project: Embassy Security Guard BEQ and Ops Facility</p> <p>● Source of Sample: B-8 Depth: 4'-6' Sample Number: Tube</p>	<p>Remarks:</p>
<p>BURGESS AND NIPLE, INC.</p> <p>Chantilly, VA</p>	

Figure



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	6.0'-8.0'
Lab Order No.	3712-4	Date	1/19/2016



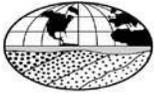
Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
SILTY SAND	39	31	8	100.0	43.6	SM	22.3
Color	Pink		AASHTO Classification		A-4		

Test Method: ASTM D 4318

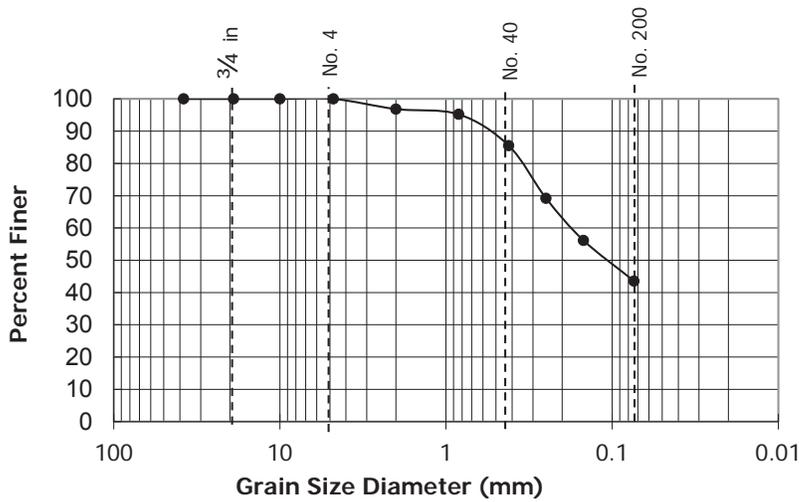
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bartz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	6.0'-8.0'
Lab Order No.	3712-4	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	100
#4	100
#10	97
#20	95
#40	86
#60	69
#100	56
#200	44
Pan	--

USCS Group Symbol	SM
USCS Group Name	SILTY SAND
Cu	---
Cc	---
LL	39
PI	8
Gravel	0.0
Sand	56.4
Fines	43.6
AASHTO Classification	A-4
Color	Pink

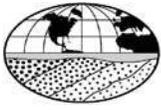
Test Method: ASTM D 422

Soil Classification by ASTM D2487 and AASHTO M 145

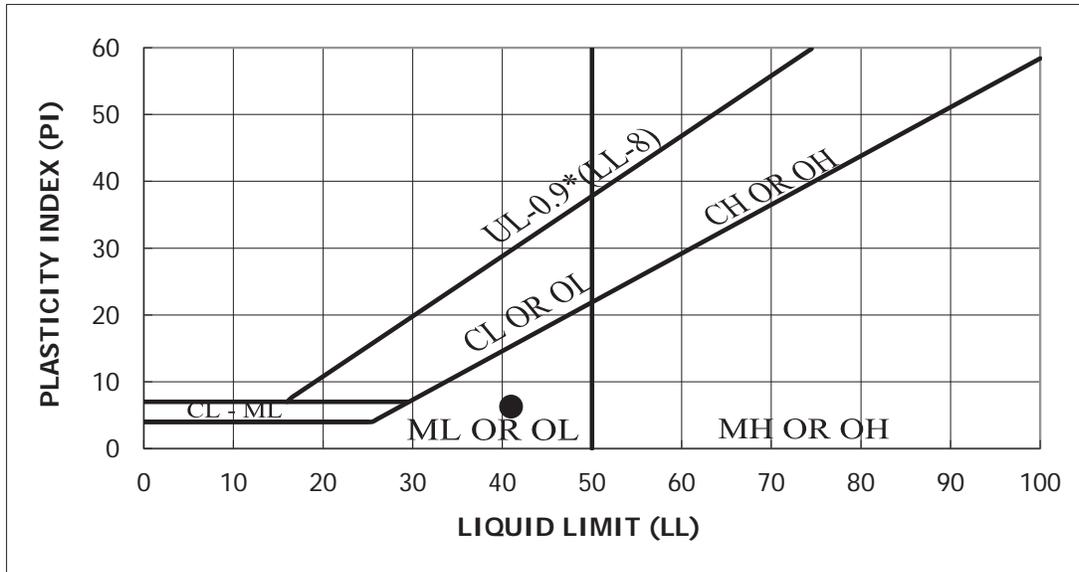
Tested by: _____

Reviewed by:

Lindsay Bantz



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	10.0'-12.0'
Lab Order No.	3712-5	Date	1/19/2016



Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
SILTY SAND	41	35	6	99.4	45.4	SM	23.0
Color	Pink		AASHTO Classification		A-5		

Test Method: ASTM D 4318

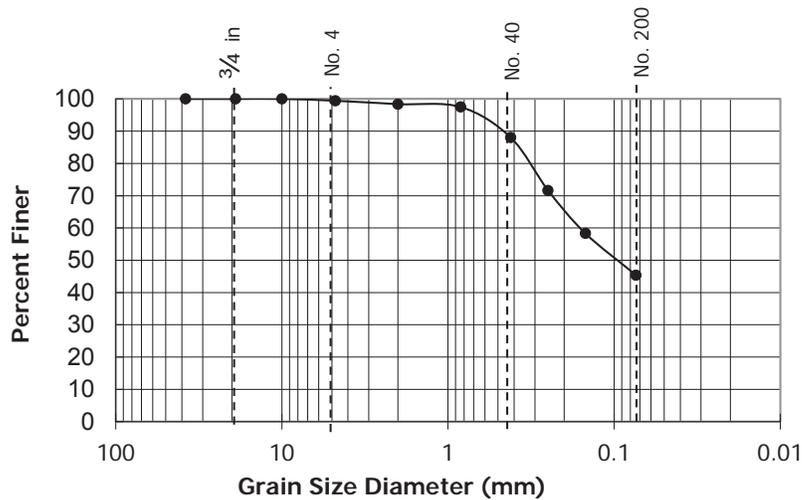
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bartz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	10.0'-12.0'
Lab Order No.	3712-5	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	100
#4	99
#10	98
#20	97
#40	88
#60	72
#100	58
#200	45
Pan	--

USCS Group Symbol	SM
USCS Group Name	SILTY SAND
Cu	---
Cc	---
LL	41
PI	6
Gravel	0.6
Sand	54.0
Fines	45.4
AASHTO Classification	A-5
Color	Pink

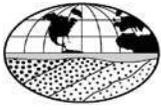
Test Method: ASTM D 422

Soil Classification by ASTM D2487 and AASHTO M 145

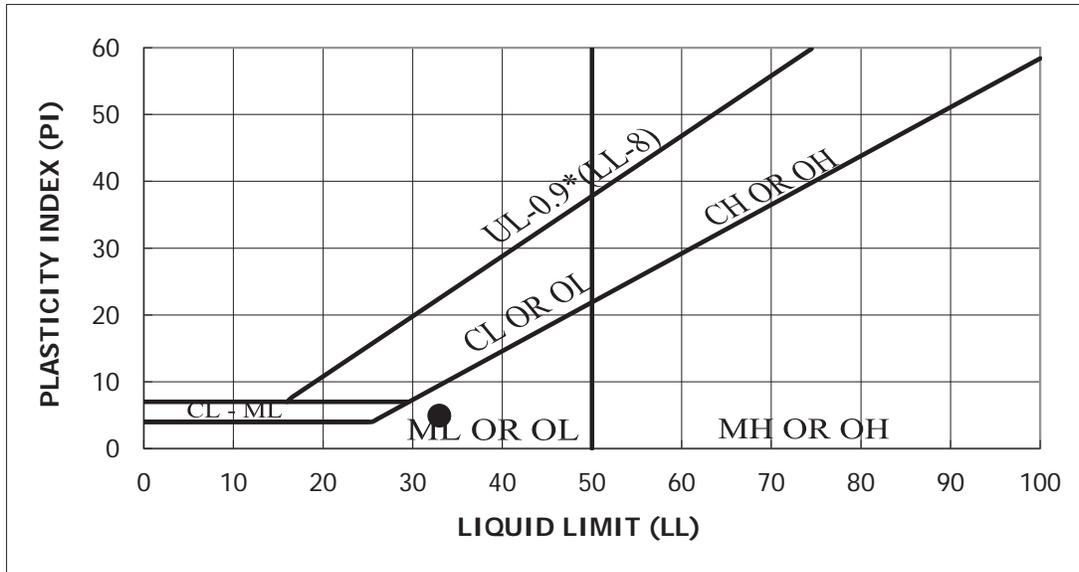
Tested by: _____

Reviewed by:

Lindsay Bantz



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	33.5'-35.0'
Lab Order No.	3712-6	Date	1/19/2016



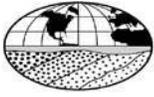
Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
SILTY SAND	33	28	5	100.0	31.9	SM	15.0
Color	Gray		AASHTO Classification		A-2-4		

Test Method: ASTM D 4318

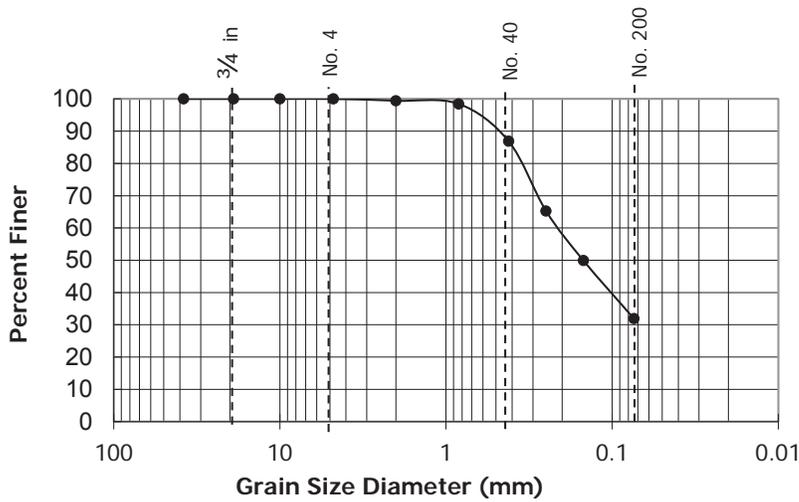
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bartz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	B-8	Depth (Feet)	33.5'-35.0'
Lab Order No.	3712-6	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	100
#4	100
#10	99
#20	98
#40	87
#60	65
#100	50
#200	32
Pan	--

USCS Group Symbol	SM
USCS Group Name	SILTY SAND
Cu	---
Cc	---
LL	33
PI	5
Gravel	0.0
Sand	68.1
Fines	31.9
AASHTO Classification	A-2-4
Color	Gray

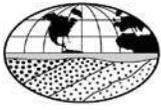
Test Method: ASTM D 422

Soil Classification by ASTM D2487 and AASHTO M 145

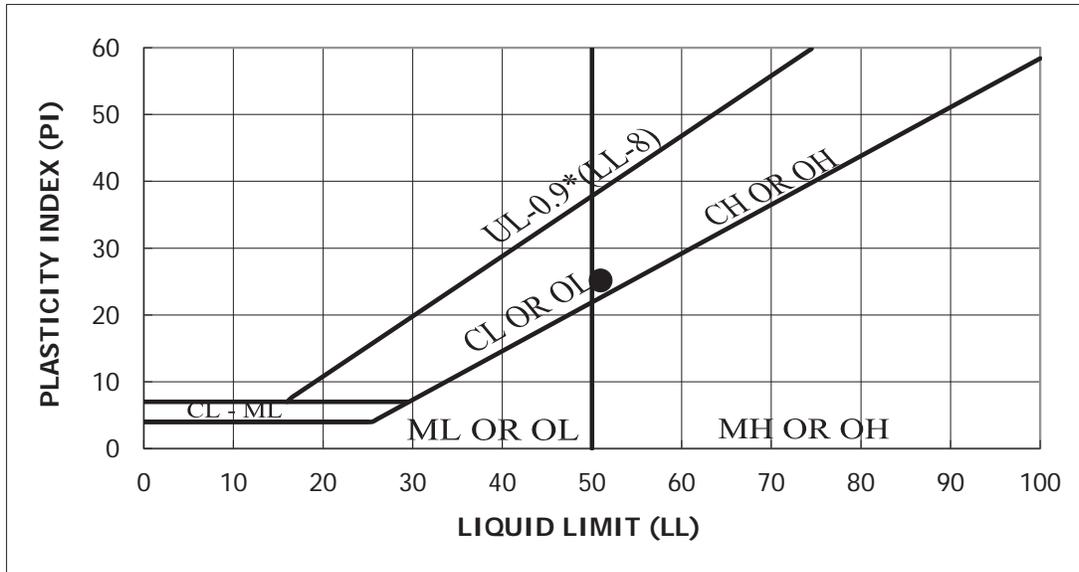
Tested by: _____

Reviewed by:

Lindsay Bartz



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-1	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-7	Date	1/19/2016



Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
sandy Fat Clay	51	26	25	99.6	52.6	CH	19.5
Color	Orange Brown		AASHTO Classification		A-7-6		

Test Method: ASTM D 4318

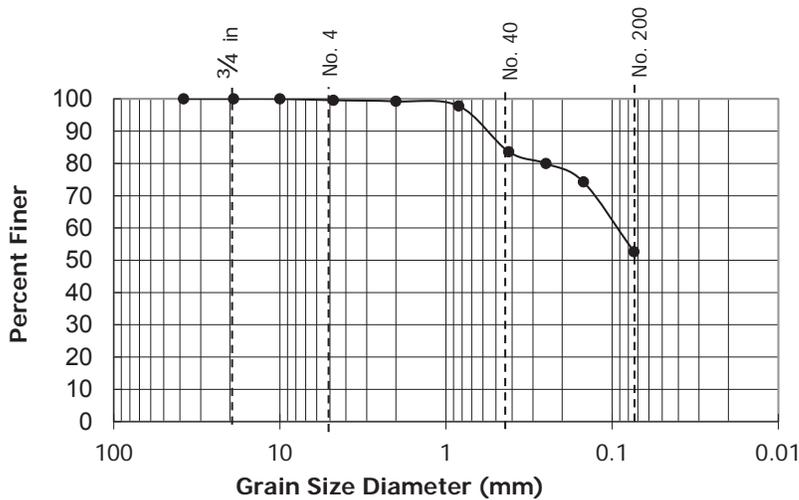
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bantz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-1	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-7	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	100
#4	100
#10	99
#20	98
#40	84
#60	80
#100	74
#200	53
Pan	--

USCS Group Symbol	CH
USCS Group Name	sandy Fat Clay
Cu	---
Cc	---
LL	51
PI	25
Gravel	0.4
Sand	46.9
Fines	52.6
AASHTO Classification	A-7-6
Color	Orange Brown

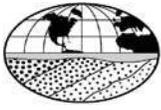
Test Method: ASTM D 422

Soil Classification by ASTM D2487 and AASHTO M 145

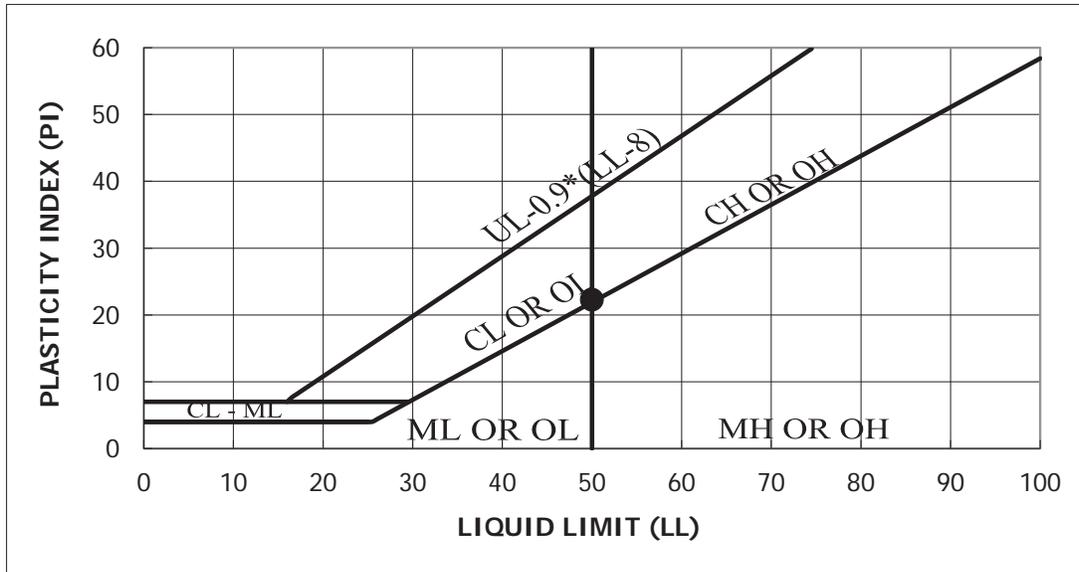
Tested by: _____

Reviewed by:

Lindsay Bantz



LIQUID AND PLASTIC LIMIT - ASTM D4318			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-2	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-8	Date	1/19/2016



Material Description	LL	PL	PI	% Passing		USCS	w (%)
				#4	#200		
sandy Fat Clay	50	28	22	98.4	56.4	CH	18.5
Color	Orange Brown		AASHTO Classification		A-7-6		

Test Method: ASTM D 4318

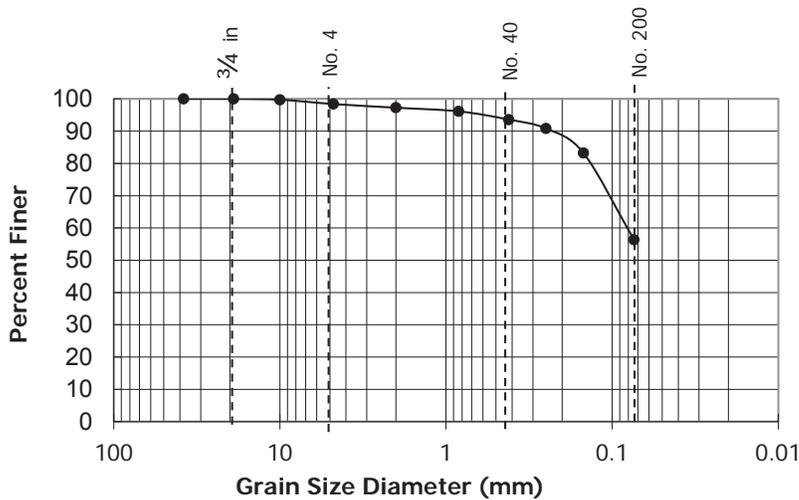
Soil Classification by ASTM D2487 and AASHTO M 145

Tested by _____

Reviewed by Lindsay Bantz



GRAIN SIZE ANALYSIS - ASTM D422			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-2	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-8	Date	1/19/2016



SIEVE	% Passing
1 1/2 "	100
3/4"	100
3/8"	100
#4	98
#10	97
#20	96
#40	94
#60	91
#100	83
#200	56
Pan	--

USCS Group Symbol	CH
USCS Group Name	sandy Fat Clay
Cu	---
Cc	---
LL	50
PI	22
Gravel	1.6
Sand	42.0
Fines	56.4
AASHTO Classification	A-7-6
Color	Orange Brown

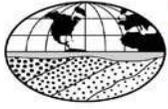
Test Method: ASTM D 422

Soil Classification by ASTM D2487 and AASHTO M 145

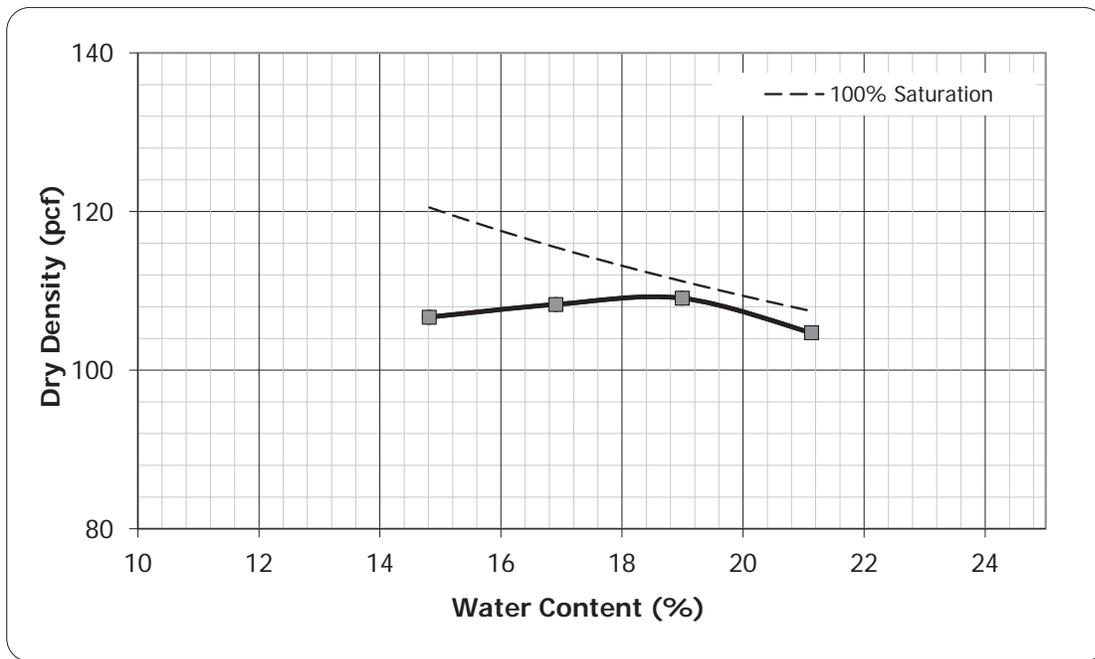
Tested by: _____

Reviewed by:

Lindsay Bantz



MOISTURE DENSITY RELATIONSHIP - ASTM D 1557			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-1	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-7	Date	1/19/2016



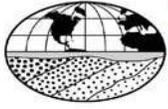
TEST RESULTS	Before Correc.	After Correc.	Color					
Maximum Dry Density (pcf)	109.5	--	Orange Brown					
Optimum Moisture Content (%)	18.8	--	Orange Brown					
Material	Classification		Nat. Moist. (%)	Sp. G. (Assumed)	LL	PI	% > # 4	% < # 200
sandy Fat Clay	USCS	AASHTO	19.5	2.7	51	25	0.4	52.6
	CH	A-7-6						

Method-A Preparation Method-Moist
Manual Rammer

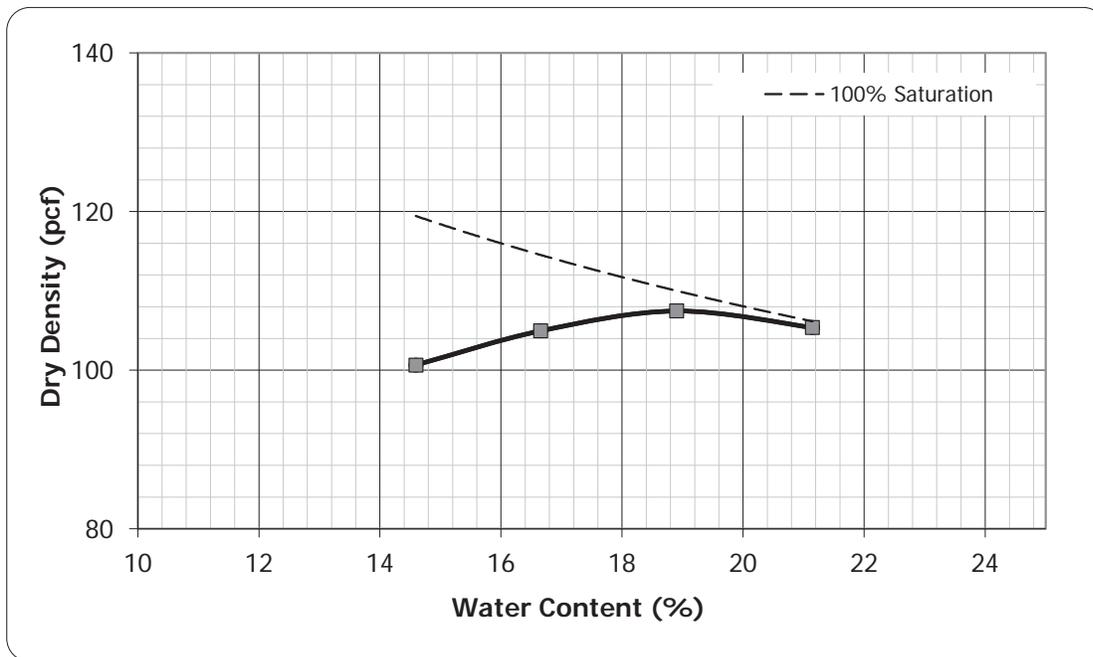
Tested by _____

Reviewed by

Lindsay Bantz



MOISTURE DENSITY RELATIONSHIP - ASTM D 1557			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-2	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-8	Date	1/19/2016

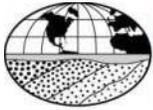


TEST RESULTS	Before Correc.	After Correc.	Color					
Maximum Dry Density (pcf)	107.5	--	Orange Brown					
Optimum Moisture Content (%)	18.8	--	Orange Brown					
Material	Classification		Nat. Moist. (%)	Sp. G. (Assumed)	LL	PI	% > # 4	% < # 200
sandy Fat Clay	USCS	AASHTO	18.5	2.65	50	22	1.6	56.4
	CH	A-7-6						

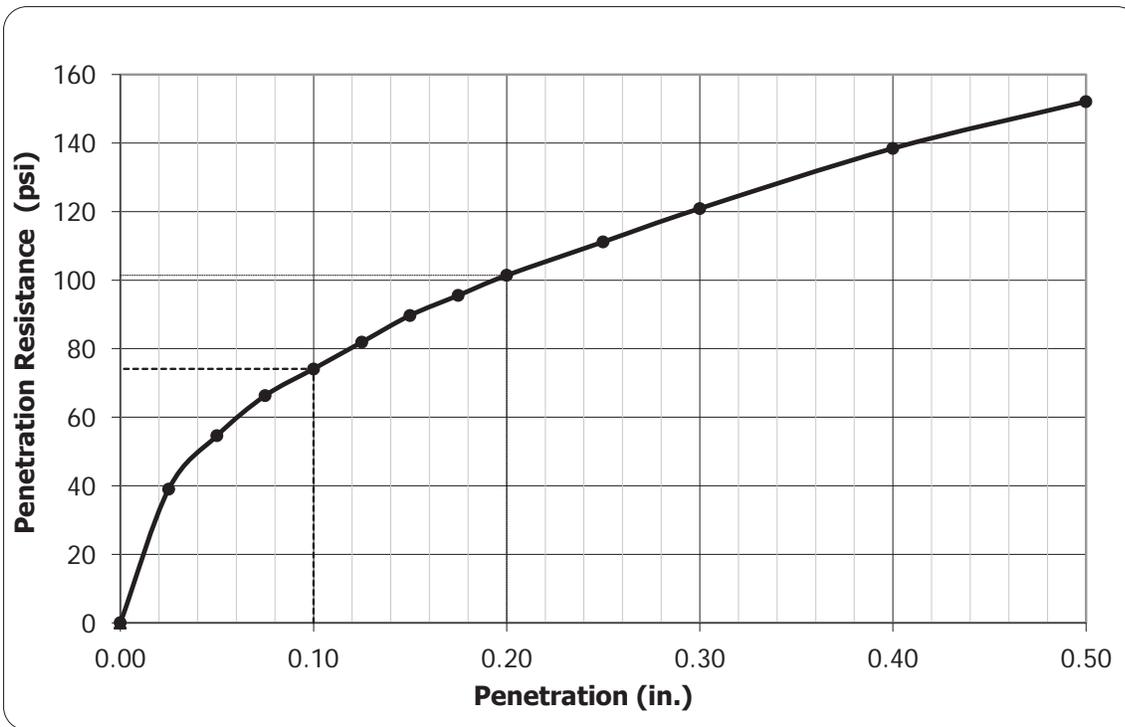
Preparation Method-Moist
Method-A Manual Rammer

Tested by _____

Reviewed by *Lindsay Bartz*



CALIFORNIA BEARING RATIO (CBR) TEST - ASTM- D1833			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-1	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-7	Date	1/19/2016



Molded	
Dry Density (pcf)	110.0
Moisture (%)	19.3
Percent of Max. Density (%)	100.4

Soaked	
Dry Density (pcf)	109.4
Moisture (%)	22.4
Percentage of Max. Density (%)	99.9

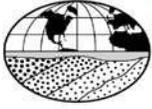
CBR (%)	
0.1 in.	7.4
0.2 in.	6.8

Linearity Correction	0.000
Surcharge (lbs)	10
Max Swell (%)	0.5

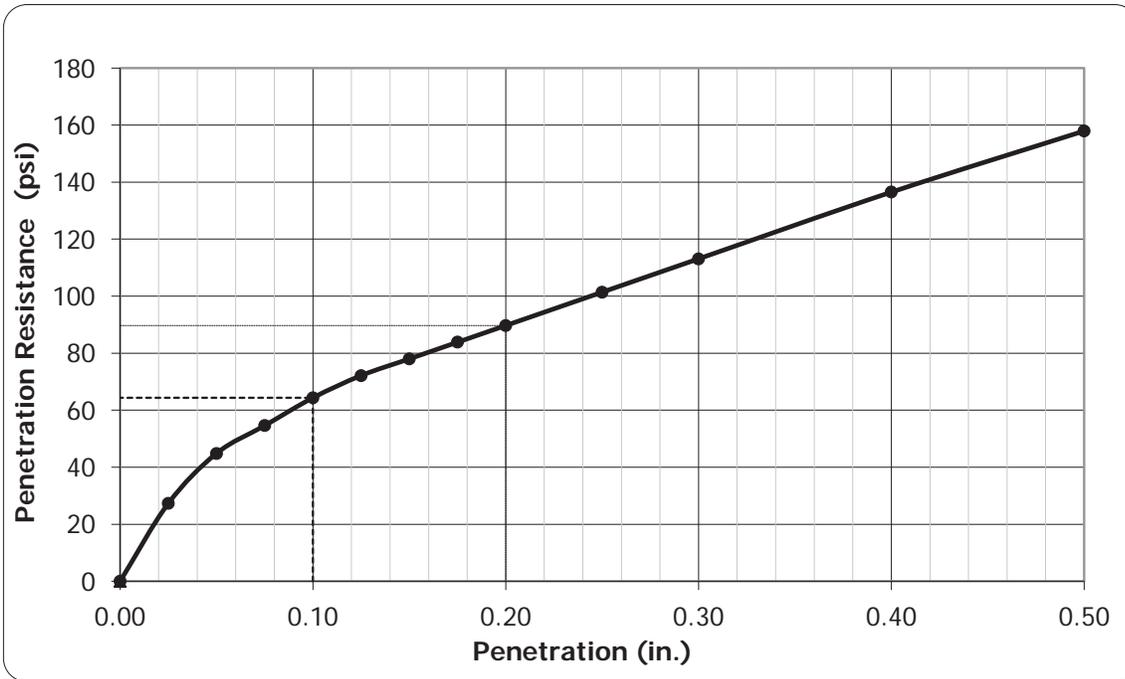
Material Description	sandy Fat Clay
USCS	CH
Max Density	110
Optimum Moisture (%)	19
LL	51
PI	25
Color	Orange Brown

Tested by: _____

Reviewed by: Lindsay Bantz



CALIFORNIA BEARING RATIO (CBR) TEST - ASTM- D1833			
Project No.	13216.03	Project Name	Embassy Security BEQ and Ops Facility
Test Boring No.	P-2	Depth (Feet)	0.0'-5.0'
Lab Order No.	3712-8	Date	1/19/2016



Molded	
Dry Density (pcf)	108.1
Moisture (%)	19.2
Percent of Max. Density (%)	100.5

Linearity Correction	0.000
Surcharge (lbs)	10
Max Swell (%)	1.3

Soaked	
Dry Density (pcf)	106.6
Moisture (%)	24.1
Percentage of Max. Density (%)	99.2

Material Description	sandy Fat Clay
USCS	CH
Max Density	108
Optimum Moisture (%)	19
LL	50
PI	22
Color	Orange Brown

CBR (%)	
0.1 in.	6.4
0.2 in.	6.0

Tested by: _____

Reviewed by: Lindsay Bantz



Report Number: **163010**

Certificate of Laboratory Analysis

GeoConcepts Engineering, Inc.
Attn: Katie Fordney
19955 Highland Vista Dr.
Suite 170
Ashburn, VA 20147

Date Received: 01/06/16
Date Reported: 01/07/16
Project Location: **Embassy Security Guard
BEQ and Ops Facility**

1. Client Sample No: **B-1** HPE Sample No.: 163010-01
Sample Matrix: Soil Date Collected: 01/06/16
Sample Location:

Test(s) Requested: **Soil Corrosion Potential Profile**
Analysis Method(s): Various Date Analyzed: 01/07/16

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>	<u>Qualifier</u>
Resistivity - ASTM G187	78000	ohm-cm	N/A	
Redox Potential - Electrode	+ 420	mV	N/A	
pH - CA643	4.4	pH	N/A	
Chloride (Water Soluble) - CA422	3.6	mg/Kg	2.5	
Sulfate (Water Soluble) - CA417	< 5.0	mg/Kg	5.0	U
Sulfide (Water Soluble) EPA 376.2	< 1.2	mg/Kg	1.2	U
Moisture (Percent)	26	%	N/A	

2. Client Sample No: **RW-1** HPE Sample No.: 163010-02
Sample Matrix: Soil Date Collected: 01/06/16
Sample Location:

Test(s) Requested: **Soil Corrosion Potential Profile**
Analysis Method(s): Various Date Analyzed: 01/07/16

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Reporting Limit</u>	<u>Qualifier</u>
Resistivity - ASTM G187	47000	ohm-cm	N/A	
Redox Potential - Electrode	+ 457	mV	N/A	
pH - CA643	4.5	pH	N/A	
Chloride (Water Soluble) - CA422	2.6	mg/Kg	2.5	
Sulfate (Water Soluble) - CA417	6.6	mg/Kg	5.0	
Sulfide (Water Soluble) EPA 376.2	< 1.2	mg/Kg	1.2	U
Moisture (Percent)	24	%	N/A	

JP

01/07/16

Approved by

Date

Analyte Qualifier Codes

U = Analyte was not detected

Client : GEOCONCEPTS ENGINEERING SUITE 170 19955 HIGHLAND VISTA DR ASHBURN, VA 20147	Grower : EMBASSY SECURITY GUARD BEQ & OPS FACI #13216.03 Farm:	Report No : 16-012-0770 Cust No : 74328 Date Printed : 01/20/2016 Page : 1 of 1 Date Received : 01/12/2016
--	---	--

<u>Lab No</u>	<u>Field ID</u>	<u>Sample Identification</u>	<u>Percent Sand</u>	<u>Percent Silt</u>	<u>Percent Clay</u>	<u>Textural Classification</u>
10058		SWM-1 (4.0')	62.4	33.6	4.0	Sandy Loam
10059		SWM-1 (6.0')	66.4	31.6	2.0	Sandy Loam
10060		SWM-2 (4.0')	64.4	29.6	6.0	Sandy Loam
10061		SWM-2 (6.0')	64.4	29.6	6.0	Sandy Loam

HAZARDOUS MATERIALS EVALUATION

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Hazardous Material Inspection Report

Building 27266, Embassy Guard BEQ

Marine Corps Base Quantico, VA



Prepared For:



June 2015

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HAZARDOUS MATERIAL INSPECTION REPORT

**BEQ #27266
P707**

Marine Corps Base Quantico, VA

Prepared For:

NAVFAC Washington

and

Burns McDonnell

AH Project Number: 122-72

N40080-15-D-0452, TO#002

June 2015

**AH Environmental Consultants, Inc.
11837 Rock Landing Drive, Suite 300
Newport News, VA 23606
757.873.4959
solutions@ahenv.com**

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EXECUTIVE SUMMARY

AH Environmental Consultants (AH) has prepared this Hazardous Material Inspection Report for the use of the Naval Facility Engineering Command (NAVFAC) and Burns McDonnell Engineers to provide information concerning asbestos building materials, lead containing paints, or other recognized hazardous materials (HAZMAT) identified at Marine Corps Base Quantico, VA, Bachelor Enlisted Quarters (BEQ), Building #27266, that may be impacted by work associated with the planned demolition of the building. Work was conducted under contract N40080-15-D-0452, delivery order #02 via agreement with Burns McDonnell.

This site inspection and assessment was conducted by AH staff and involved sampling of suspect asbestos containing materials (ACM), testing of paint/coatings, investigation for mercury and polychlorinated biphenyls (PCBs), and other known potentially hazardous materials (HAZMAT) anticipated to be impacted by the proposed demolition.

The primary HAZMAT concern for planned work activities appears to lead batteries on emergency lighting and signage systems. No ACM was identified, and lead containing items are limited. Items of special concern are present, but do not require significant safety controls. The precise means and methods to handle the identified hazardous materials are covered under project specifications, separate from this document.

Inspection at the facility was conducted 19, 20 May and 4 June 2015 which included identification, sampling and analysis, evaluation of paint/ coatings and suspect ACM, inventory of other potentially hazardous materials that could impact planned work actions, and soil screenings at the location of a former underground fuels storage tank.

Asbestos inspection information is provided in Section 1. Lead inspection information is provided in Section 2. Additional HAZMAT issues are contained in Section 3.

Site drawings indicating sample locations and information concerning the location of HAZMAT are provided in Appendix A, a reference photo-log is included in Appendix B, and the laboratory and XRF reports of analysis for all samples collected are provided in Appendix C.





1. ASBESTOS

There is a well-known link between the inhalation of asbestos fibers and various diseases such as asbestosis, mesothelioma, lung and other cancers. As a result, the Asbestos Hazard Emergency Response Act (AHERA, 40 CFR Part 763) was enacted. An AHERA inspection requires an accredited inspector to visually inspect and assess the condition of all known or assumed friable asbestos-containing building materials (ACM); to visually inspect non-friable ACM and touch it to determine friability; and to identify homogeneous areas of friable materials. The National Emission Standards for Hazardous Air Pollutants (NESHAPs) require thorough inspections for asbestos in structures before renovation or demolition.

The intent of the inspection was to provide sufficient information to involved parties that may impact the renovations of project buildings and to prepare adequate abatement specifications for such. Bulk sampling of suspect ACM was performed. Samples were analyzed utilizing Polarized Light Microscopy (PLM) with dispersion staining (EPA method 600/M4/82/020). For confirmation, two floor tile samples were analyzed by Transmission Electron Microscopy (TEM), NIOSH method 7402. The accredited laboratory reports of analysis are provided in Appendix C.

The sample identification system of this report consists of a three-unit sample identification number. The first set of digits indicates the building designation, the next set indicates the homogenous material grouping for the building, and the last two numbers indicate the consecutive sample number as collected in the field. For example, 44-01-03 would indicate that the sample was collected from Building 44, homogenous area one, and was the third sample collected [of that homogenous material] during the inspection. These sample numbers match the chain-of-custody, lab reports of analysis, and sample identification numbers on the drawings (Appendix A). No historical sample data was provided or referenced for this project.

Sample result summaries are provided in table format. Note that NAD in the % asbestos column indicates that there was *No Asbestos Detected* in the sample. Some sample results in this column may be displayed in this report with a slash between two numbers, (#/#). The



first number represents the first material listed under the material location/description and the second number represents the second material listed. Sampled materials that contain asbestos are highlighted in **bold red** and underlined, although none were identified.

The samples are also grouped into homogeneous material/area groups. Homogeneous materials are suspect materials that are uniform by color, texture, construction/application date and general appearance. Photos of ACM are included in the reference photo-log (Appendix B) for assistance in later material identification.

Sample summary tables also distinguish whether materials are considered friable (able to be crushed or pulverized by hand pressure) or non-friable (not able to be crushed or pulverized by hand pressure) for the purpose of determining the ACM category. The collected samples were at least 1 cubic centimeter and were placed in a sealed container at the time of collection. Appropriate precautions were taken to prevent exposure to those present in or around the facility during the collection of samples, including wet collection methods.

As previously mentioned, the asbestos NESHAP (40 CFR 61, subpart M) requires a thorough inspection for asbestos in structures before the renovation or demolition of those structures. Materials determined to be ACM (containing greater than 1% asbestos) must also be categorized for removal and demolition purposes. The various categories for ACM are shown in the following chart.

ACM CATEGORY (NESHAP)

Categories	Typical Material Type	Guidance for RACM
Friable ACM	Pipe insulation fittings	Able to crush with hand pressure
Cat I, Non-friable	Floor coverings, Roofing products, Gaskets	Non-friable materials that have become friable, or Non-friable material that is or will be damaged due to sanding, grinding, cutting, or abrading
Cat II, Non-friable	Cement siding (Transite), Significantly damaged tile	Non-friable material that has a high probability of becoming or has become friable by forces expected to act on the material in the course of renovation or demolition

Any ACM that is Friable, or Category I and II Non-friable that meets the qualifications to be considered a Regulated Asbestos-Containing Material (RACM), must be removed prior to



demolition or disturbance that would break up, dislodge, or similarly destroy the material or preclude access to the material for subsequent removal. This includes gasket materials.

The findings of the asbestos inspection are detailed in the following section, including recommendations for action.

1.1 ASBESTOS INSPECTION

A visual survey was performed of accessible suspect ACM of BEQ building #27266. The inspection was inclusive of the building as a whole, including roofing system, exterior, and areas above the drop ceiling as could be accessed. The building appeared to be constructed between 1960 and 1980. Limited renovations and upgrades were apparent, with the exception of new floor tiles installed over existing. Most portions of the structure were considered substantially original.

The asbestos survey identified eighteen (18) unique homogenous suspect materials. The homogenous materials identified include:

- 12” floor tile and adhesives (multiple types)
- 2x4 ceiling tiles (various),
- Miscellaneous adhesives and sealants,
- Drywall and joint material,
- Base cove and mastic,
- Caulking,
- Fire door liner materials,
- Vinyl stair treads,
- Boiler insulation and rope gaskets, and
- Miscellaneous pipe wrap materials.

Bulk sampling was performed on the suspect ACM found in the survey area. Forty-seven (47) samples were collected for asbestos analysis which included Sixty-six (66) individual layers for analysis plus the two TEM sample analyses of collected samples. A summary of sample results are provided in Table 1-1 (and indicate general defined areas). No asbestos containing materials were identified.



Table 1-1
Asbestos Sample Summary

Sample #	Description	Asbestos %
27266-01-01	12" White w/black tile and adhesive (lobby)	NAD
27266-01-02	12" White w/black tile and adhesive (2 nd fl cntr)	NAD
27266-01-03	12" White w/black tile (SE stairs)	NAD
27266-02-01	Beige tile, under 01 (lobby)	NAD
27266-02-01tem	TEM analysis of 02-01	NAD
27266-02-02	Beige tile and adhesive, under 08 (#113)	NAD
27266-02-03	Beige tile and adhesive, under 01 (#209 entry)	NAD
27266-02-03tem	TEM analysis of 02-03	NAD
27266-02-04	Beige tile and adhesive, under 08 (#209)	NAD
27266-03-01	4" Black vinyl base and adhesive (lobby)	NAD
27266-03-02	4" Black vinyl base and adhesive (#135)	NAD
27266-03-036	4" Black vinyl base and adhesive (#224)	NAD
27266-04-01	2x4 Ceiling tile I (lobby)	NAD
27266-04-02	2x4 Ceiling tile II (hall, west center)	NAD
27266-04-03	2x4 Ceiling tile (hall at #209)	NAD
27266-05-01	2x4 Ceiling tile II (lobby)	NAD
27266-05-02	2x4 Ceiling tile II (hall, west center)	NAD
27266-06-01	Fiberglass sealant, beige, HVAC trunk (lobby)	NAD
27266-06-02	Fiberglass sealant, beige, water line (hall at #109)	NAD
27266-06-03	Fiberglass sealant, beige, HVAC trunk (#202)	NAD
27266-06-04	Fiberglass sealant, beige (#229)	NAD
27266-07-01	Drywall and joint material, wall (stairs)	NAD
27266-07-02	Drywall and joint material, wall (#116)	NAD
27266-07-03	Drywall and joint material, wall (hall, SW exit)	NAD
27266-07-04	Drywall and joint material, wall (hall at #143)	NAD
27266-07-05	Drywall and joint material, ceiling (roof access)	NAD
27266-07-06	Joint material, wall (#224)	NAD
27266-07-07	Joint material, wall (#219 head)	NAD
27266-07-08	Drywall and joint material, wall (hall at #243)	NAD
27266-08-01	12" Beige w/brown tile and adhesive (duty desk)	NAD
27266-08-02	12" Beige w/brown tile and adhesive (hall at #113)	NAD
27266-08-03	12" Beige w/brown tile and adhesive (#209)	NAD



27266 ASBESTOS SUMMARY (CONTINUED)

Sample #	Description	Asbestos %
27266-09-01	Concrete expansion joint material (duty desk)	NAD
27266-10-01	2x4 Ceiling tile III (XO office)	NAD
27266-10-02	2x4 Ceiling tile III (hall, SW exit)	NAD
27266-10-03	2x4 Ceiling tile (hall at #209)	NAD
27266-11-01	Caulking, tan, concrete ceiling joints (#122)	NAD
27266-11-02	Caulking, tan, concrete panel joint (SW stairs)	NAD
27266-12-01	Fire door liner, wood laminate (#107 utility)	NAD
27266-13-01	Vinyl stair tread, black, and adhesive (center stairs)	NAD
27266-13-02	Vinyl stair tread, black II (center stairs)	NAD
27266-14-01	Miscellaneous sealant, white, valve packing (roof)	NAD
27266-15-01	Caulking, white, roof vents (west roof)	NAD
27266-15-02	Caulking, gray, roof drains (west roof)	NAD
27266-15-03	Caulking, beige, window exterior	NAD
27266-15-04	Caulking, white, block joint interior	NAD
27266-16-01	Miscellaneous sealant, black, roof flashing (west awning)	NAD
27266-17-01	Boiler insulation and rope gasket door, new (mechanical)	NAD
27266-18-01	Miscellaneous sealant, black, CW lines (mechanical)	NAD

1.2 RECOMMENDATIONS FOR ACM

Note that any building material that is not identified as homogenous with those addressed in this report must be considered as an ACM unless additional testing indicates otherwise. Locations of samples and known ACM are indicated on the inspection drawings (Appendix A).

The following work practice should be followed whenever activities involving any ACM occur at this facility:

- Ensure any ACM is managed in accordance with Federal and Maryland regulations.



- Remove any ACM that may be disturbed during renovations or ensure the material will not be disturbed.
- Always keep any ACM adequately wet before, during, and after removal operations.
- Conduct activities in a manner which produces no visible emissions to the outside air.
- Handle and dispose of all ACM in accordance with Federal and Naval regulations.

Additional inspection information is included in the appendices on the lab reports of analysis chain of custody documents and building drawings

1.3 CERTIFICATION

The AIHA and NVLAP Accredited laboratory selected to analyze the bulk samples for asbestos content by PLM and NIOSH method 7402 methods, equivalent to the "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (Appendix A to Subpart F in 40 CFR Part 763) was:

**SANAIR TECHNOLOGIES LABORATORY, INC.
1551 OAKBRIDGE DR, SUITE B
POWHATAN, VA 23139
(804) 897-1177**

The inspector who physically surveyed for ACM at the facility and who has received EPA-approved training as an asbestos inspector and management planner is:

**DAVID W. DOBSON
AH ENVIRONMENTAL CONSULTANTS, INC.
11837 ROCK LANDING DRIVE, SUITE 300
NEWPORT NEWS, VA 23608
(757) 873-4959**

SIGNATURE OF INSPECTOR: _____

The above-signed inspectors certify information contained within this asbestos inspection report is true and correct concerning site conditions at the time of survey only. Every reasonable attempt was made to identify all ACM. However, locations not accessible such as wall interiors may contain materials not yet identified. Roofing samples were not collected and the second floor exterior perimeter were not accessible for sampling.



2. LEAD

Since 1971, the construction industry has been required to protect workers from exposure to lead through engineering and work practice controls. The current OSHA regulations 29 CFR 1926.62 set the following limits for lead exposure including a permissible exposure limit (PEL) lead of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), and an action level of 30 $\mu\text{g}/\text{m}^3$, as determined using an 8-hour time weighted average. Since lead-based paint has been determined to be a health threat, assessment of buildings for the presence of lead-based paint is required in order to prevent occupational exposure to personnel or the general public, and to enact appropriate control measures for lead hazards.

OSHA and EPA regulations must be followed when renovation or demolition work affects any lead based paint (LBP) or paints with detectable lead levels referred to as paint containing lead (PCL). X-Ray Fluorescence (XRF) testing of components was used as the primary testing method for Fire Station #02/ Building 443 prior to renovations. Limited bulk paint and lead wipe sampling was also conducted.

A preconstruction inspection is not to be confused with a Housing and Urban Development (HUD) Title X lead inspection. The preconstruction inspections primary purpose is to identify major building components containing lead in order to properly address the lead during renovation/ demolition that may be impacted by the proposed work for the purpose of OSHA compliance. The inspection was conducted using the EPA's work practice standards for conducting lead-based paint activities (40 CFR 745.227) as a guide and all State and local regulations.

Disturbance of paint containing lead requires special training and initial exposure monitoring at a minimum. Above **0.5% by weight** (bulk paint) or **>1.00 mg/cm²** (XRF), paint is considered to be lead-based. However, in the interest of safety, lower thresholds are utilized in construction since OSHA standards 29 CFR 1926.62 (Lead in Construction) are invoked if any lead is present in the paint; there is no minimum concentration level.

These standards set forth the regulations that apply with regards to construction or renovation of painted materials or structures that contain detectable amounts of lead and not necessarily lead pigment containing items that have been manufactured.



An Innov-X, X-ray tube source, XRF instrument was used for this inspection (model #a-4000, serial number 9897). The unit was operated by a factory trained user in the standard lead paint test mode using the rules and procedures found in the Performance Characteristic Sheet (PCS) for the instrument. The XRF is not substrate dependent according the PCS, so no substrate corrections were required. The XRF was calibrated prior to use and at the end of the testing, and/or every four hours, whichever came first. Calibrations are noted on the X-ray fluorescence data sheets included in Appendix C. Quality control included calibrations to the NIST standard for XRF sampling and duplicate testing of the same component.

2.1 SAMPLING

XRF sampling does not require collection of material and is considered non-destructive. This state-of-the-art method for determining the composition of painted surfaces can quickly determine if a surface contains LBP/PCL or not, and provides sufficient data concerning the amount of lead contained in paint. Data is provided as recorded by the XRF unit at the time of survey using pre and post calibration, and by following the performance characteristic sheet of the equipment. Areas are immediately identified as coated with LBP/PCL using this method.

Most components tested are believed to contain several layers of paint film and are difficult to interpret. XRF and bulk paint analysis does not differentiate which layer of paint may contain lead. The results only indicate the amount of lead that is present in the sample/test location. Lead is likely to be present at a higher percentage in a particular layer than reported due to averaging the weight of other layers of paint into the calculation. For this reason, OSHA standards apply to any sample with detectable lead. Construction activities that impact these paints may result in exposure to lead, even though they are not technically considered lead-based paints.

Results of the lead testing conducted are presented in the following sections.

2.2 XRF RANGES

An inspection was performed on painted and limited non-painted components to be suspect for the presence of lead found at the project building. Readings were then taken of a



representative number of surfaces, dependent on the quantity of the particular material present. Although OSHA utilizes the term “any detectable lead”, the amount of “detectable lead” is relevant in order to determine the potential for lead exposure. Information is presented in a lead range format to assist in determining protective measures and special procedures that may be required during renovation/ demolition activities. The readings were categorized as follows:

- ***Lead-Based*** Paint [**L**] or **>1.00 mg/cm²** lead;
- Containing ***Elevated Lead*** [**E**] or between **0.99 and 0.66 mg/cm²** lead;
- Containing ***Lead of Concern*** [**C**] or between **0.65 and 0.33 mg/cm²** lead; and
- ***Detectable Levels*** of Lead [**D**] or between **0.32 and 0.05 mg/cm²** lead.
- Readings below **0.05 mg/cm²** lead were considered insignificant.

2.3 LEAD COMPONENTS

Lead inspection of BEQ #27266 was conducted on 20 May 2015. Two hundred-forty (240) readings were taken, which includes six (6) test standards for calibration. A summary of the components tested and determined to contain lead are presented in the following sections. A description of the component, including color and substrate is listed. The XRF reading numbers are also included for reference. The complete XRF sampling summary is presented in Appendix C.

2.3.1 Lead components

Components tested and determined to be lead-based [L] or >1.00 mg/cm² lead include:

- Orange metal cabinet (023)
- Tan tile base cove and wall (048, 075, 118, 160, 222)
- White ceramic bath fixtures (049, 066, 119, 120, 161, 162, 205, 220, 221)
- Lt. Blue tile wall (065)
- White metal blinds (083, 124)
- Yellow metal railing (107)
- Red metal fire bell and extinguishers (131, 213, 215)
- Yellow metal bollards (230)

2.3.2 Elevated lead components

Components were tested at levels determined to contain elevated lead [E] or 0.99- 0.66 include.



- Red metal fire pull (132)

2.3.3 Lead of concern components

Components tested and determined to contain lead levels of concern [C] or 0.65 – 0.33 mg/cm² include:

- Red metal fire pull (214)

2.3.4 Detectable lead components

Components tested and determined to contain detectable lead levels [D] or 0.32 – 0.05 mg/cm² lead include:

- Black vinyl base cove (014, 060, 126, 145, 226)
- Blue laminate cabinet- sinks (050, 121, 163, 197, 204)
- White ceramic bath fixture (068)
- Miscellaneous blue metal handle (093)
- Black metal stairs and railing (104, 105)

2.4 OTHER LEAD SAMPLING

Bulk sampling was not conducted since all paints were considered to be in “good” condition with low likelihood to expose personnel. No lead dust wipe samples were collected because no areas of contamination were suspected. No lead soil samples were collected since the exterior perimeter is brick and flashings are metal.

2.5 LEAD COMMENTS/ RECOMMENDATIONS

Occupational exposure to persons conducting disturbance or removal of paint can result in elevated blood lead levels. Lead paint becomes an increased hazard when it deteriorates and oxidizes and/or is present as lead dust. Ingestion and potentially inhalation of resulting dusts may cause lead related health problems.

Based upon the lead sampling results, worker exposure testing would not be required during the demolition activities in BEQ #27266 since damage to lead painted items is not likely. However, if direct disturbance of the paint matrix of lead painted or lead containing items will occur, OSHA dictates exposure monitoring occurs.



Under no circumstances should torch cutting of metals coated with lead since it poses an immediate hazard as heavy metal vapors resulting from the intense heat and are acutely more toxic than airborne particulates. The use of non-torch methods are always preferred, although chop saw cutting also releases particulates into the air posing a risk to equipment operators and risk of area contamination.

Note that samples typically contain several layers of paint and can be difficult to interpret. Analysis does not differentiate which layer of paint may contain lead, the results only indicate the amount of lead that is present in the sample. The various metals may be present at a higher percentage in a particular layer than reported by the laboratory due to averaging the weight of other layers of paint into the calculation. It is for this reason that OSHA standards apply to any sample with detectable metals. Construction activities that impact these paints may result in exposures, even though they are not technically considered lead-based paints.

A toxicity characteristic leachate procedure (TCLP) test was not conducted on bulk structural components of this project since the mass of debris for disposal has not yet been determined/ produced for an accurate sample. However, painted or lead containing materials comprise <5% of the total waste stream mass and it is most unlikely to create a disposal issue. Of note, when scrap metal is disposed of at a reclamation facility, the materials are exempt from regulation as a potentially hazardous waste [EPA 40 CFR 261.6 (a)(3)(ii)].

The following measures are recommended to conduct operations safely during renovation operations.

- Follow OSHA and EPA regulations when performing construction operations affecting paints containing lead.
- Inform facility personnel of the inspection findings.
- Conduct personal air monitoring when performing construction work on painted surfaces until a negative exposure assessments can be completed and approved by appropriate personnel.
- Segregate metal components from the waste stream and designate for recycling.



2.6 CERTIFICATION

The AIHA and NVLAP Accredited laboratory selected to analyze the bulk material samples for lead and RCRA metals content, using EPA Method 6010C was:

**SANAIR TECHNOLOGIES LABORATORY, INC.
1551 OAKBRIDGE DR, SUITE B
POWHATAN, VA 23139
(804) 897-1177**

The EPA-approved and trained inspector who physically surveyed the project site is

**DAVID W. DOBSON
AH ENVIRONMENTAL CONSULTANTS, INC.
11837 ROCK LANDING DRIVE, SUITE 300
NEWPORT NEWS, VA 23608
(757) 873-4959**

SIGNATURE OF INSPECTOR: _____

The above-signed inspectors certify information contained within this inspection report is true and correct concerning site conditions at the time of survey only.



3. OTHER HAZARDS

In addition to asbestos, lead, various additional issues relevant to the project were included in the building assessment. The additional concerns assessed and protocols followed during the assessment are described in this section.

Older building demolition creates additional items of concern; fluorescent lighting fixtures have elemental mercury in the fluorescent bulbs and may also contain polychlorinated biphenyls (PCB) ballasts. Buildings may also contain mercury switches inside of thermostats, lead or other chemical containing batteries, and other materials of special concern. A brief narrative concerning the other hazards to be cognizant of are discussed below.

3.1 MERCURY

Mercury is a toxic elemental metal with unique properties, including being in a liquid state at room temperatures. Human intake of mercury is primarily through oral means. Inhalation of mercury vapor is another source of human exposure. Once absorbed, mercury in all forms is distributed via the blood stream to all tissues in the body. Chronic exposure to mercury primarily affects the central nervous system and kidneys.

Mercury is used in a wide variety of common products including:

- Fluorescent and neon lamps,
- Mercury vapor and high pressure sodium lamps,
- Switches and relays,
- Thermostats and regulators, and
- Thermometers and manometers,

3.1.1 Mercury Lamps

In recent years, the use of fluorescent and high-intensity discharge (HID) lamps has become the standard choice for lighting sources since they can use up to 50 percent less energy than incandescent lighting. However, fluorescent and HID lamps contain mercury and therefore must be properly managed. This includes new “low mercury” lamps. Low



mercury fluorescent lamps are currently in use and can be identified by looking at the metal end plates. Low mercury lamps have “green” and sometimes “gold” end caps, while standard lamps have unfinished aluminum caps. Although low mercury lamps contain approximately one-tenth the amount of mercury as standard lamps, they still must be handled properly.

Inspection of Building 27266 identified approximately 1132 fluorescent lamp tubes in various styles of lighting fixtures. Although only low mercury style bulbs were identified, there is approximately 3376 linear feet of fluorescent lamp total.

3.1.2 Mercury Switch Inspection

Buildings were inspected for older style thermostats that are likely to contain mercury tilt switches. When an older thermostat was identified, the cover was removed to determine if a mercury-filled glass vial was present. The number and location of each mercury switch identified was noted on the field sketches.

No old style thermostats containing a mercury vial were identified during the building inspection. If any are identified during the course of renovation or demolition, they are likely to contain mercury switches. The mercury is in a liquid state, within a small glass vial.

3.2 PCBs

Another potential concern associated with building renovations is the presence of PCBs. Older fluorescent lighting fixtures have the potential to contain ballasts with PCB capacitors. Inspections included a visual survey of light fixtures to determine if pre-1980 fixtures were present. All ballasts manufactured after 1 July 1978 that do not contain PCBs are required to be clearly marked “**NO PCBs**”. Ballasts without a date of manufacture or clearly marked “**NO PCBs**” must be assumed to contain PCBs.

PCBs are synthetic organic chemicals that were produced in the United States from 1929 to 1977. Due to their non-flammability, chemical stability, high boiling point and



electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics and rubber products; in pigments, dyes and carbonless copy paper and many other applications. A major use of PCBs was in fluorescent light fixture ballasts (in the capacitor).

PCBs have been demonstrated to cause a variety of adverse health effects including cancer and a number of serious non-cancer health effects in animals. These effects include damage to the immune system, reproductive system, nervous system, and endocrine system. Studies in humans provide evidence for carcinogenic and non-carcinogenic effects of PCBs. Concern over PCBs in the environment led Congress in 1976 to enact §6(e) of the Toxic Substances Control Act (TSCA) that included among other things, prohibitions on the manufacture, processing, and distribution in commerce of PCBs.

Inspection of the light ballasts included in this project involved the disassembly of light fixtures to reveal the ballast. Information including manufacturer, model numbers, and condition were recorded. A cross reference was made to known listings of PCB ballast manufacturers to determine if the ballast should be assumed PCB containing. Ballasts were not disassembled.

Only electronic style ballasts were identified. No PCB ballasts are believed to be present in the building.

3.3 IAQ ISSUES

Indoor air quality (IAQ) concerns were noted during the inspection. Although presented for buildings that will remain occupied or renovated, the information is considered relevant to this and other buildings of the type.



3.3.1 Dusts

Significant dust loading was identified at most bathroom exhaust fans. Proper operation of these fans is critical in maintaining lowered humidity levels. Locations of heavy dust loading on the fans also exhibited mold growth typical of a high humidity environment.

3.3.2 Mold

Visible mold growth, high humidity/moisture levels, and other factors likely to produce conditions that would promote mold growth were also documented during the building assessment.

The mold growth is considered localized to bathroom areas and not as the result of water intrusion or leakage. No airborne mold concerns are expected during the demolition of the building.

The buildings do not appear to have a significant mold problem at the current time. However, localized areas of mold are present with a likely source determined. Correction of the water issue will correct the mold issues in most cases.

3.4 SOILS

Since the building is to be razed, the issue of soil disturbance is relevant. Currently, one above ground storage tank on a concrete pad, labeled as fuel oil, is present. Inspection at the perimeter indicated no signs of leakage. It is assumed the tank can be removed intact and reused without concern.

Historical records indicated the building was once supplied by an underground storage tank, likely number 2 fuel oil. The current closure status of the tank was not determined. However, drawings provided indicate the location of the tank to within one meter, and depression of the soils in that location indicate the location of the tank. Core soil sampling was conducted to determine the presence of contaminants from the tank. One core sample was collected at the center of the tank area and no tank was identified, thus the tank is believed to have been removed previously.



Testing of the soils at the area included:

- Total petroleum hydrocarbons (TPH), as diesel range organics (DRO)
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX), volatile organic compounds (VOCs) found in petroleum products , and
- Methyl tertiary-butyl ether (MTBE), a chemical compound resultant of the reaction of methanol and isobutylene, almost exclusively used as a fuel additive in fuels.

Results of the soil testing are shown in the following table. Results are given in parts per million (ppm)/ milligrams per kilogram or parts per billion (ppb)/ micrograms per kilogram.

Table 3-1
Soil Sample Results

Sample	Description	TPH/ DRO (ppm)	BTE(X) (ppb)	MTBE (ppb)
27266-S01	Southside, west at former tank, 9-10' depth	<6.97	<1.89 (<5.56)	<4.71
27266-S02	Southside, west at former tank north, 8-9' depth	<8.08	<2.14 (<6.42)	<5.35
27266-S03	Southside, west at former tank south, 9-10' depth	<8.00	<2.27 (<6.80)	<5.67

Based on these results, it appears as though no concerns for soil/ petroleum contamination are present.

3.5 OTHER ITEMS OF NOTE

Items of note for potential regulatory concern were noted during the inspection as follows:

- Exit signage may contain lead battery backup. Removal if required should be done with caution. All batteries (lead acid, NiMH, or NiCd) should be recycled
- Emergency lighting will contain battery backup. Removal if required should be done with caution. All batteries (lead acid, NiMH, or NiCd) should be recycled.
- Fire strobe lights may contain mercury high intensity discharge lamps. Do not damage fire strobes and dispose of with fluorescent lighting.



- Smoke detectors may contain a small amount of radioactive filament. Consult local and state requirements prior to disposal.

3.6 RECOMMENDATIONS

Broken or crushed, fluorescent and HID lamps must be managed as a hazardous waste. This can become costly when managing a large volume of lamps needing disposal. The Federal Government and most locales, have adopted disposal regulations for handling fluorescent and HID lamps as a universal waste based upon a “recycling presumption”. Through recycling and proper handling of spent lamps as a universal waste, the burdens and liabilities placed upon disposers are reduced. The universal waste rule does not authorize disposal of mercury containing lamps in landfills, but has created a cost effective alternative for disposal through recycling.

Approved recycling facilities reduce lamps to their primary components: spent glass, aluminum, and phosphor and mercury powder. The spent glass and aluminum are sold to manufacture’s for reuse. The phosphor and mercury powder is distilled and compounds are then reused in various manufacturing sectors which eliminates hazardous materials from entering the environment.

Although most light ballasts identified during the inspection do not contain PCBs, it is NAVFAC policy [specification 02 82 16.20] to dispose of all ballasts in an environmentally preferred manner. Therefore, all fluorescent light tubes (including those deemed low mercury), HID lights, and all ballasts should be packaged intact and sent to an approved recycling facility for disposal/recycling.

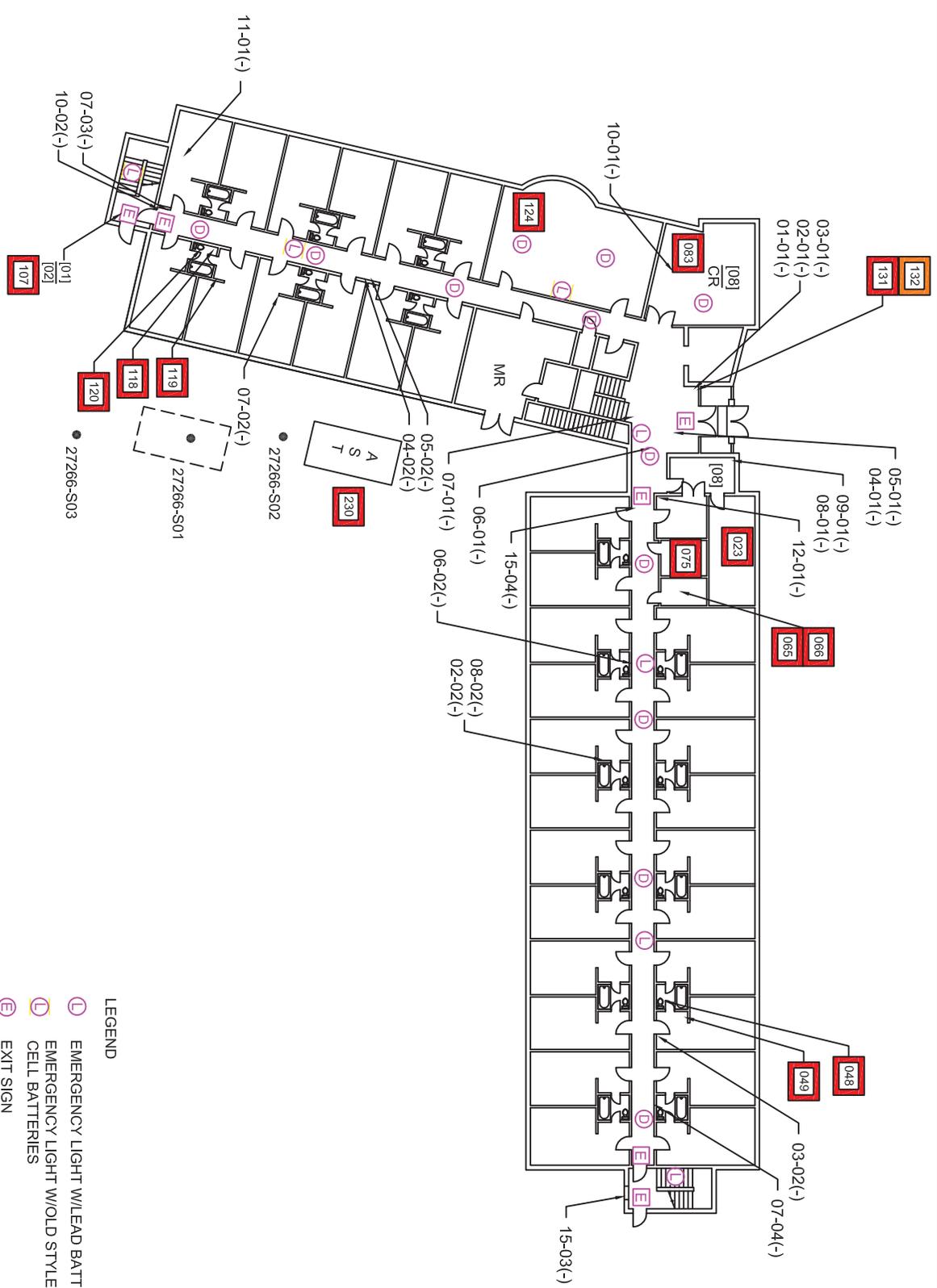


HAZMAT Inspection Drawings



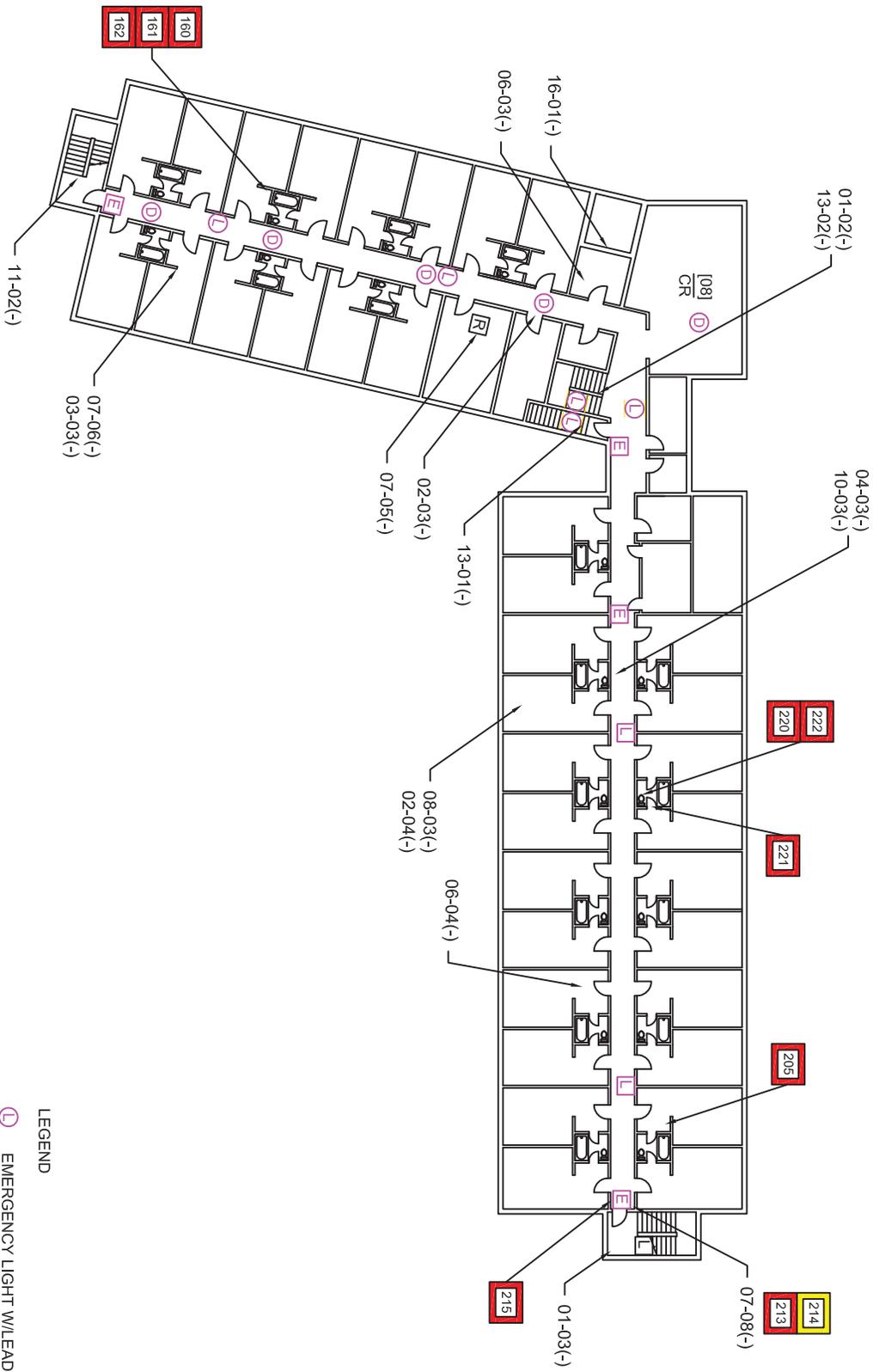
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SAMPLE LEGEND
 SAMPLE IDENTIFICATION
 0-401 (-) (+) POSITIVE (+) NEGATIVE (-) OR TRACE (TR) FOR THE PRESENCE OF ASBESTOS
 HOMOGENEOUS MATERIAL



NO ACM IDENTIFIED
BUILDING 27266
FIRST FLOOR

- LEGEND**
- Ⓛ EMERGENCY LIGHT W/LEAD BATTERY
 - Ⓛ EMERGENCY LIGHT W/O LD STYLE CELL BATTERIES
 - ⓔ EXIT SIGN
 - ⓓ OLD SMOKE DETECTOR
 - BULK SOIL SAMPLE LOCATIONS



SAMPLE LEGEND
 SAMPLE IDENTIFICATION
 0-001 (-) (+) POSITIVE (+), NEGATIVE (-), OR TRACE (TR) FOR THE PRESENCE OF ASBESTOS
 HOMOGENEOUS MATERIAL

NO ACM IDENTIFIED
BUILDING 27266
SECOND FLOOR

- LEGEND**
- Ⓧ EMERGENCY LIGHT W/LEAD BATTERY
 - Ⓧ EMERGENCY LIGHT W/OLD STYLE CELL BATTERIES
 - Ⓧ EXIT SIGN
 - Ⓧ OLD SMOKE DETECTOR
 - Ⓧ ROOF ACCESS



Inspection Photo-Log



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LBP: Lead paint detected, orange metal cabinet, XRF023.



Lead: Lead detected $>1.0 \mu\text{g}/\text{ft}^2$ in tan hard tiles, XRF048 (typical)



Lead: Lead detected $>1.0 \mu\text{g}/\text{ft}^2$ in white ceramic sinks, XRF049 (typical).



Lead: Lead detected $>1.0 \mu\text{g}/\text{ft}^2$ in light blue hard tiles, XRF065 (typical).



Lead: Lead detected $>1.0 \mu\text{g}/\text{ft}^2$ in white metal mini-blinds, XRF083 (typical).



LBP: Lead paint detected, yellow metal railings, XRF 107.



Lead: Lead detected $>1.0 \mu\text{g}/\text{ft}^2$ in white ceramic toilets, XRF0120 (typical).



LBP: Lead paint identified on red fire bells, XRF131 (typical)



LBP: Elevated lead in paint identified on fire pulls, XRF132 (typical).



LBP: Lead paint detected on fire extinguishers, XRF215 (typical).



Lead: Lead detected $>1.0 \mu\text{g}/\text{ft}^2$ in yellow metal bollards, XRF230 (typical).

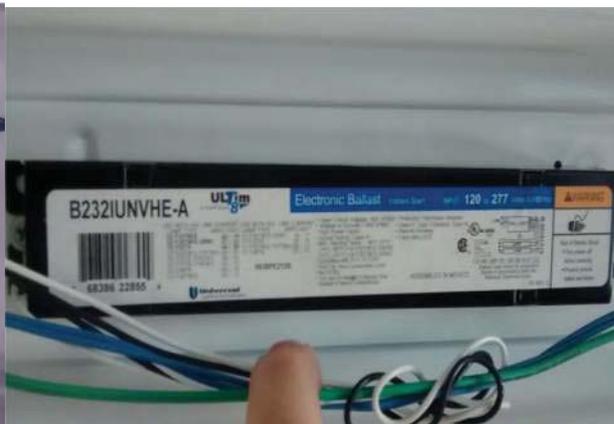


Lead: Emergency lighting with lead battery pack (typical).



Lead: Emergency lighting with lead battery (typical).

Mercury: Fluorescent bulbs contain mercury, recycle as universal waste (typical).



PCBs: Only electronic light ballasts were identified, labeled No PCBs (typical).

PCBs: Only electronic light ballasts were identified, labeled No PCBs (typical).



Smoke Detectors: Smoke detectors should be removed and handled according to state law.

Soils: No significant findings at former UST location.

BURNS MCDONNELL
 AH Environmental
 Newport News, VA

Hazardous Material Inspection
Building 27266, Embassy Guard BEQ
 Marine Corps Base Quantico, Virginia
 3 of 3

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Laboratory and XRF Reports of Analysis



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15014539

AH Environmental Consultants Inc.

Bulk Asbestos Analysis

Date: 19 May 2015
Project: AH #122-72, WW/BMCD

Location: MCB Quantico, VA
Building: #27266 Embassy Guard BEQ [DEMO]

Sample Number (Bldg- Type- Number)	Sample Description/ Location
27266-01-01	12" White w/black spec tile + adhesive, lobby
27266-02-01 *	Beige tile (under 01), lobby
27266-03-01	4" Black vinyl base + adhesive, lobby
27266-04-01	2x4 Ceiling tile, I, lobby
27266-05-01	2x4 Ceiling tile, II, lobby
27266-06-01	Fiberglass sealant, beige, HVAC trunk, lobby
27266-07-01	Drywall + joint mat'l, wall, lobby stairs
27266-08-01	12" Beige w/brown tile + adhesive, duty desk
27266-09-01	Concrete expansion joint mat'l, duty desk
27266-10-01	2x4 Ceiling tile, III, XO office
27266-04-02	2x4 Ceiling tile I, hall west cntr
27266-05-02	2x4 Ceiling tile II, hall west cntr
27266-07-02	Drywall + joint mat'l, wall, #116
27266-10-02	2x4 Ceiling tile, III, hall SW exit
27266-07-03	Drywall + joint mat'l, wall, hall SW exit

Notes 5 Day TAT - PLM

*Analyze tile material PLM + TEM; adhesives (if any) PLM only

Relinquished by (Signature) <i>[Signature]</i> COBSON	Date 5/21/15	Received by (Signature)	Company	Date
Relinquished by (Signature)	Date	Received by (Signature)	Company	Date

Page 1 of

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AC

MAY 22 2015

10:29AM

15014538

AH Environmental Consultants Inc.

Bulk Asbestos Analysis

Date: 19 MAY 2015

Location: MCB Quantico, VA

Project: AH #122-72, WW/BMCD

Building: #27266 Embassy Guard BEQ
[DEMO]

Sample Number (Bldg- Type- Number)	Sample Description/ Location
27266-11-01	Caulking, tan, conc preform ceiling joints, #122
27266-12-01	Fire door liner, wood laminate, #107 utility clos.
27266-06-02	Fiberglass sealant, beige, water line, hall @ #109
27266-07-04	Drywall + joint mat'l, wall, hall @ #143
27266-08-02	12" Beige w/brown tile + adhesive, #113
27266-02-02	Beige tile + adhesive (under 08), #113
27266-03-02	4" Black vinyl base + adhesive, #135
27266-13-01	Vinyl stair tread, black, and adhesive, cntr. stair 2
27266-14-01	Misc sealant, white, valve packing, roof
27266-11-02	Caulking, white, roof vents, roof west
27266-15-02	Caulking, gray, roof drains, roof west
27266-07-05	Drywall + joint mat'l, ceiling, roof access
27266-06-03	Fiberglass sealant beige, HVAC trunk, #202
27266-16-01	Misc sealant, black, roof flashing, west awn.
27266-02-03	Beige tile + adhesive (under 01), @ #209 MR

Notes 5 Day TAT- PLM

* analyse tile mat'l PLM + TEM; adhesive PLM only

Relinquished by (Signature)	Date	Received by (Signature)	Company	Date
<i>[Signature]</i> DOBSON	5/21/15			

MC

15014538

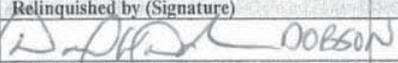
AH Environmental Consultants Inc.

Bulk Asbestos Analysis

Date: 19 MAY 2015 Location: MCB Quantico, VA
 Project: AH #122-72, WW/BMCD Building: #27266 Embassy Guard BEQ
[DEMO]

Sample Number (Bldg-Type-Number)	Sample Description/ Location
27266-11-02	Caulking, joint , concrete panel joint, SW stairs
27266-07-06	Joint mat'l, wall, # 224
27266-03-03	4" Black vinyl base + adhesive, #224
27266-13-02	Vinyl stair tread, black II, cntr stairs
27266-01-02	12" White w/ black spec tile, cntr stair hall, 2 nd fl
27266-04-03	2x4 ceiling tile, I, @ hall @ #209
27266-10-03	2x4 ceiling tile, III, hall @ #209
27266-08-03	12" Beige w/ brown tile + adhesive, #209
27266-02-04	Beige tile + adhesive (under 08), #209
27266-07-07	Joint mat'l, wall, #219 Head
27266-06-04	Fiberglass sealant, beige, #229
27266-07-08	Drywall + joint mat'l, hall @ #243
27266-01-03	12" White w/ black spec tile, SE stairs
27266-17-01	Boiler insulation + rope gasket, door, MR
27266-18-01	Misc. sealant/pipe wrap, black, CW, MR

Notes 5 Day TAT, PLM

Relinquished by (Signature) 	Date <u>5/21/15</u>	Received by (Signature)	Company	Date
Relinquished by (Signature)	Date	Received by (Signature)	Company	Date

Page 3 of

11837 Rock Landing Dr., Suite 300
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ddobson@ahenv.com

Photos w/ DD phone, (2x5 hall tiles)

MAY 22 2015 10:29AM



SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com

SanAir ID Number

15014538

FINAL REPORT

Name: AH Environmental Consultants, Inc.
Address: 11837 Rock Landing Drive
Suite 300
Newport News, VA 23606

Project Number: #122-72, WW/BMCD
P.O. Number:
Project Name: MCB Quantico, VA #27266 Embassy Guard BEQ

Collected Date: 5/19/2015
Received Date: 5/22/2015 10:20:00 AM
Report Date: 5/29/2015 5:53:51 PM
Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-01-01 / 15014538-001 Floor Tile	White Non-Fibrous Homogeneous	100%	Other	None Detected

27266-01-01 / 15014538-001 Adhesive	Yellow Non-Fibrous Homogeneous	100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-02-01 / 15014538-002 Floor Tile	Beige Non-Fibrous Homogeneous	100%	Other	None Detected

27266-02-01 / 15014538-002 Adhesive	Yellow Non-Fibrous Homogeneous	100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-03-01 / 15014538-003 Cove Base	Black Non-Fibrous Homogeneous	100%	Other	None Detected

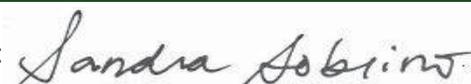
27266-03-01 / 15014538-003 Adhesive	Yellow Non-Fibrous Homogeneous	100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-04-01 / 15014538-004	White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-05-01 / 15014538-005	White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Other	None Detected

Certification

Signature: 
Date: 5/29/2015

Reviewed: 
Date: 5/29/2015



SanAir Technologies Laboratory, Inc.

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SanAir ID Number

15014538

FINAL REPORT

Name: AH Environmental Consultants, Inc.
Address: 11837 Rock Landing Drive
Suite 300
Newport News, VA 23606

Project Number: #122-72, WW/BMCD
P.O. Number:
Project Name: MCB Quantico, VA #27266 Embassy Guard BEQ

Collected Date: 5/19/2015
Received Date: 5/22/2015 10:20:00 AM
Report Date: 5/29/2015 5:53:51 PM
Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-06-01 / 15014538-006	Beige Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-01 / 15014538-007 Drywall	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected

27266-07-01 / 15014538-007 Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-08-01 / 15014538-008 Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected

27266-08-01 / 15014538-008 Adhesive	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-09-01 / 15014538-009	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-10-01 / 15014538-010	White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-04-02 / 15014538-011	White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Other	None Detected

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Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-05-02 / 15014538-012	White Fibrous Homogeneous	45% Cellulose 40% Min. Wool	15% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-02 / 15014538-013 Drywall	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected

27266-07-02 / 15014538-013 Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-10-02 / 15014538-014				None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-03 / 15014538-015 Drywall	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected

27266-07-03 / 15014538-015 Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-11-01 / 15014538-016	Tan Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-12-01 / 15014538-017	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected

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Report Date: 5/29/2015 5:53:51 PM
Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-06-02 / 15014538-018	Beige Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-04 / 15014538-019 Drywall	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected
27266-07-04 / 15014538-019 Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-08-02 / 15014538-020 Floor Tile	Brown Non-Fibrous Homogeneous		100% Other	None Detected
27266-08-02 / 15014538-020 Adhesive	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-02-02 / 15014538-021 Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
27266-02-02 / 15014538-021 Adhesive	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-03-02 / 15014538-022 Cove Base	Black Non-Fibrous Homogeneous		100% Other	None Detected
27266-03-02 / 15014538-022 Adhesive	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

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Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-13-01 / 15014538-023 Tread	Black Non-Fibrous Homogeneous	100%	Other	None Detected

27266-13-01 / 15014538-023 Adhesive	Yellow Non-Fibrous Homogeneous	100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-14-01 / 15014538-024	White Non-Fibrous Homogeneous	100%	Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-15-01 / 15014538-025	White Non-Fibrous Homogeneous	100%	Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-15-02 / 15014538-026	Grey Non-Fibrous Homogeneous	100%	Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-05 / 15014538-027 Drywall	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected

27266-07-05 / 15014538-027 Joint Compound	White Non-Fibrous Homogeneous	100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-06-03 / 15014538-028	Beige Non-Fibrous Homogeneous	100%	Other	None Detected

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Report Date: 5/29/2015 5:53:51 PM
Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
27266-16-01 / 15014538-029	Black Non-Fibrous Homogeneous		100%	Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
27266-02-03 / 15014538-030 Floor Tile	Beige Non-Fibrous Homogeneous		100%	Other	None Detected

27266-02-03 / 15014538-030 Adhesive	Yellow Non-Fibrous Homogeneous		100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
27266-11-02 / 15014538-031	Tan Non-Fibrous Homogeneous		100%	Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
27266-07-06 / 15014538-032	White Non-Fibrous Homogeneous		100%	Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
27266-03-03 / 15014538-033 Cove Base	Black Non-Fibrous Homogeneous		100%	Other	None Detected

27266-03-03 / 15014538-033 Adhesive	Yellow Non-Fibrous Homogeneous		100%	Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	% Fibrous	Components		Asbestos Fibers
			% Non-Fibrous		
27266-13-02 / 15014538-034	Black Non-Fibrous Homogeneous		100%	Other	None Detected

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Collected Date: 5/19/2015
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Report Date: 5/29/2015 5:53:51 PM
Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-01-02 / 15014538-035	White Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-04-03 / 15014538-036	White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-10-03 / 15014538-037	White Fibrous Homogeneous	40% Cellulose 40% Min. Wool	20% Other	None Detected

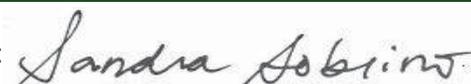
SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-08-03 / 15014538-038 Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
27266-08-03 / 15014538-038 Adhesive	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-02-04 / 15014538-039 Floor Tile	Beige Non-Fibrous Homogeneous		100% Other	None Detected
27266-02-04 / 15014538-039 Adhesive	Yellow Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-07 / 15014538-040	White Non-Fibrous Homogeneous		100% Other	None Detected

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Analyst: Tallert, Jonathan G.

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-06-04 / 15014538-041	Beige Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-07-08 / 15014538-042 Drywall	White Non-Fibrous Homogeneous	10% Cellulose	90% Other	None Detected

27266-07-08 / 15014538-042 Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
--	-------------------------------------	--	------------	---------------

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-01-03 / 15014538-043	White Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-17-01 / 15014538-044 Insulation	Beige Fibrous Homogeneous	95% Glass	5% Other	None Detected

27266-17-01 / 15014538-044 Gasket	White Fibrous Homogeneous	99% Glass	1% Other	None Detected
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SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-18-01 / 15014538-045	Black Non-Fibrous Homogeneous		100% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-15-03 / 15014538-046	Beige Non-Fibrous Homogeneous		100% Other	None Detected

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Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
27266-15-04 / 15014538-047	White Non-Fibrous Homogeneous		100% Other	None Detected

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Analyst: Tallert, Jonathan G.

Asbestos Bulk TEM Chatfield

Sample	% Other Material	% Non-Asbestos Fibers	Asbestos Types	% Total Asbestos
27266-02-01 15014538-048 Beige	100	<1%	None Detected	

Sample	% Other Material	% Non-Asbestos Fibers	Asbestos Types	% Total Asbestos
27266-02-03 15014538-049 Beige	100	<1%	None Detected	

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For NY state samples, method EPA 600/M4-82-020 is performed.

Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

NY ELAP lab ID 11983

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BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
2	1.03	0.03	X	STANDARD	RED		GOOD	QUAN 27266	
3	1.17	0.09	X	STANDARD	RED		GOOD	QUAN 27266	
4	1.06	0.04	X	STANDARD	RED		GOOD	QUAN 27266	
5	0.00	0.00		DOOR	WHITE	METAL	GOOD	maon entrance	
6	0.00	0.00		DOOR FRAME	TAN	WOOD	GOOD	main entrance	
7	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	main entrance	
8	0.00	0.00		CEILING	WHITE	CONCRETE	GOOD	main entrance	header beam
9	0.00	0.00		MISCELLANEOUS	TAN	METAL	GOOD	main entrance	heater
10	0.00	0.00		CEILING	WHITE	CONCRETE	GOOD	foyer	
11	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	foyer	
12	0.00	0.00		WALL	WHITE	BLOCK	GOOD	foyer	
13	0.00	0.00		WALL	WHITE	BLOCK	GOOD	foyer	
14	0.09	0.02	D	BASE COVE	BLACK	VINYL	GOOD	foyer	
15	0.00	0.00		WALL	WHITE	BLOCK	GOOD	145 duty hut	
16	0.00	0.00		WALL	WHITE	BLOCK	GOOD	145 duty hut	
17	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	145 duty hut	
18	0.00	0.00		DOOR	TAN	WOOD	GOOD	145 duty hut	
19	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	145 duty hut	
20	0.00	0.00		WALL	WHITE	BLOCK	GOOD	145A office	
21	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	145A office	
22	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	145A office	
23	1.20	0.09	L	MISCELLANEOUS	ORANGE	METAL	GOOD	145A office	cabinet
24	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall	
25	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall	
26	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall	
27	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall	
28	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall	
29	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall	
30	0.00	0.00		WALL	BLACK	DRYWALL	GOOD	East hall	
31	0.00	0.00		WALL	BLACK	DRYWALL	GOOD	East hall	
32	0.00	0.00		DOOR	BEIGE	WOOD	GOOD	East hall #119	
33	0.00	0.00		DOOR FRAME	BEIGE	METAL	GOOD	East hall #119	
34	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	East hall #119	

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
35	0.00	0.00		MISCELLANEOUS	TAN	METAL	GOOD	East hall #119	heater
36	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #119	
37	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #119	
38	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall #119	
39	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	East hall #119	
40	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #135	
41	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	East hall #135 head	
42	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #135 head	
43	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #135 head	
44	0.00	0.00		DOOR	TAN	WOOD	GOOD	East hall #135 head	
45	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	East hall #135 head	
46	0.00	0.00		BATH FIXTURE	WHITE	CERAMIC	GOOD	East hall #135 head	toilet
47	0.00	0.00		FLOOR	TAN	TILE	GOOD	East hall #135 head	
48	5.00	0.69	L	BASE COVE	TAN	TILE	GOOD	East hall #135 head	
49	5.00	0.64	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	East hall #135	sink
50	0.10	0.03	D	CABINET	BLUE	LAMINATE	GOOD	East hall #135	sink
51	0.00	0.00		CEILING	WHITE	CONCRETE	GOOD	East hall #135	
52	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #135	
53	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall #135	
54	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	East hall #135	
55	0.00	0.00		DOOR	TAN	WOOD	GOOD	East hall #113	
56	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	East hall #113	
57	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #113	
58	0.00	0.00		WALL	WHITE	BLOCK	GOOD	East hall #113	
59	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	East hall #113	
60	0.08	0.03	D	BASE COVE	BLACK	VINYL	GOOD	East hall #113	
61	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	East hall #113 head	
62	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	East hall #113 head	
63	0.02	0.02		BATH FIXTURE	WHITE	PLASTIC	GOOD	East hall #113 head	tub
64	0.00	0.00		FLOOR	TAN	TILE	GOOD	East hall #113 head	
65	5.00	0.72	L	WALL	LT. BLUE	TILE	GOOD	East hall male head	
66	5.00	0.65	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	East hall male head	sink
67	0.00	0.00		BATH FIXTURE	WHITE	CERAMIC	GOOD	East hall male head	urinal

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
68	0.14	0.03	D	BATH FIXTURE	WHITE	CERAMIC	GOOD	East hall male head	toilet
69	0.00	0.00		FLOOR	GRAY	TILE	GOOD	East hall male head	
70	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	East hall male head	
71	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	East hall female head	
72	0.00	0.00		DOOR	TAN	WOOD	GOOD	East hall female head	
73	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	East hall female head	
74	0.00	0.00		FLOOR	TAN	TILE	GOOD	East hall female head	
75	5.00	0.66	L	WALL	TAN	TILE	GOOD	East hall female head	
76	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	East hall female head	
78	0.00	0.00		DOOR	TAN	WOOD	GOOD	#144	
79	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	#144	
80	0.00	0.00		WALL	WHITE	BLOCK	GOOD	#144	
81	0.00	0.00		WALL	WHITE	BLOCK	GOOD	#144	
82	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	#144	
83	1.00	0.01	L	BLINDS	WHITE	METAL	GOOD	#144	
84	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	#144	
85	0.00	0.00		DOOR	TAN	METAL	GOOD	west hall MR	
86	0.00	0.00		DOOR	GRAY	METAL	GOOD	west hall MR	
87	0.00	0.00		DOOR FRAME	GRAY	METAL	GOOD	west hall MR	
88	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall MR	
89	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall MR	
90	0.00	0.00		WALL	BEIGE	BLOCK	GOOD	west hall MR electric	
91	0.00	0.00		WALL	BEIGE	BLOCK	GOOD	west hall MR electric	
92	0.00	0.00		DOOR	MAROON	METAL	GOOD	west hall MR electric	
93	0.08	0.07	D	MISCELLANEOUS	BLUE	METAL	GOOD	west hall MR	handle
94	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall	
95	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall	
96	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall	
97	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	west hall	
98	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	west hall	
99	0.00	0.00		DOOR	TAN	METAL	GOOD	South stair	
100	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	South stair	
101	0.00	0.00		DOOR FRAME	GRAY	METAL	GOOD	South stair	ext

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
102	0.00	0.00		WALL	WHITE	BLOCK	GOOD	South stair	
103	0.01	0.02		STAIR	BLACK	METAL	GOOD	South stair	
104	0.09	0.07	D	STAIR	BLACK	METAL	GOOD	South stair	
105	0.06	0.10	D	RAILING	BLACK	METAL	GOOD	South stair	
106	0.00	0.00		WALL	WHITE	BLOCK	GOOD	South stair	
107	2.28	0.24	L	RAILING	YELLOW	METAL	GOOD	South exterior	
108	0.00	0.00		MISCELLANEOUS		METAL	GOOD	South stair	handle
109	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	west hall #120	
110	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	west hall #120	
111	0.00	0.00		MISCELLANEOUS	TAN	METAL	GOOD	west hall #120	heater
112	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall #120	
113	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	west hall #120	
114	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	west hall #120 head	
115	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	west hall #120 head	
116	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall #120 head	
117	0.00	0.00		FLOOR	TAN	TILE	GOOD	west hall #120 head	
118	5.00	0.74	L	BASE COVE	TAN	TILE	GOOD	west hall #120 head	
119	5.00	0.64	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	west hall #120 head	sink
120	1.00	0.01	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	west hall #120 head	toilet
121	0.11	0.04	D	CABINET	BLUE	LAMINATE	GOOD	west hall #120	
122	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall #146	
123	0.00	0.00		WALL	WHITE	BLOCK	GOOD	west hall #146	
124	1.00	0.02	L	BLINDS	WHITE	METAL	GOOD	west hall #146	
125	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	west hall #146	
126	0.23	0.09	D	BASE COVE	BLACK	VINYL	GOOD	west hall #146	
127	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	west hall #146	
128	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	west hall #146	
129	0.00	0.00		DOOR	TAN	WOOD	GOOD	west hall #146	
130	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	west hall #146	
131	1.64	0.15	L	MISCELLANEOUS	RED	METAL	GOOD	lobby	fire bell
132	0.66	0.06	E	MISCELLANEOUS	RED	METAL	GOOD	lobby	fire pull
133	0.00	0.00		WALL	WHITE	BLOCK	GOOD	radio/ com	
134	0.00	0.00		WALL	WHITE	BLOCK	GOOD	Cntr stair	

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
135	0.00	0.00		WALL	WHITE	BLOCK	GOOD	Cntr stair	
136	0.00	0.00		WALL	WHITE	BLOCK	GOOD	Cntr stair	
137	0.00	0.01		STAIR	BLACK	METAL	GOOD	Cntr stair	
138	0.01	0.02		RAILING	BLACK	METAL	GOOD	Cntr stair	
139	0.00	0.00		DOOR	TAN	WOOD	GOOD	2nd #299	
140	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	2nd #299	
141	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #299	
142	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #299	
143	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #299	
144	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	2nd #299	
145	0.11	0.03	D	BASE COVE	BLACK	VINYL	GOOD	2nd #299	
146	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west hall	
147	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west hall	
148	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd west hall	
149	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd west hall	
150	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west #218	
151	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west #218	
152	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd west #218	
153	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	2nd west #218	
154	0.00	0.00		CEILING	WHITE	CONCRETE	GOOD	2nd west #218	
155	0.00	0.00		DOOR	TAN	WOOD	GOOD	2nd west #218 head	
156	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	2nd west #218 head	
157	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west #218 head	
158	0.00	0.00		FLOOR	TAN	TILE	GOOD	2nd west #218 head	
159	0.02	0.02		BATH FIXTURE	WHITE	PLASTIC	GOOD	2nd west #218 head	tub
160	5.00	0.67	L	BASE COVE	TAN	TILE	GOOD	2nd west #218 head	
161	1.00	0.02	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	2nd west #218 head	toilet
162	5.00	0.68	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	2nd west #218 head	sink
163	0.10	0.03	D	CABINET	BLUE	LAMINATE	GOOD	2nd west #218 head	sink
164	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd west laundry	
165	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd west laundry	
166	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	2nd west laundry	
167	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west laundry	

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
168	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd west laundry	
169	0.00	0.00		WALL	WHITE	PLASTIC	GOOD	2nd west laundry	
170	0.00	0.00		CABINET	WHITE	WOOD	GOOD	2nd west laundry	
171	0.00	0.00		CABINET	WHITE	WOOD	GOOD	2nd west laundry	
172	0.00	0.00		DOOR	TAN	WOOD	GOOD	2nd west laundry	
173	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	2nd west laundry	
174	0.02	0.02		MISCELLANEOUS	TAN	METAL	GOOD	2nd west laundry	ladder
175	0.00	0.00		MISCELLANEOUS	BLACK	VINYL	GOOD	2nd stair 2	tread
176	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd stair 2	
177	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd stair 2	
178	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd storage 2-2a	
179	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd storage 2-2a	
180	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd storage 2-2a	
181	0.00	0.00		CABINET	WHITE	WOOD	GOOD	2nd storage 2-2a	
182	0.00	0.00		FLOOR	BROWN	TILE	GOOD	2nd storage 2-2a	
183	0.00	0.00		MISCELLANEOUS	BROWN	PLASTIC	GOOD	2nd storage 2-2a	lamp
184	0.00	0.00		DOOR	TAN	WOOD	GOOD	2nd #205	
185	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	2nd #205	
186	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #205	
187	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #205	
188	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #205	
189	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	2nd #205	
190	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	2nd #205	
191	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	2nd #205 head	
192	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #205 head	
193	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #205 head	
194	0.00	0.00		FLOOR	TAN	TILE	GOOD	2nd #205 head	
195	0.00	0.00		DOOR	TAN	WOOD	GOOD	2nd #205 head	
196	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	2nd #205 head	
197	0.11	0.04	D	CABINET	BLUE	LAMINATE	GOOD	2nd #205 head	
198	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #239	
199	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #239	
200	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #239	

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
201	0.00	0.00		WINDOW SILL	WHITE	CONCRETE	GOOD	2nd #239	
202	0.00	0.00		CEILING	WHITE	CONCRETE	GOOD	2nd #239	
203	0.00	0.00		MISCELLANEOUS	TAN	METAL	GOOD	2nd #239	heater
204	0.09	0.03	D	CABINET	BLUE	LAMINATE	GOOD	2nd #239	
205	5.00	0.75	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	2nd #239	sink
206	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd east stair	
207	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd east stair	
208	0.00	0.00		CEILING	WHITE	CONCRETE	GOOD	2nd east stair	
209	0.01	0.01		RAILING	BLACK	METAL	GOOD	2nd east stair	
210	0.00	0.00		DOOR	TAN	METAL	GOOD	2nd east stair	
211	0.00	0.00		DOOR FRAME	TAN	METAL	GOOD	2nd east stair	
212	0.01	0.01		MISCELLANEOUS	BLACK	METAL	GOOD	2nd east stair	ladder
213	1.47	0.11	L	MISCELLANEOUS	RED	METAL	GOOD	2nd east stair	fire bell
214	0.63	0.06	C	MISCELLANEOUS	RED	METAL	GOOD	2nd east stair	fire pull
215	1.02	0.03	L	MISCELLANEOUS	RED	METAL	GOOD	2nd east stair	fire extinguisher
216	0.00	0.00		CEILING	WHITE	DRYWALL	GOOD	2nd #219 head	
217	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #219 head	
218	0.00	0.00		FLOOR	TAN	TILE	GOOD	2nd #219 head	
219	0.04	0.03		BATH FIXTURE	WHITE	PLASTIC	GOOD	2nd #219 head	tub
220	1.00	0.01	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	2nd #219 head	toilet
221	5.00	0.68	L	BATH FIXTURE	WHITE	CERAMIC	GOOD	2nd #219 head	sink
222	5.00	0.66	L	BASE COVE	TAN	TILE	GOOD	2nd #219 head	
223	0.00	0.00		DOOR	TAN	WOOD	GOOD	2nd #219 head	
224	0.00	0.00		WALL	WHITE	BLOCK	GOOD	2nd #219 head	
225	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd #219 head	
226	0.11	0.02	D	BASE COVE	BLACK	VINYL	GOOD	2nd #219 head	
227	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd north hall	
228	0.00	0.00		WALL	WHITE	DRYWALL	GOOD	2nd north hall	
229	0.00	0.00		MISCELLANEOUS	GRAY	METAL	GOOD	exterior	bike rack
230	1.22	0.11	L	MISCELLANEOUS	YELLOW	METAL	GOOD	exterior	bollards
231	0.00	0.00		MISCELLANEOUS	WHITE	CONCRETE	GOOD	exterior	tank
232	0.00	0.00		MISCELLANEOUS	WHITE	CONCRETE	GOOD	exterior	tank
233	0.00	0.00		MISCELLANEOUS	MAROON	METAL	GOOD	exterior	downspouts

BUILDING 27266/ WHALING HALL

Reading	Pb	Pb +/-	LL	COMPONENT	COLOR	SUBSTRATE	CONDITION	LOCATION	NOTE
234	0.00	0.00		MISCELLANEOUS	MAROON	METAL	GOOD	exterior	cover
235	0.00	0.00		MISCELLANEOUS	YELLOW	CONCRETE	GOOD	exterior	curbs
236	0.00	0.00		MISCELLANEOUS	YELLOW	CONCRETE	GOOD	exterior	curbs
237	0.00	0.00		MISCELLANEOUS	BLUE	METAL	GOOD	exterior	post box
238	1.03	0.03	X	STANDARD	RED		GOOD	QUAN 27266	end cal
239	1.08	0.04	X	STANDARD	RED		GOOD	QUAN 27266	end cal
240	0.00	0.00	X	STANDARD	WHITE		GOOD	QUAN 27266	end cal



Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: SanAir Technologies Laboratory, Inc. (3499)
Address: 1551 Oakbridge Drive, Ste. B
Powhatan, VA 23139

Order #: 131486

Matrix: Soil
Received: 06/09/15
Reported: 06/15/15

Attn:
Project: MCB Quantico, VA #27266 Ebassy
Location:
Number: 122-72, WW/BMCD

PO Number: 15016328

Table with columns: Sample ID, Cust. Sample ID, Location, Parameter, Method, Result, RL*, Units, Analysis Date, Analyst. Contains data for three samples (131486-001, 131486-002, 131486-003) including organic and volatile organic compound results.

Report Amended. DRO results were added to the report.

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.



Analysis Report

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Order #: 131486

Matrix Soil
Received 06/09/15
Reported 06/15/15

Attn:
Project: MCB Quantico, VA #27266 Ebassy
Location:
Number: 122-72, WW/BMCD

PO Number: 15016328

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
131486-003	27266-5-03	S Side W Former Fuel Tank					
Parameter		Method					
MTBE		SW846 8021B / 1311	<5.67	5.66	µg/Kg	06/10/15	THN
Volatiles Organic Compounds							
Benzene		SW846 8021B / EPA 5035A	<2.27	2.26	µg/Kg	06/10/15	THN
Ethylbenzene		SW846 8021B / EPA 5035A	<2.27	2.26	µg/Kg	06/10/15	THN
Toluene		SW846 8021B / EPA 5035A	<2.27	2.26	µg/Kg	06/10/15	THN
Xylenes, Total		SW846 8021B / EPA 5035A	<6.80	6.79	µg/Kg	06/10/15	THN
BTEX - Surrogate Recoveries							
4-Bromofluorobenzene		89%					

131486-06/15/15 11:25 AM

Reviewed By: **Ben Wood**
Organics Analyst

Report Amended. DRO results were added to the report.

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.



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Address: 1551 Oakbridge Drive, Ste. B
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Order #: 131486

Attn:
Project: MCB Quantico, VA #27266 Ebassy
Location:
Number: 122-72, WW/BMCD

Matrix Soil
Received 06/09/15
Reported 06/15/15

PO Number: 15016328

Sample ID	Cust. Sample ID	Location	Result	RL*	Units	Analysis Date	Analyst
Parameter		Method					

Certifications

Parameter	Method	Matrix	CT	NJ	VA
Benzene	SW846 8021B	Soil	X		X
DRO	SW846 8015C	Soil	X		X
Ethylbenzene	SW846 8021B	Soil	X		X
MTBE	SW846 8021B	Soil			
Toluene	SW846 8021B	Soil	X		X
Xylenes, Total	SW846 8021B	Soil	X	X	X

Key

State	Regulatory Agency - Lab ID	Certificate Number
CT	CT DPH	PH-0118
NJ	NJDEP	NLC13001
VA	Virginia DCLS/DEQ - 460135	7785

'X' indicates that the analyte is accredited.

If your state is not listed above, call laboratory for accreditation/certification information.

Report Amended. DRO results were added to the report.

All internal QC parameters were met. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Concentration and *Reporting Limit (RL) based on areas provided by client. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.



SCHNEIDER LABORATORIES, INC.

2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

www.slabinc.com e-mail: info@slabinc.com

WO

131486



V:131M131486

Submitting Co. SanAir Technologies Laboratory	Lab Use- WO #	Phone # Fax # & E-mail
1551 Oakbridge Drive, Suite B	Acct #	804-897-1177
Powhatan, VA 23139	3499	804-897-0070

Project Name: **MCB Quinico, VA #27266 Embassy Guard BEQ** **Special Instructions [include requests for special reporting or data packages]**

Project Location: **122-72, WW/BMCD** **BTEX, MTBE, and DRO**

Project Number: **15016328** State Of Collection: **VA**

Turn Around Time	Matrix / Sample Type (Select ONE)	Tests / Analytes (Select ALL that Apply)		
<input type="checkbox"/> 2 hours* <input type="checkbox"/> Same day* <input type="checkbox"/> 1 business day* <input type="checkbox"/> 2 business days* <input checked="" type="checkbox"/> 3 business days* <input type="checkbox"/> 5 business days* <input type="checkbox"/> Full TCLP (10d) <input type="checkbox"/> Weekend* <small>* not available for all tests</small> <small>Schedule rush organics, multi-metals & weekend tests in advance.</small>	<small>All samples on form should be of SAME matrix type. Use additional forms as needed.</small> <input type="checkbox"/> Air <input type="checkbox"/> Solid <input type="checkbox"/> Aqueous <input type="checkbox"/> Waste <input checked="" type="checkbox"/> Bulk <input type="checkbox"/> Wastewater <input type="checkbox"/> HI-Vol Filter (PM10) <input type="checkbox"/> Water, Drinking <input type="checkbox"/> HI-Vol Filter (TSP) <input type="checkbox"/> Compliance <input type="checkbox"/> Oil <input type="checkbox"/> Wipe <input type="checkbox"/> Paint <input type="checkbox"/> Wipe, Composite <input type="checkbox"/> Sludge <input type="checkbox"/> <input checked="" type="checkbox"/> Soil <input type="checkbox"/>	Asbestos Air / Fiber Counts <input type="checkbox"/> PCM (NIOSH 7400) <input type="checkbox"/> TEM (AHERA) <input type="checkbox"/> TEM (EPA Level II) <input type="checkbox"/> Miscellaneous Tests <input type="checkbox"/> Total Dust (NIOSH 0500) <input type="checkbox"/> Resp. Dust (NIOSH 0600) <input type="checkbox"/> Silica - FTIR (NIOSH 7602) <input type="checkbox"/> Silica - XRD (NIOSH 7500)	Asbestos Bulk / Asb ID <input type="checkbox"/> PLM (EPA 600, 1982) <input type="checkbox"/> PLM (EPA Point Count) <input type="checkbox"/> PLM (Qualitative only) <input type="checkbox"/> NYELAP 198.1/4/6 <input type="checkbox"/> CAELAP (EPA Interim) <input type="checkbox"/> TEM (Chatfield)	Metals-Total Conc. <input type="checkbox"/> Lead <input type="checkbox"/> RCRA Metals <input type="checkbox"/> Metals-Extract <input type="checkbox"/> TCLP / Lead <input type="checkbox"/> TCLP / RCRA Metals <input type="checkbox"/> TCLP / Full (w/ organics) Others

Sample #	Date Sampled	Time Sampled	Sample Identification (e.g. Employee, SSN, Bldg, Material)	Wiped Area (ft ²)	Type ¹ A,B,P,E	Time ² Start	Time ² Stop	Flow Rate ³ Start	Flow Rate ³ Stop	Total ⁴ Air Vol
2.8	27266-5-01	6/5/15	Southside, West, Former fuel Tank, Cent. 9'-10' Depth							
1.4	27266-5-01	6/5/15	Southside, West, Former fuel Tank, North @ New 8'-9' Depth							
10.9	27266-5-03	6/5/15	Southside, West, Former fuel Tank, South. 9'-10' Depth							

¹Type: A=area B=blank P=personal E=excursion ²Beginning/End of Sample Period ³Pump Calibration in Liters/Minute ⁴Volume in Liters [time in min * flow in L/min]

Sampled by	Relinquished to lab by	SM 6-9-15 5:14PM	<input type="checkbox"/> FX <input type="checkbox"/> UPS <input checked="" type="checkbox"/> USM <input type="checkbox"/> HD <input type="checkbox"/> DB WB: _____
NAME _____	NAME <u>Dobson</u>		
SIGNATURE _____	SIGNATURE _____		
DATE/TIME _____	DATE/TIME <u>6/9/15 5:00AM</u>		

Sample return requested Ambient temp Ice °C pH Cl R S X Chain-of-Custody documentation continued internally, within lab. Terms and conditions page 2.

FIRE HYDRANT FLOW DATA

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Hydrant Flow Test Report NFPA 291

Location: MCBQ Whaling Hall Date: August 11, 2015

Test made by: Eric J. Shelton, PE Time: 1100

Representative of: Burns & McDonnell

Witness: _____

State purpose of test: To determine the hydrant water flow test information which will be used in the RFP of the fire sprinkler system in the new BEQ Facility

Consumption rate during test na

If pumps affect test, indicate pumps operation na

Flow hydrants: See attached

Size nozzle 1 x 2.25 inch

Pitot reading 21 psi

Discharge coefficient 0.88

GPM 605 gpm Total **605 gpm**

Static **48** psi Residual **46** psi

Projected results @ 20 psi Residual 2,500 gpm

Remarks: _____

See attached map (Figure 1) and graph (Figure 2):

NO.	DESCRIPTION	DATE	APP'D

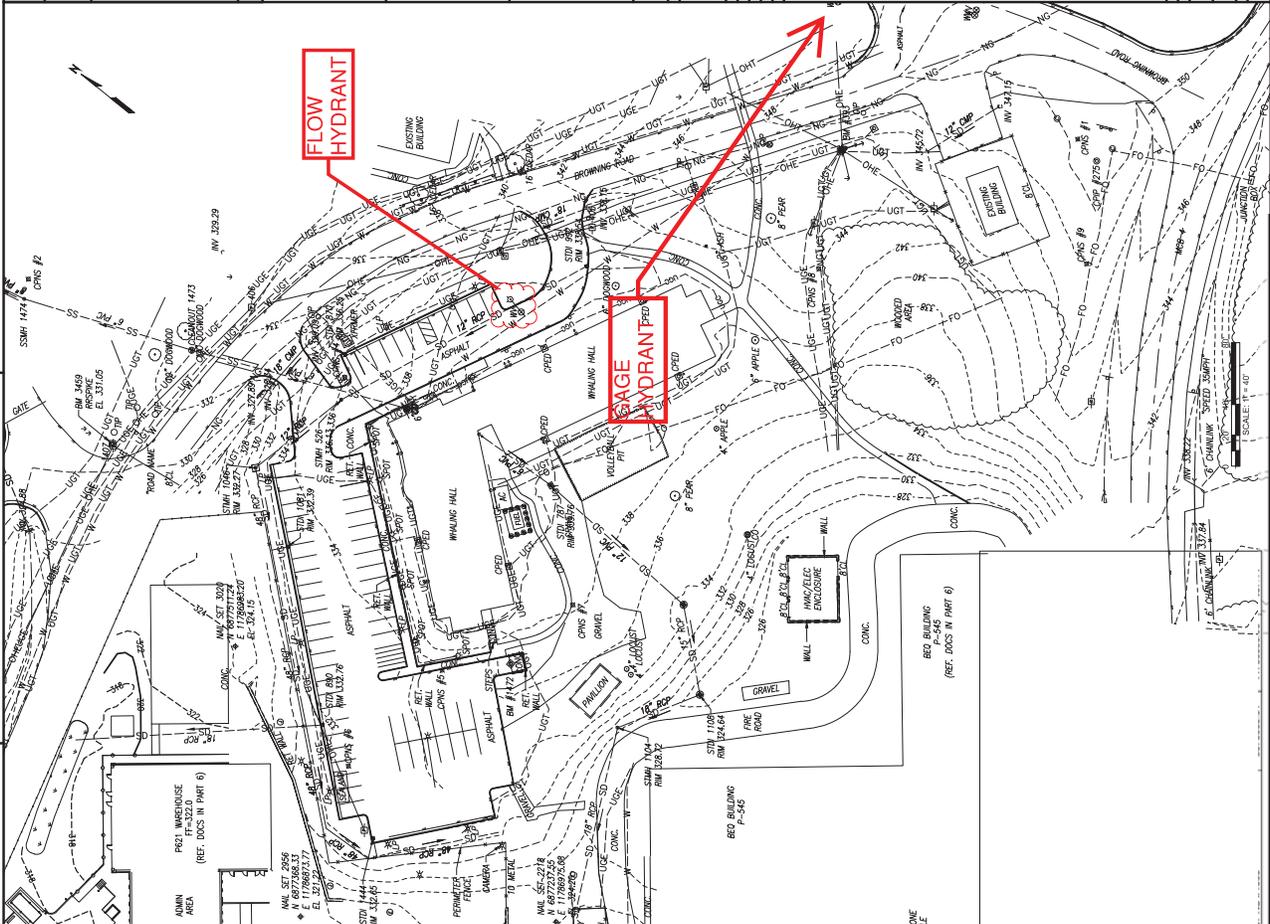
REVISION SCHEDULE

CONCEPT DESIGN
 NOT INTENDED FOR
 CONSTRUCTION
 ON RECORD

DATE: 07/08/2010
 TIME: 10:00 AM
 PROJECT: P-707 EMBASSY SECURITY GROUP
 LOCATION: BEQ & OPS FACILITY
 QUANTICO, VA

NAVAL FACILITIES ENGINEERING COMMAND - WASHINGTON
 JARRINE CORPUS
 P-707 EMBASSY SECURITY GROUP
 BEQ & OPS FACILITY
 EXISTING CONDITIONS

C-101



EXISTING CONDITIONS LEGEND	
⊕	BENCHMARK
⊙	CONTROL POINT - NAL SET
⊙	CONTROL POINT - ROW PW SET
⊙	DOWNPOUT
⊙	DROP INLET
⊙	STORM MANHOLE
⊙	SAINTARY MANHOLE
⊙	POWER POLE
⊙	LIGHT POLE
⊙	GUY WIRE
⊙	WATER VALVE
⊙	COMMUNICATIONS MANHOLE
⊙	TELEPHONE FEDESTAL
⊙	TELEPHONE POLE
⊙	TELEPHONE INDICATOR POST
⊙	CABLE TV FEDESTAL
⊙	INDICATOR POST
⊙	GAS VALVE
⊙	SON
⊙	BOLLARD
⊙	SPOT LIGHT
⊙	WATER LINE
⊙	SEWER LINE
⊙	UNDERGROUND NATURAL GAS
⊙	OVERHEAD ELECTRIC
⊙	UNDERGROUND ELECTRIC
⊙	SAINTARY LINE
⊙	STEAM LINE
⊙	STORM LINE
⊙	WATER LINE

SANITARY SEWER TABLE	
SSMH 1474	SIZE = 2.3 X 2.3
RIM EL = 332.68	INV IN = 329.05
INV IN = 329.04	INV OUT = 325.64
CLEANOUT #1277	SIZE = 2.3 X 1.5
RIM EL = 339.73	INV IN = 329.93
CLEANOUT #1473	SIZE = 3.2 X 3.2
RIM EL = 339.76	INV IN = 329.97
STDI 870	SIZE = 2.3 X 1.5
RIM EL = 332.17	INV IN = 328.17

STORM SEWER TABLE	
STDI 890	SIZE = 2.3 X 2.3
RIM EL = 332.27	INV IN = 328.94
INV IN = 328.94	INV OUT = 325.48
STDI 922	SIZE = 2.3 X 1.5
RIM EL = 332.72	INV IN = 329.72
STDI 1081	SIZE = 2.2 X 2.2
RIM EL = 328.72	INV IN = 319.42
INV IN = 319.42	INV OUT = 316.47
STDI 787	SIZE = 3.2 X 3.2
RIM EL = 339.76	INV IN = 329.97
STDI 1108	SIZE = 2.2 X 2.2
RIM EL = 332.17	INV IN = 328.17
STDI 1444	SIZE = 2.2 X 1.5
RIM EL = 332.17	INV IN = 328.17
STDI 870	SIZE = 2.3 X 1.5
RIM EL = 332.17	INV IN = 328.17

NOTES

- HORIZONTAL AND VERTICAL FEATURES DEPICTED ON THIS PLAN ARE BASED ON FIELD RUN SURVEY PERFORMED BY WILEY/WILSON ON JULY 8TH, 2010.
- COORDINATE VALUES ARE BASED ON VIRGINIA STATE PLANE COORDINATES HORIZONTAL CONTROL IS BASED ON NAD 1983 DATUM.
- THIS PLAN IS NOT A BOUNDARY SURVEY. IT HAS BEEN PREPARED FOR THE DEVELOPMENT AND CONSTRUCTION OF A NEW FACILITY WITH THE AREA UTILITIES.
- UNDERGROUND UTILITIES ESTABLISHED FROM FIELD MARKINGS.
- PROTECT PERMANENT CONTROL POINTS DURING CONSTRUCTION. IF CONTROL POINTS MUST BE RELOCATED DURING SITE GRADING, COORDINATE RELOCATION MUST BE MAINTAINED TO ENSURE CONTROL IS MAINTAINED WITHIN BASE COORDINATE SYSTEM.
- CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF TOPOGRAPHIC SURVEY INCLUDING ELEVATIONS AND LOCATIONS OF ALL UTILITIES PRIOR TO THE START OF ANY WORK. THE GOVERNMENT DOES NOT WARRANT THE ACCURACY OF THESE DOCUMENTS. REPAIRS TO BE USED FOR DESIGN/BUILD CONCEPTS DEVELOPMENT ONLY.

ABBREVIATIONS	
AC	AIR CONDITIONING
BM	BENCH MARK
CL	CENTERLINE
CP	CONTROL POINT
CPNP	CONTROL POINT NAIL SET
EL	ELEVATION
INVERT	INVERT
PVC	PVC MANHOLE
RCP	REINFORCED CONCRETE PIPE
SSMH	SANITARY SEWER MANHOLE
STDI	STORM DROP INLET
STMH	STORM MANHOLE

SCALE: 1" = 40'

DATE: 07/08/2010

TIME: 10:00 AM

PROJECT: P-707 EMBASSY SECURITY GROUP

LOCATION: BEQ & OPS FACILITY

QUANTICO, VA

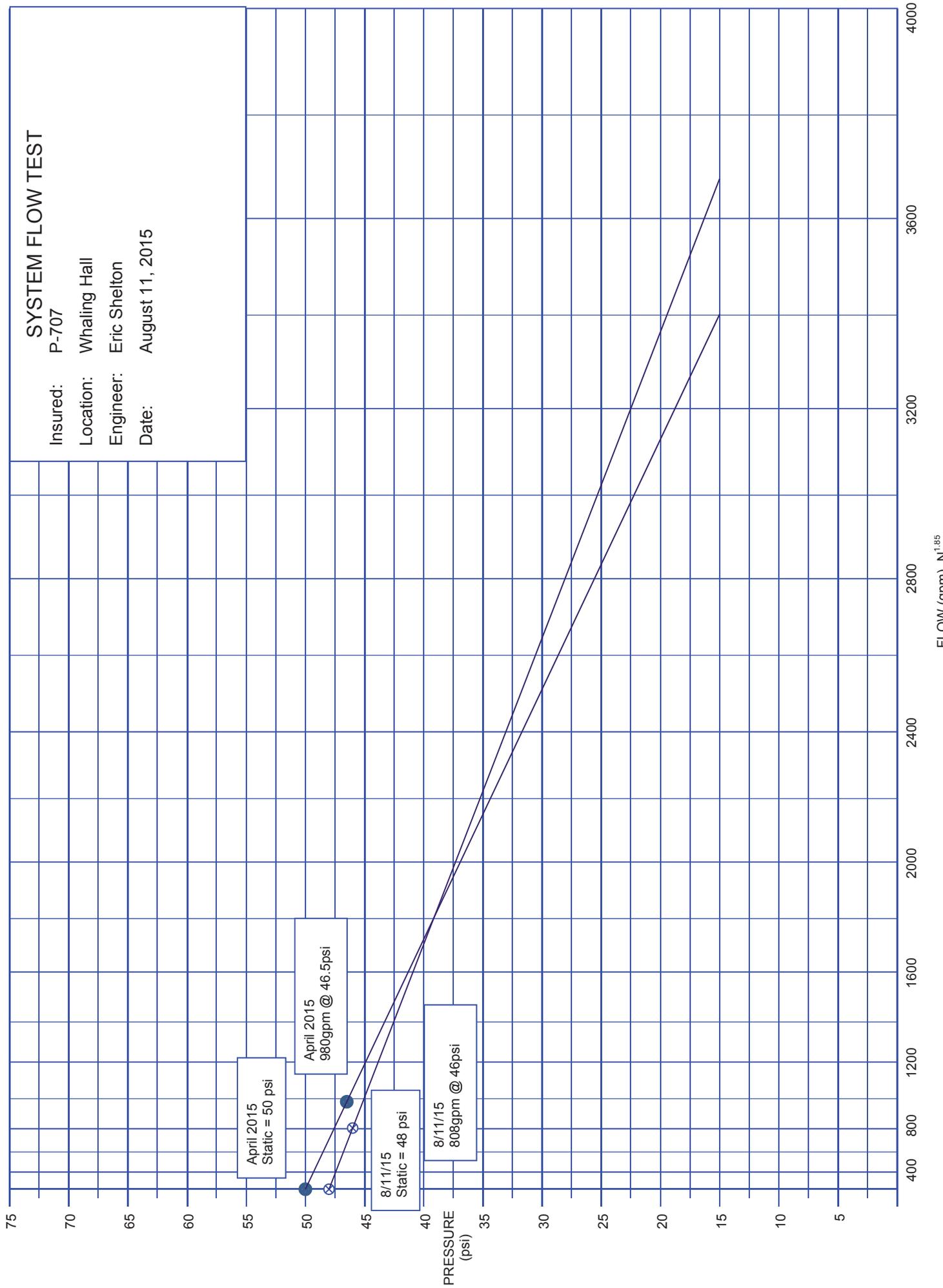
SYSTEM FLOW TEST

Insured: P-707

Location: Whaling Hall

Engineer: Eric Shelton

Date: August 11, 2015



EXISTING BUILDING DRAWINGS (WHALING HALL)

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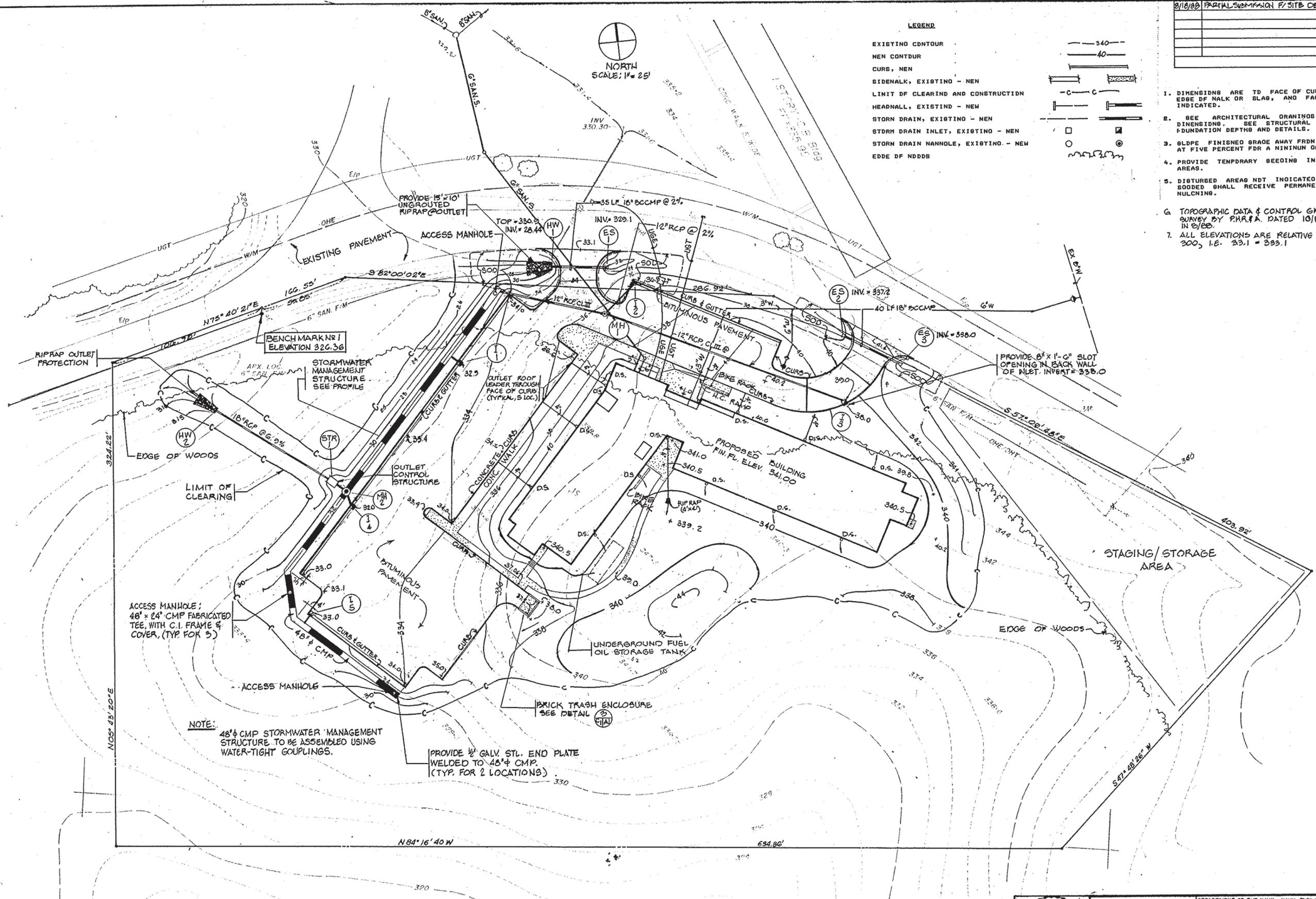
8/18/88	PARTIAL SUBMISSION F/ SITE DEVEL.



LEGEND

EXISTING CONTOUR
 NEW CONTOUR
 CURB, NEW
 SIDEWALK, EXISTING - NEW
 LIMIT OF CLEARING AND CONSTRUCTION
 HEADWALL, EXISTING - NEW
 STORM DRAIN, EXISTING - NEW
 STORM DRAIN INLET, EXISTING - NEW
 STORM DRAIN MANHOLE, EXISTING - NEW
 EDGE OF MDDDB

- DIMENSIONS ARE TO FACE OF CURB (FLD LINE); EDGE OF WALK OR SLAB, AND FACE OF WALL AS INDICATED.
- SEE ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS. SEE STRUCTURAL DRAWINGS FOR FOUNDATION DEPTHS AND DETAILS.
- SLOPE FINISHED GRADE AWAY FROM BUILDING WALLS AT FIVE PERCENT FOR A MINIMUM OF 10 FEET.
- PROVIDE TEMPORARY SEEDING IN ALL DISTURBED AREAS.
- DISTURBED AREAS NOT INDICATED TO BE PAVED OR SOLOID SHALL RECEIVE PERMANENT SEEDING AND MULCHING.
- TOPOGRAPHIC DATA & CONTROL GRID BASED ON SURVEY BY P.H.R. & A. DATED 10/85, & UPDATED IN 8/88.
- ALL ELEVATIONS ARE RELATIVE TO ELEVATION 300, I.E. 33.1 = 333.1

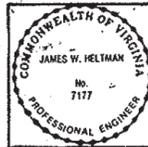
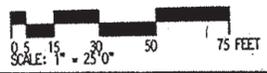


ACCESS MANHOLE:
 48" x 24" CMP FABRICATED
 TEE, WITH C.I. FRAME &
 COVER, (TYP FOR 3)

NOTE:
 48" CMP STORMWATER MANAGEMENT
 STRUCTURE TO BE ASSEMBLED USING
 WATER-TIGHT COUPLINGS.

PROVIDE 1/2" GALV. STL. END PLATE
 WELDED TO 48" CMP.
 (TYP FOR 2 LOCATIONS)

GRADING AND DRAINAGE PLAN
 SCALE: 1" = 25'-0"



DIECKMEYER ARCHITECTS 821 King Street Alexandria VA 22314	
DESIGNED BY	JWH
CHECKED BY	JWH
DATE	10/88
TITLE	GRADING & DRAINAGE PLAN
NO.	001
DATE	10/88
BY	JWH
CHECKED BY	JWH
DATE	10/88

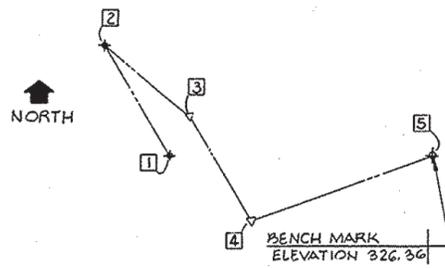
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.	
MARINE CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27200	
GRADING & DRAINAGE PLAN	

C-1

APPROVED	DATE	SIZE	CODE	IDENT. NO.	NAVFAC DRAWING NO.
		F	80091		3087787
CONSTR. CONTR. NO.	N62477-88-C-0156				
	SPEC. 81-88-0188 SHEET 2 OF 35				

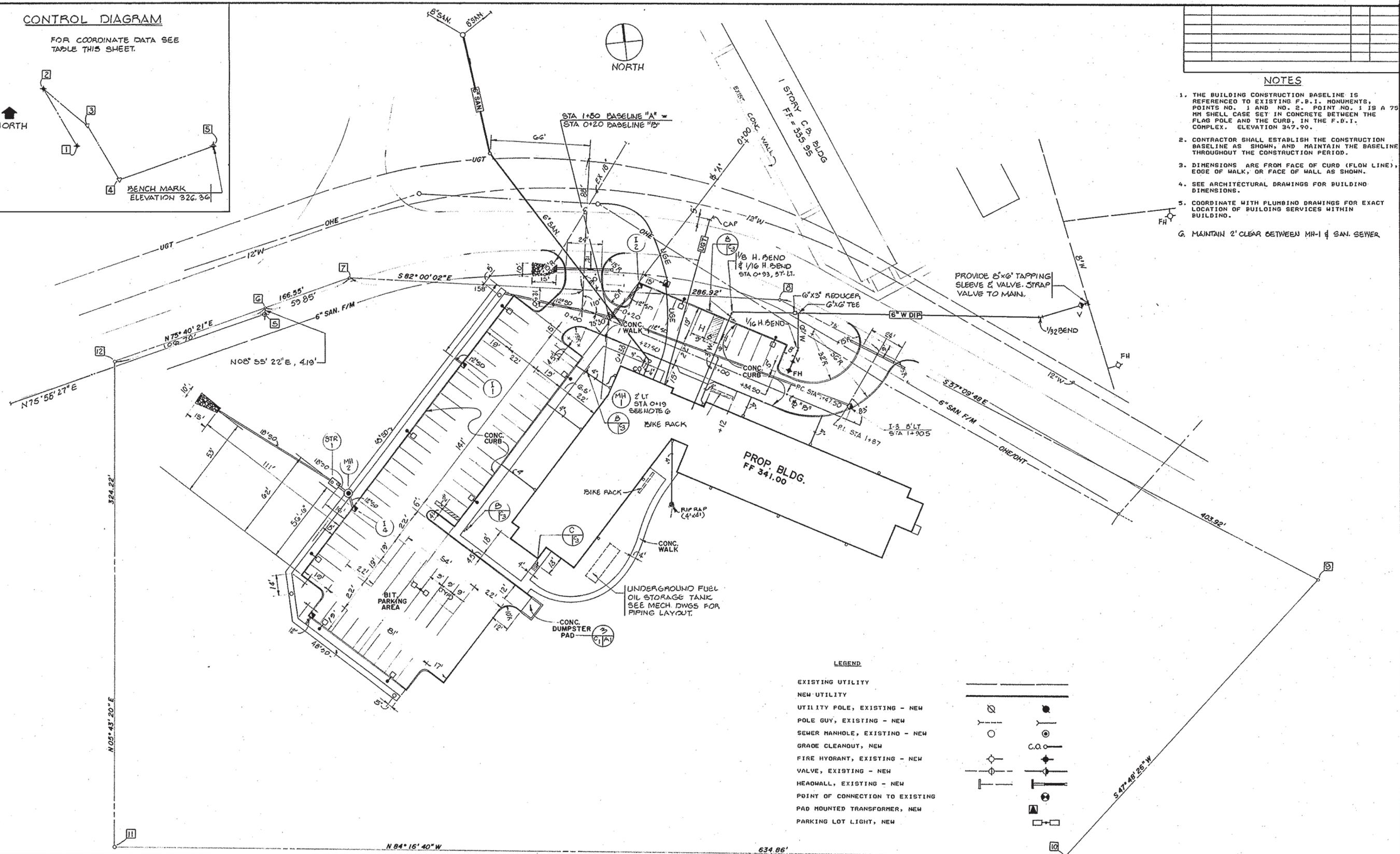
CONTROL DIAGRAM

FOR COORDINATE DATA SEE TABLE THIS SHEET.



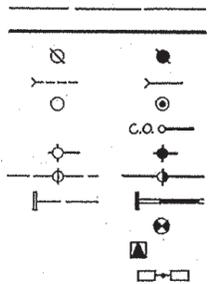
NOTES

1. THE BUILDING CONSTRUCTION BASELINE IS REFERENCED TO EXISTING F.B.I. MONUMENTS, POINTS NO. 1 AND NO. 2. POINT NO. 1 IS A 75 MM SHELL CASE SET IN CONCRETE BETWEEN THE FLAG POLE AND THE CURB, IN THE F.B.I. COMPLEX. ELEVATION 347.90.
2. CONTRACTOR SHALL ESTABLISH THE CONSTRUCTION BASELINE AS SHOWN, AND MAINTAIN THE BASELINE THROUGHOUT THE CONSTRUCTION PERIOD.
3. DIMENSIONS ARE FROM FACE OF CURB (FLOW LINE), EDGE OF WALK, OR FACE OF WALL AS SHOWN.
4. SEE ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS.
5. COORDINATE WITH PLUMBING DRAWINGS FOR EXACT LOCATION OF BUILDING SERVICES WITHIN BUILDING.
6. MAINTAIN 2' CLEAR BETWEEN MH-1 & SAN. SEWER.

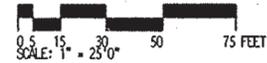


LEGEND

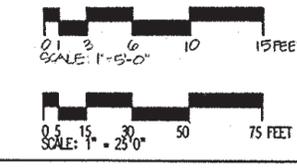
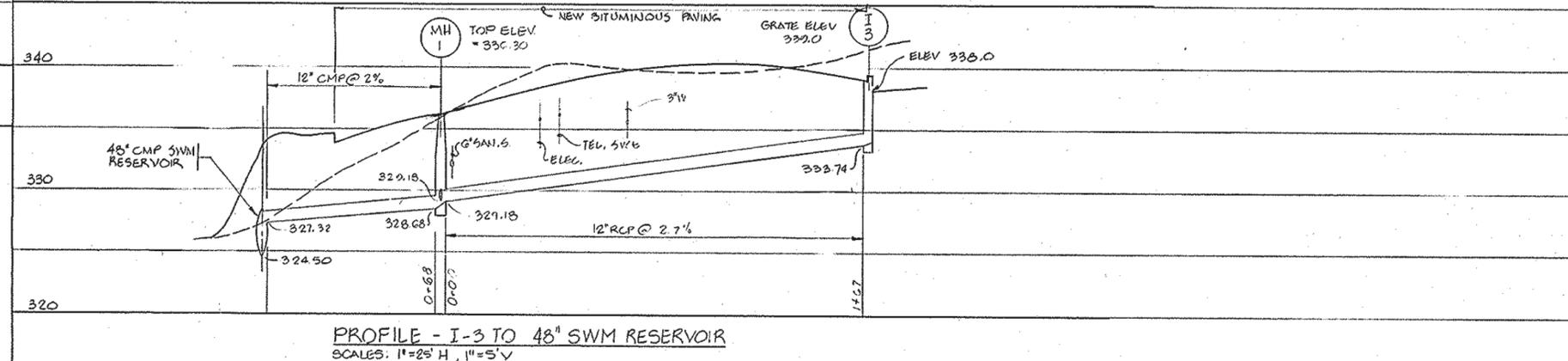
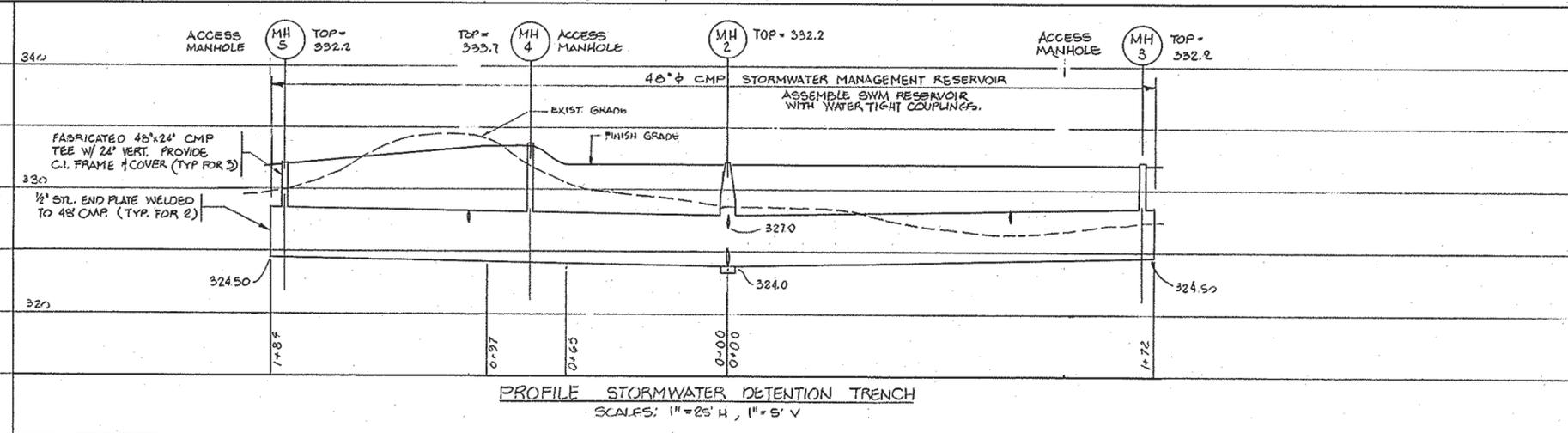
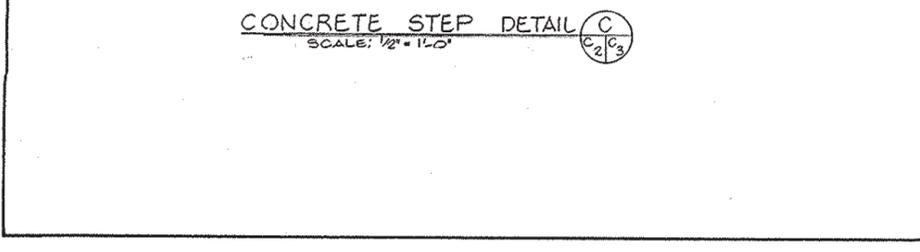
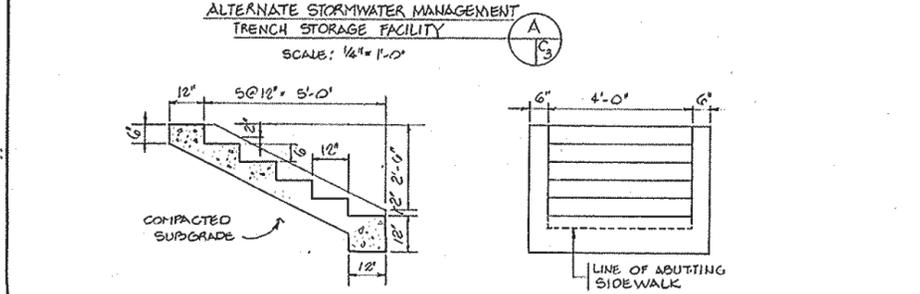
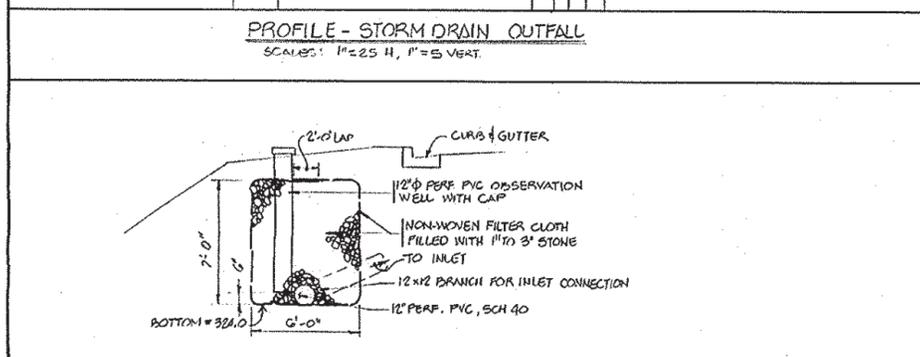
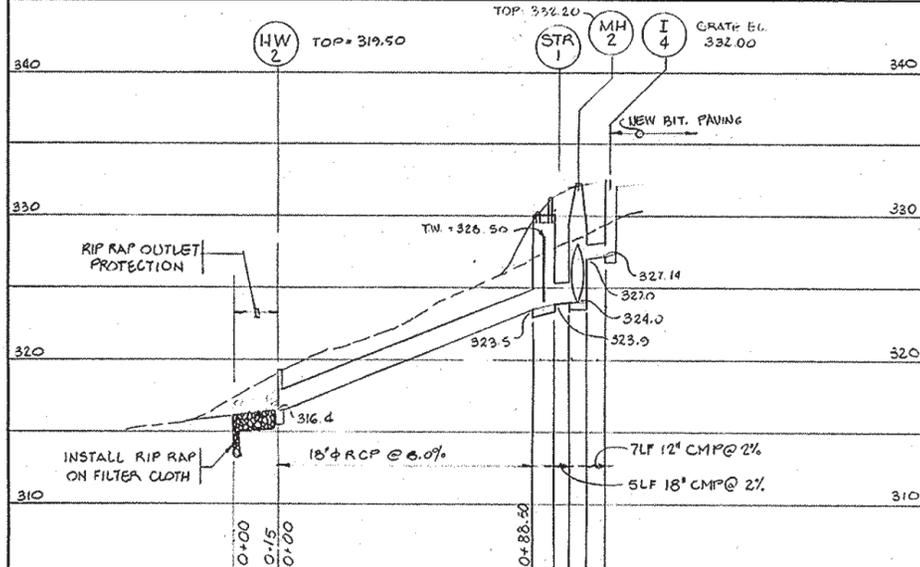
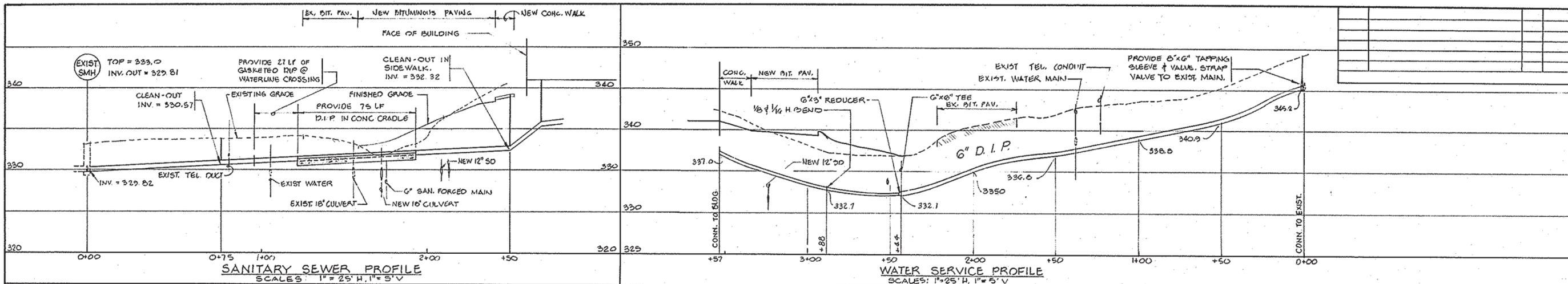
- EXISTING UTILITY
- NEW UTILITY
- UTILITY POLE, EXISTING - NEW
- POLE GUY, EXISTING - NEW
- SEWER MANHOLE, EXISTING - NEW
- GRADE CLEANOUT, NEW
- FIRE HYDRANT, EXISTING - NEW
- VALVE, EXISTING - NEW
- HEADWALL, EXISTING - NEW
- POINT OF CONNECTION TO EXISTING
- PAD MOUNTED TRANSFORMER, NEW
- PARKING LOT LIGHT, NEW



POINT NO	COORDINATES		BEARING	DIST.	REMARKS
	NORTHING	EASTING			
1	5301964.195	44018186.299	N32°10'0\"/>		

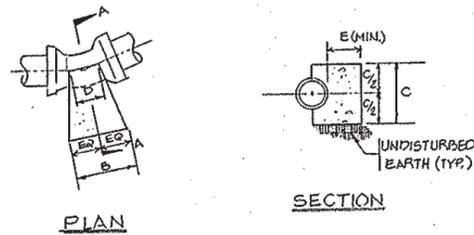
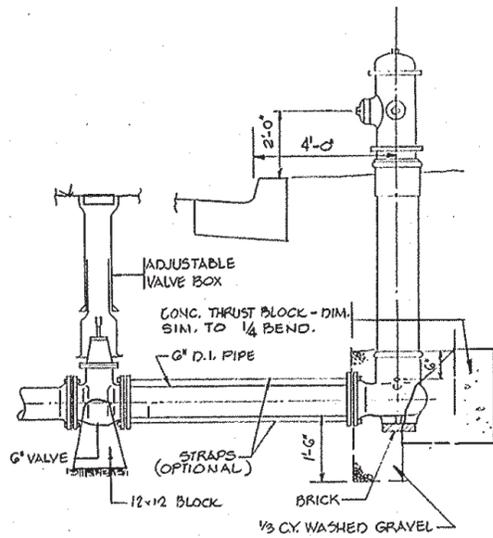


	DECHMEISTER ARCHITECTS 521 King Street Alexandria VA 22314	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.
	DRAWN BY: _____ DATE: _____ CHECKED BY: _____ DATE: _____	MARINE CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27266
	APPROVED: _____ DATE: _____ APPROVED: _____ DATE: _____	LAYOUT AND UTILITY PLAN. SEE CODE IDENT NO. NAFCAC DRAWING NO. 3087786 F 80091 CONSTR. CONTR. NO. M62477-66-C-0155 SCALE 1" = 25' SPEC. 21-66-0106 SHEET 3 OF 38
	C-2	RFD FOR COMMANDER, NAVFAC



	DEBOMESTER ARCHITECTS 821 King Street Alexandria VA 22314	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.
	DESIGNED BY: JWH CHECKED BY: JWH DATE: 11/1/88	NAVAL CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27288 PROFILES
	APPROVED: [Signature] DATE: 11/1/88	NAVFAC DRAWING NO. 3057789
	APPROVED: [Signature] DATE: 11/1/88 EPO FOR COMMANDER, NAVFAC	CONSTR. CONTR. NO. M62477-88-C-0155 SPEC 81-86-0155 SHEET 4 OF 35

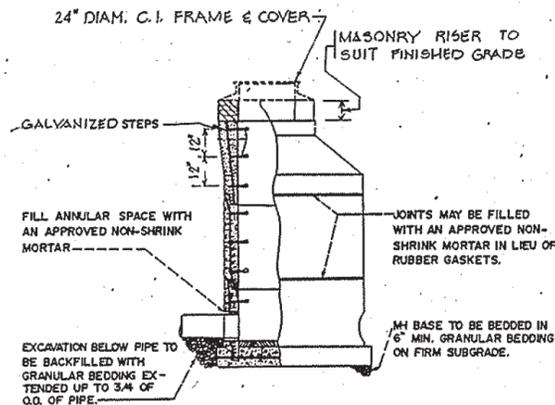
C-3



BEND TYPE	THRUST BLOCK DIMENSIONS - G PIPE			
	B	C	D	E
1/4 (90°)	5'-0"	2'-0"	1'-0"	2'-6"
1/8 (45°)	2'-8"	2'-0"	0'-8"	1'-0"
1/16 (22 1/2°)	1'-0"	1'-6"	0'-8"	1'-0"
1/32 (11 1/4°)	1'-6"	1'-0"	0'-8"	1'-0"

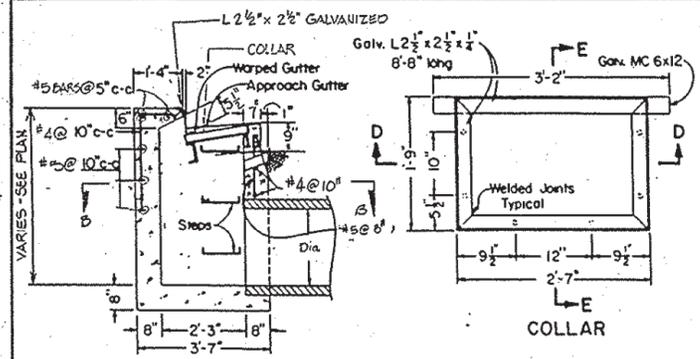
THRUST BLOCK DETAILS
NO SCALE
THRUST BLOCK FOR TEE SIM. TO 1/4 BEND

PRECAST MANHOLE DETAIL
NO SCALE



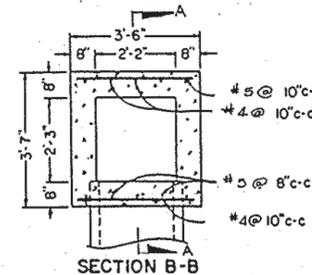
CONNECTING PIPE SIZE	MANHOLE DIAMETER
4" - 24"	48"
27" - 36"	60"
42" - 48"	72"
54" - 60"	84"
72"	96"

NOTE:
1. PROVIDE CONCRETE OR BRICK CHANNEL



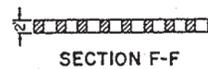
SECTION A-A

COLLAR



SECTION B-B

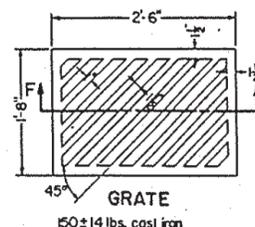
SECTION E-E



SECTION F-F

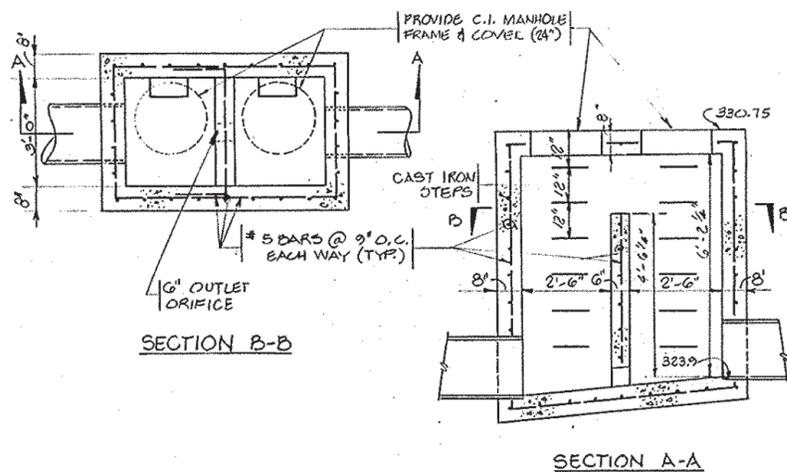
CURB INLET DETAILS
NO SCALE

STRUCTURE IS SIMILAR TO VDH & T D1-2A

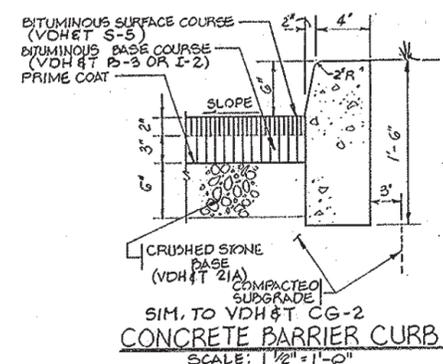


GRATE

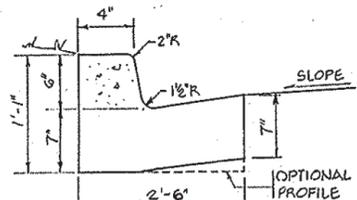
150 ± 14 lbs. cast iron



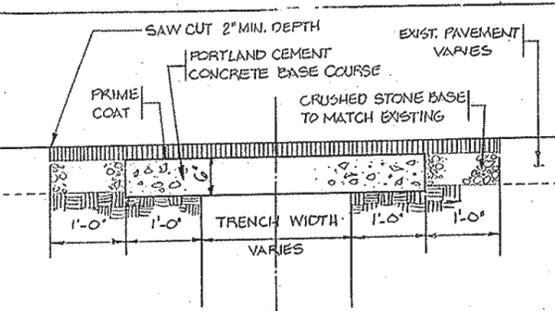
OUTLET CONTROL STRUCTURE
SCALE: 1/2" = 1'-0"



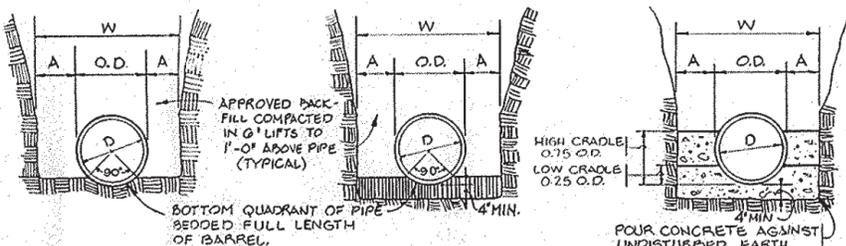
CONCRETE BARRIER CURB
SCALE: 1 1/2" = 1'-0"



CONCRETE CURB & GUTTER
SCALE: NONE

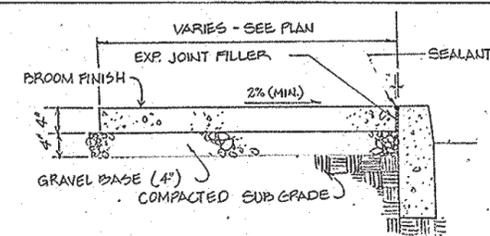


PAVEMENT PATCH
NO SCALE

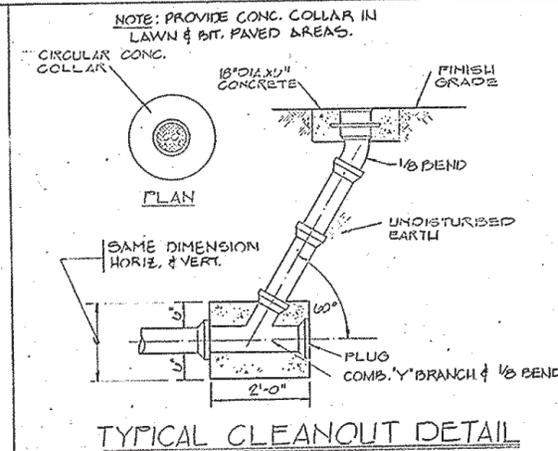


PIPE DIAM 'D'	MAXIMUM 'A'
6" TO 15"	8"
18" TO 21"	10"
24" TO 30"	12"
33" TO 42"	15"
48" & LARGER	18"

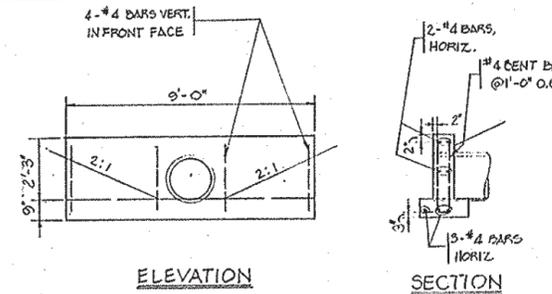
STANDARD PIPE TRENCH BEDDING
NO SCALE
MAXIMUM TRENCH WIDTH 'W' TAKEN AT TOP OF PIPE



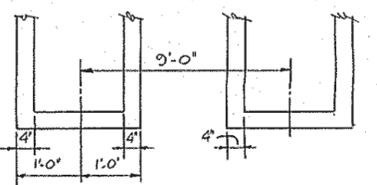
SIDEWALK DETAILS
NO SCALE



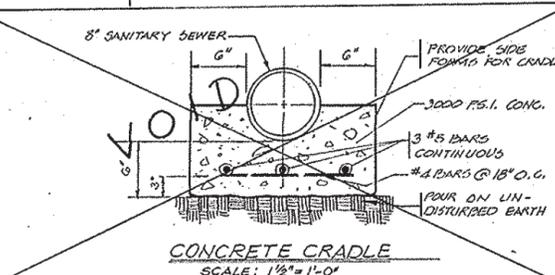
TYPICAL CLEANOUT DETAIL
NO SCALE



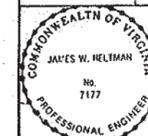
HEADWALL DETAILS
SCALE: 3/8" = 1'-0"



DETAIL OF PAINTED STRIPES
NO SCALE



CONCRETE CRADLE
SCALE: 1 1/2" = 1'-0"



C-4

DISCHMEISTER ARCHITECTS 821 King Street Alexandria, VA 22314	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.
DESIGNED BY: [] CHECKED BY: [] DATE: []	MAINE CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27266 DETAILS
APPROVED: [] DATE: [] EFD FOR COMMANDER, NAVFAC	SIZE: CODE IDENT NO: F 80091 NAVFAC DRAWING NO: 3067780 CONSTR. CONTR. NO: M62477-88-C-0155 SCALE: NOTED SPEC 21-88-0188 SHEET 6 OF 38

8/2/80	PARTIAL SUBMISSION P/SITE DEVELOP.



OWNER/DEVELOPER RESPONSIBLE PERSONNEL CERTIFICATION
 I/WE HEREBY CERTIFY THAT CLEARING, GRADING AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THE SEDIMENT CONTROL PLANS AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL OBTAIN CERTIFICATION BY REGISTERING AND/OR COMPLETING THE DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING CLEARING OR EARTHWORK FOR THE PROJECT.

SIGNATURE _____ DATE _____
 CERTIFICATION NUMBER _____ CERTIFICATION DATE _____

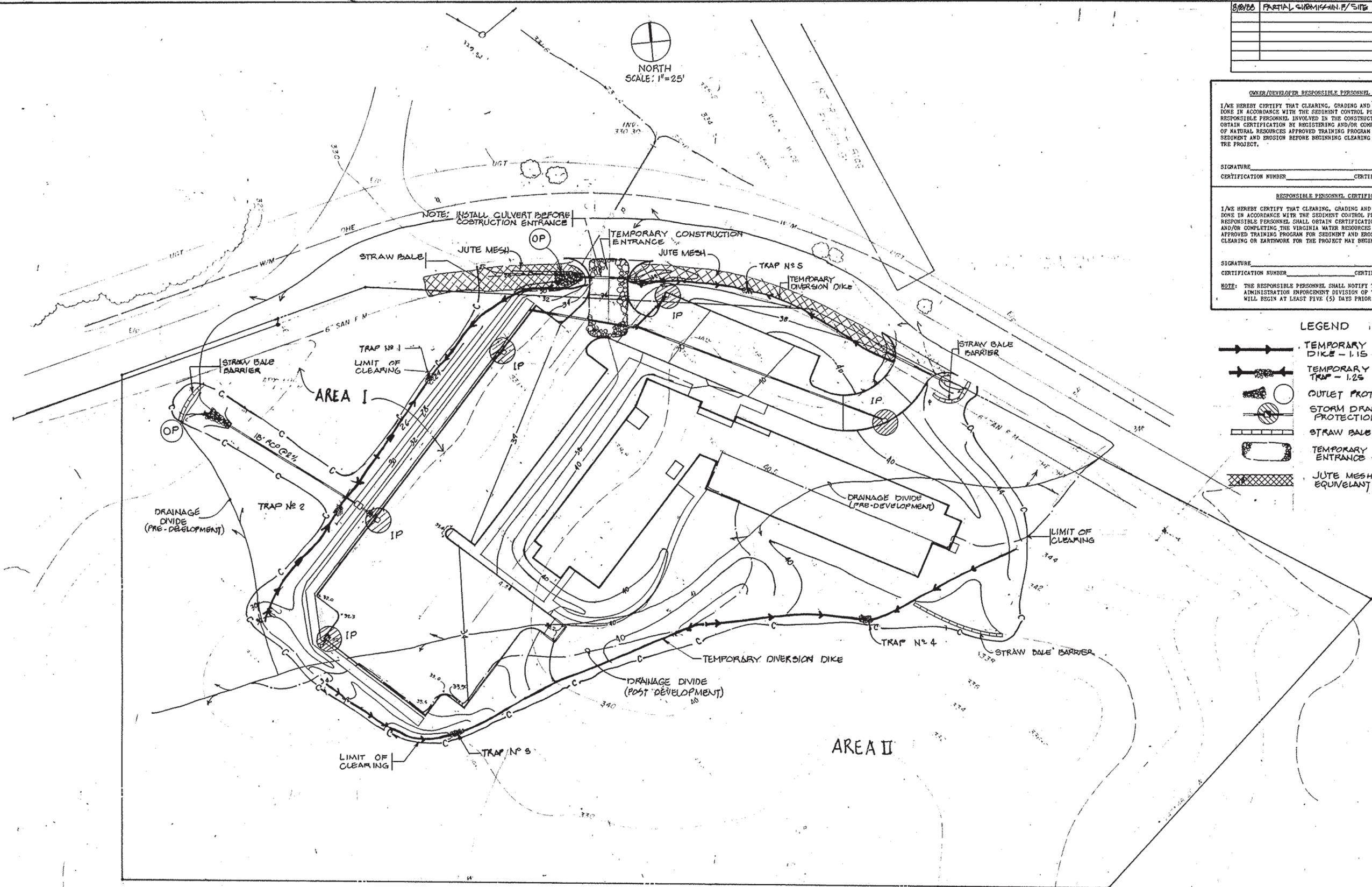
RESPONSIBLE PERSONNEL CERTIFICATION
 I/WE HEREBY CERTIFY THAT CLEARING, GRADING AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THE SEDIMENT CONTROL PLANS AND THAT THE RESPONSIBLE PERSONNEL SHALL OBTAIN CERTIFICATION BY REGISTERING FOR AND/OR COMPLETING THE VIRGINIA WATER RESOURCES ADMINISTRATION APPROVED TRAINING PROGRAM FOR SEDIMENT AND EROSION CONTROL BEFORE CLEARING OR EARTHWORK FOR THE PROJECT MAY BEGIN.

SIGNATURE _____ DATE _____
 CERTIFICATION NUMBER _____ CERTIFICATION DATE _____

NOTE: THE RESPONSIBLE PERSONNEL SHALL NOTIFY THE WATER RESOURCES ADMINISTRATION ENFORCEMENT DIVISION OF THE DATE CONSTRUCTION WILL BEGIN AT LEAST FIVE (5) DAYS PRIOR TO THE DATE.

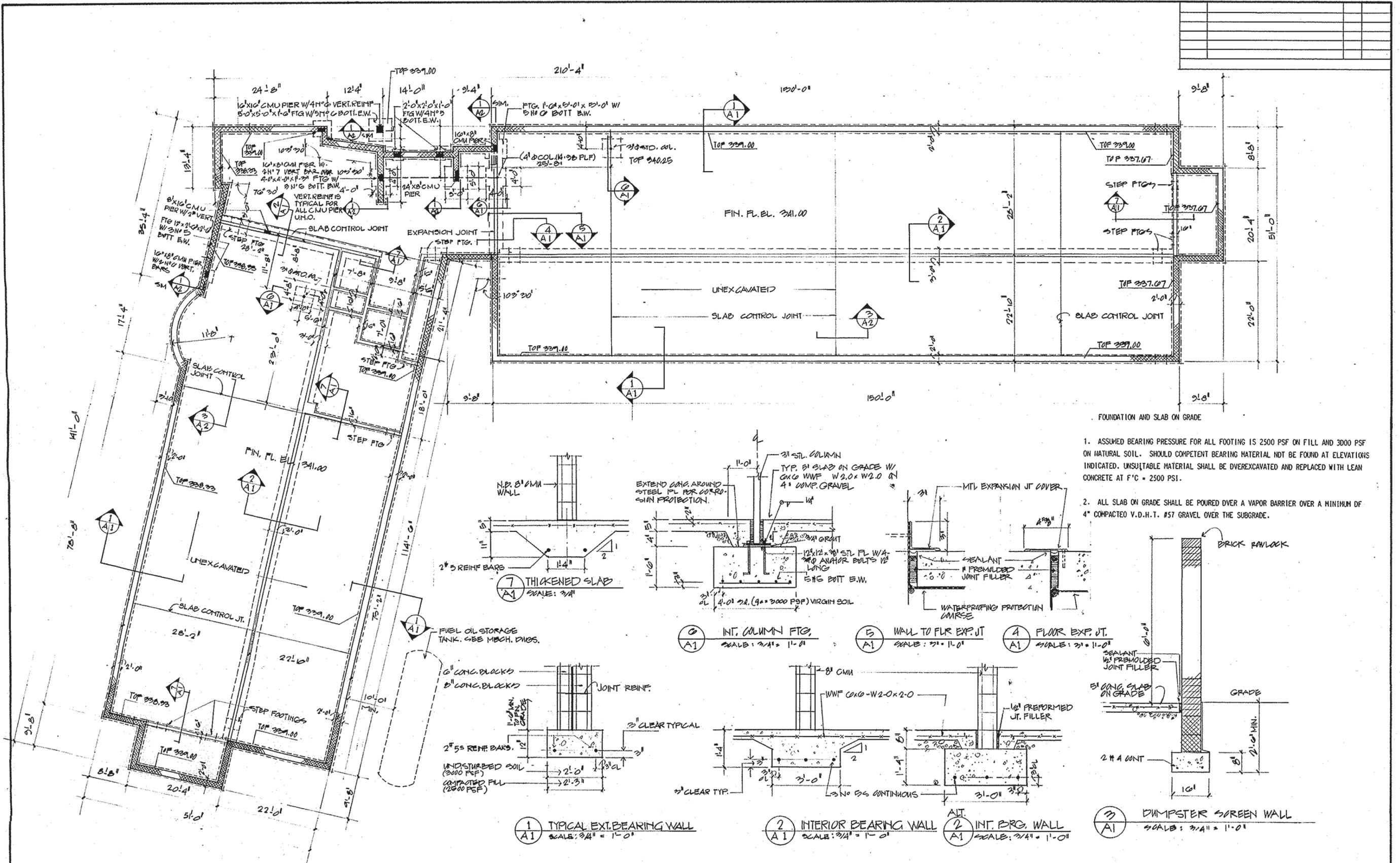
LEGEND

- TEMPORARY DIVERSION DIKE - 1.15
- TEMPORARY SEDIMENT TRAP - 1.25
- OUTLET PROTECTION - 1.36
- STORM DRAIN INLET PROTECTION - 1.08
- ▬▬▬▬ STRAW BALE BARRIER - 1.05
- ▭ TEMPORARY CONSTRUCTION ENTRANCE - 1.01
- ▨ JUTE MESH OR EQUIVELANT - 1.75



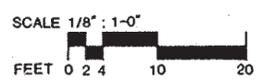
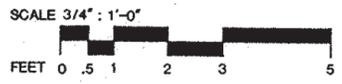
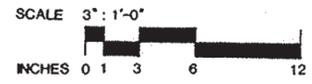
SEDIMENT CONTROL PLAN
 SCALE: 1" = 25'-0"

	DECHMESTER ARCHITECTS 621 King Street Alexandria VA 22314	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.	
	SUBMITTED BY _____ DATE _____ CHECKED BY _____ DATE _____ DESIGNED BY _____ DATE _____ DRAWN BY _____ DATE _____	MARINE CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #2706 SEDIMENT CONTROL PLAN	
	APPROVED _____ DATE _____ APPROVED _____ DATE _____	SEE CODE IDENT. NO. 3087781 F 80091 CONSTR. CONTR. NO. N62477-88-C-0188	NAVPAC DRAWING NO. 3087781 CONSTR. CONTR. NO. N62477-88-C-0188 SCALE 1" = 25' SPEC. 81-88-0188 SHEET 8 OF 38
	C-5	EFD FOR COMMANDER, NAVPAC	



- FOUNDATION AND SLAB ON GRADE
1. ASSUMED BEARING PRESSURE FOR ALL FOOTING IS 2500 PSF ON FILL AND 3000 PSF ON NATURAL SOIL. SHOULD COMPETENT BEARING MATERIAL NOT BE FOUND AT ELEVATIONS INDICATED. UNSUITABLE MATERIAL SHALL BE OVEREXCAVATED AND REPLACED WITH LEAN CONCRETE AT F'C = 2500 PSI.
 2. ALL SLAB ON GRADE SHALL BE POURED OVER A VAPOR BARRIER OVER A MINIMUM OF 4" COMPACTED V.D.H.T. #57 GRAVEL OVER THE SUBGRADE.

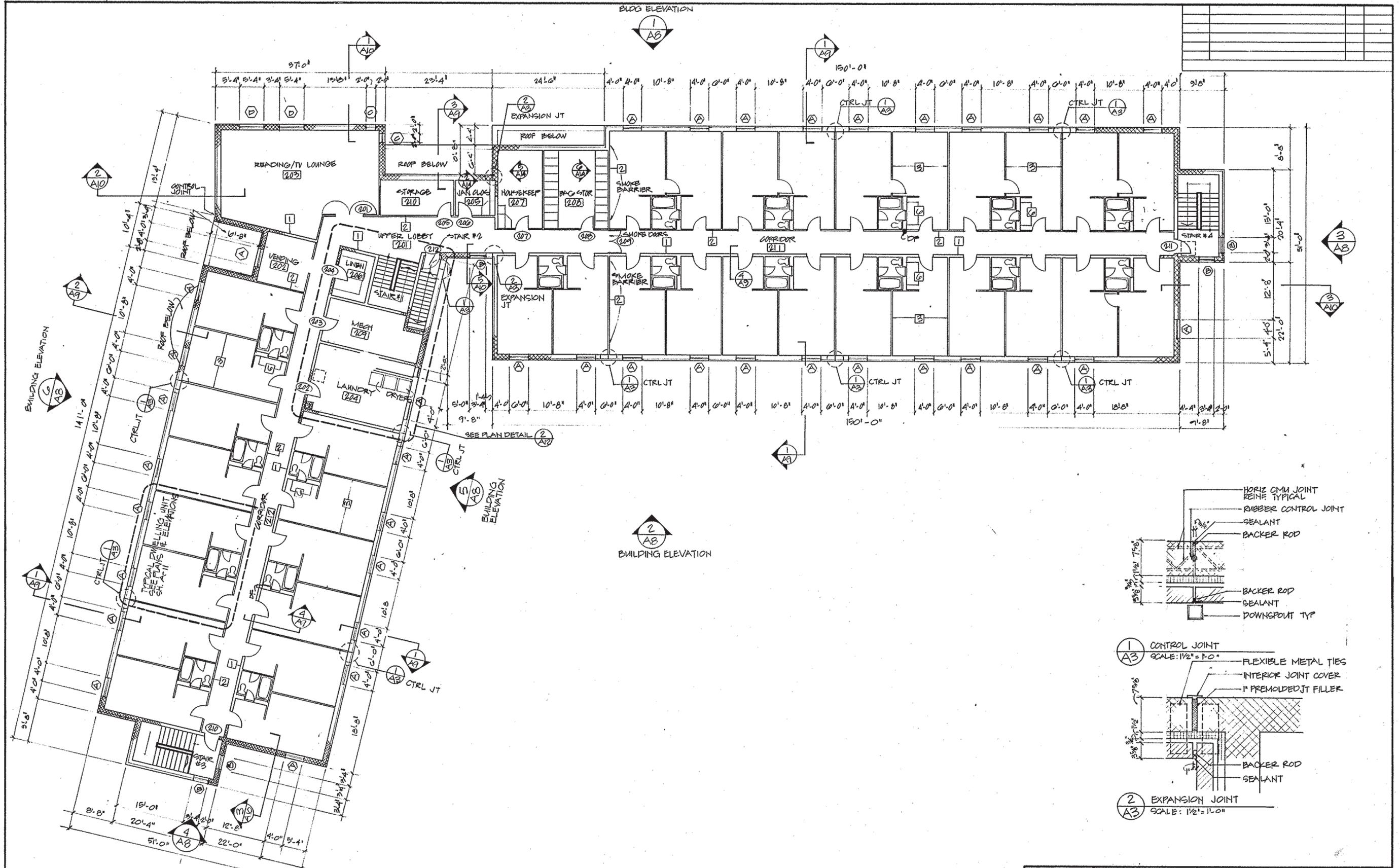
FOUNDATION PLAN
SCALE 1/8" = 1'-0"



McMullan & Associates
Consulting Structural Engineers
Tyson II Office Building
8330 Old Courthouse Road, Suite 220
Vienna, Virginia 22180
Phone: (703) 255-0551

DECHAMBER ARCHITECTS 621 King Street Alexandria, VA 22314		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.	
DESIGNED BY: [] CHECKED BY: [] DATE: []	DRAWN BY: [] DATE: []	NAVALYAC DRAWING NO. 3887792 NAVY CORP'S EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27206 FOUNDATION PLAN NAVY CORP'S EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27206 NAVY CORP'S EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27206	
APPROVED: [] DATE: []	APPROVED: [] DATE: []	SIZE CODE IDENT. NO. F 80091	CONSTR. CONTR. NO. NS2477-06-C-0186 REVISIONS: []

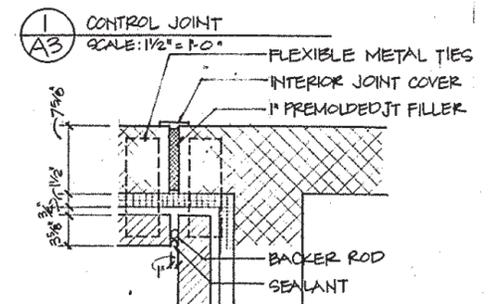
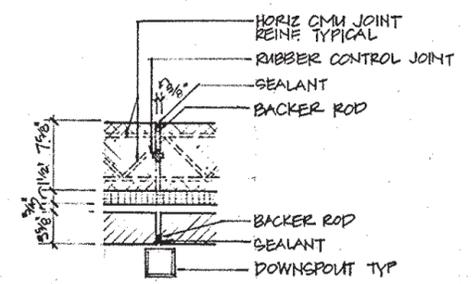
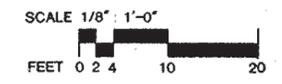
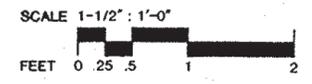
A-1



SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

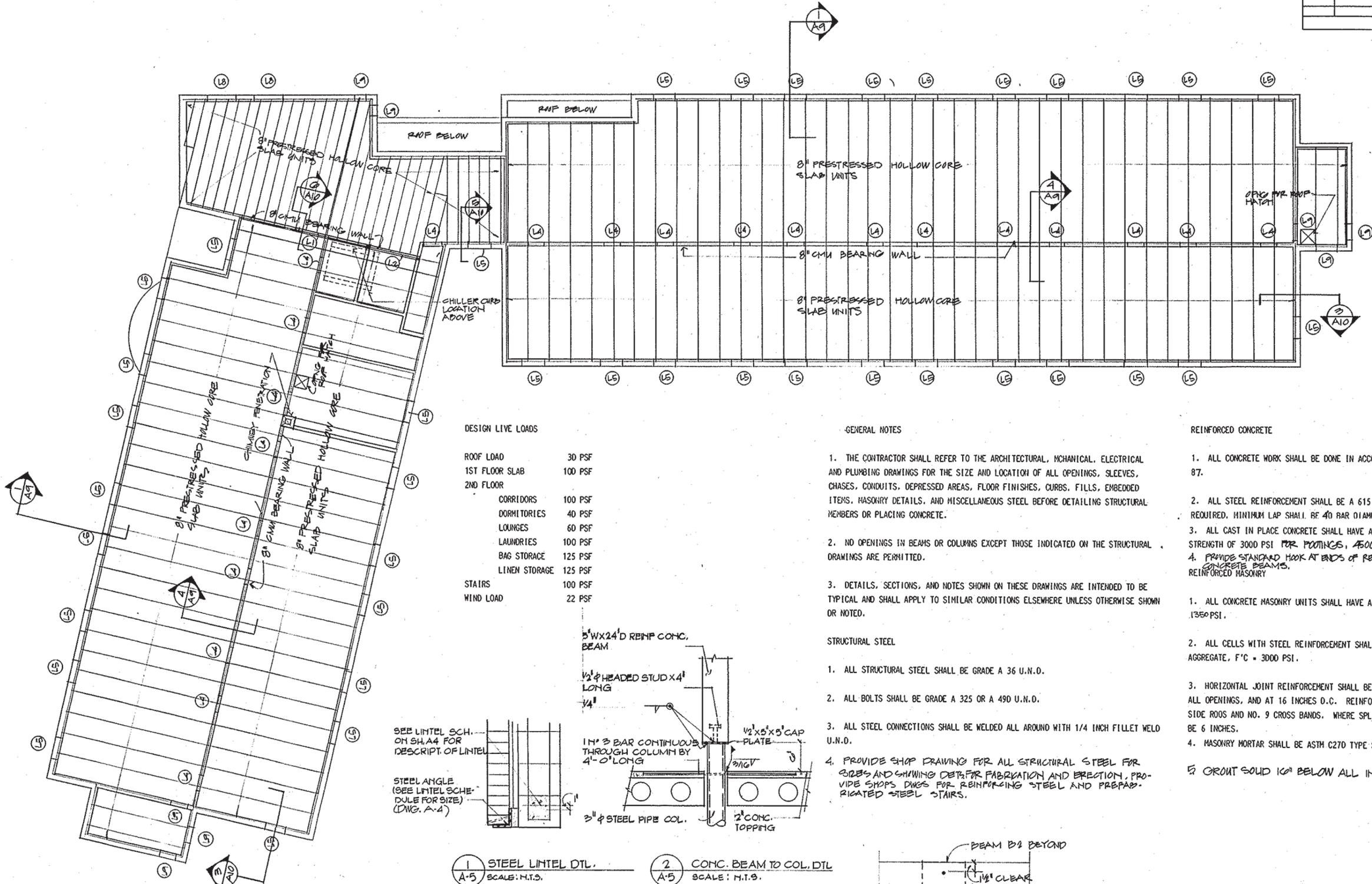


2
A-B
BUILDING ELEVATION



McMullan & Associates
Consulting Structural Engineers
1700 N. Office Building
8330 Old Courthouse Road, Suite 200
Vienna, Virginia 22180
Phone: (703) 556-0051

DECHMEISTER ARCHITECTS 521 King Street Alexandria, VA 22314		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.	
SUBMITTED BY: [] DATE: []		NAVY CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27266 SECOND FLOOR PLAN	
APPROVED: [] DATE: [] APPROVED: [] DATE: []		SEE CODE IDENT. NO. NAVFAC DRAWING NO. 3087784 CONSTR. CONTR. NO. N62477-86-C-0155 SPEC 81-86-0155 SHEET 9 OF 35	
A-3		SCALE NOTED	



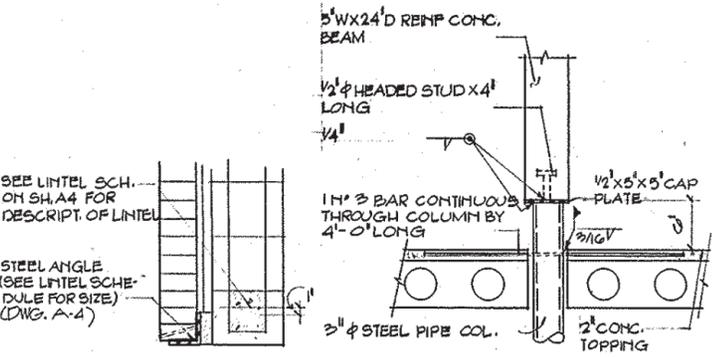
DESIGN LIVE LOADS

ROOF LOAD	30 PSF
1ST FLOOR SLAB	100 PSF
2ND FLOOR	
CORRIDORS	100 PSF
DORMITORIES	40 PSF
LOUNGES	60 PSF
LAUNDRIES	100 PSF
BAG STORAGE	125 PSF
LINEN STORAGE	125 PSF
STAIRS	100 PSF
WIND LOAD	22 PSF

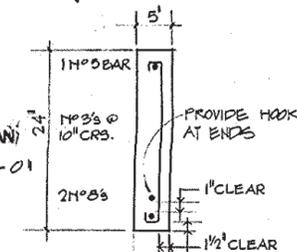
- GENERAL NOTES
1. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES, CHASES, CONDUITS, DEPRESSED AREAS, FLOOR FINISHES, CURBS, FILLS, EMBEDDED ITEMS, MASONRY DETAILS, AND MISCELLANEOUS STEEL BEFORE DETAILING STRUCTURAL MEMBERS OR PLACING CONCRETE.
 2. NO OPENINGS IN BEAMS OR COLUMNS EXCEPT THOSE INDICATED ON THE STRUCTURAL DRAWINGS ARE PERMITTED.
 3. DETAILS, SECTIONS, AND NOTES SHOWN ON THESE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR CONDITIONS ELSEWHERE UNLESS OTHERWISE SHOWN OR NOTED.

- REINFORCED CONCRETE
1. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318-87 AND ACI 301-87.
 2. ALL STEEL REINFORCEMENT SHALL BE A 615 GRADE 60. WHERE SPLICING IS REQUIRED, MINIMUM LAP SHALL BE 40 BAR DIAMETER.
 3. ALL CAST IN PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI FOR FOOTINGS, 4500 PSI FOR CONCRETE BEAMS.
 4. PROVIDE STANDARD HOOK AT ENDS OF REINFORCEMENT IN 8"x4" AND 5"x24" CONCRETE BEAMS.
 5. ALL CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM PRISM STRENGTH OF F'M = 1350 PSI.
 6. ALL CELLS WITH STEEL REINFORCEMENT SHALL BE FILLED WITH CONCRETE, 3/8" AGGREGATE, F'C = 3000 PSI.
 7. HORIZONTAL JOINT REINFORCEMENT SHALL BE PLACED IMMEDIATELY ABOVE AND BELOW ALL OPENINGS, AND AT 16 INCHES O.C. REINFORCEMENT SHALL BE 3/16 INCH DIAMETER SIDE RODS AND NO. 9 CROSS BANDS. WHERE SPLICING IS REQUIRED MINIMUM LAP SHALL BE 6 INCHES.
 8. MASONRY MORTAR SHALL BE ASTM C270 TYPE S.
 9. GROUT SOLID 16" BELOW ALL IN-WALL BEARING POINTS.

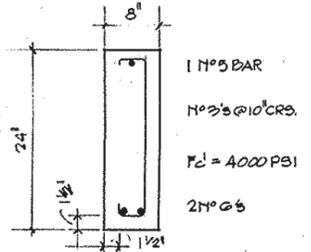
- STRUCTURAL STEEL
1. ALL STRUCTURAL STEEL SHALL BE GRADE A 36 U.N.D.
 2. ALL BOLTS SHALL BE GRADE A 325 OR A 490 U.N.D.
 3. ALL STEEL CONNECTIONS SHALL BE WELDED ALL AROUND WITH 1/4 INCH FILLET WELD U.N.D.
 4. PROVIDE SHOP DRAWING FOR ALL STRUCTURAL STEEL FOR BOLTS AND SHIMMING DETAILS FOR FABRICATION AND ERECTION. PROVIDE SHOPS DWGS FOR REINFORCING STEEL AND PREPARATED STEEL STAIRS.



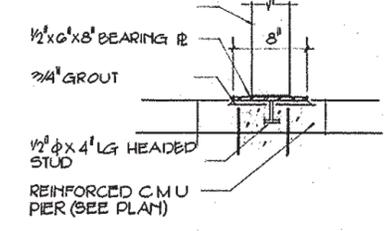
ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"



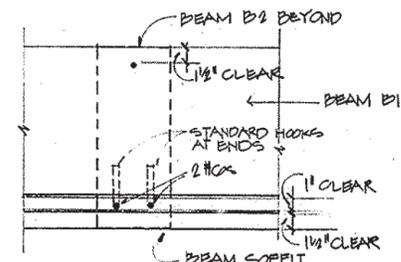
3 BEAM: B2
SCALE: N.T.S.



4 BEAM: B1
SCALE: N.T.S.



5 TYP BEAM TO PIER DTL.
SCALE: N.T.S.



6 BEAM INTERSECTION DET.
SCALE: 1/8" = 1'-0"
FEET 0 2 4 10 20

DISCHAMSTER ARCHITECTS 621 King Street Alexandria VA 22314		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND CHESAPEAKE DIVISION WASHINGTON, D.C.	
DESIGNED BY CHECKED BY DATE	DRAWN BY DATE	NAVAL CORPS EDUCATION AND DEVELOPMENT COMMAND QUANTICO, VIRGINIA BACHELOR ENLISTED QUARTERS BLDG #27266 ROOF FRAMING PLAN	
APPROVED DATE	DATE	SIZE CODE IDENT. NO. F 80091	NAVFAC DRAWING NO. 3087786
SFD FOR COMMANDER, NAVFAC		CONSTR. CONTR. NO. 068477-86-C-0186	SCALE NOTED SHEET #1 OF 38

