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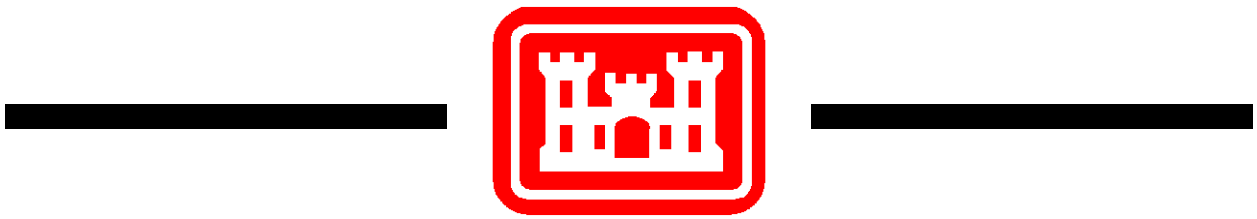
LESSONS LEARNED: 404/401 PERMITTING ON MILITARY TRAINING LANDS



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Facilities Engineering
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LESSONS LEARNED: 404/401 PERMITTING ON MILITARY TRAINING LANDS

1. Purpose.

a. This Public Works Technical Bulletin (PWTB) provides a snapshot in time of regulatory requirements and of lessons that were gleaned from military land managers and environmental coordinators for 404 and 401 permitting. Permitting can be overwhelming, confusing, and convoluted, even for small projects. This PWTB gives a simplified overview of when and where permits may be required, timeframes for permitting, and what is required for most districts and state regulators when entering into a permitting process.

b. All PWTBs are available electronically (in Adobe Acrobat portable document format) through the World Wide Web (www) at the National Institute of Building Sciences' Whole Building Design Guide web page, which is accessible through URL:

http://www.wbdg.org/ccb/browse_cat.php?o=31&c=215

2. Applicability. This PWTB applies to all continental U.S. Army facilities.

3. References.

a. Army Regulation 200-1, "Environmental Protection and Enhancement," 1997.
b. Clean Water Act of 1977 (Public Law 95-217, U.S. Code, Title 33, Part 1251).

c. U.S. Army Corps of Engineers (USACE), "2007 Nationwide Permits, Conditions, Further Information, and Definitions (with corrections)." 2007. http://www.usace.army.mil/cw/cecwo/reg/nationwide permits.htm
d. USACE. "Nationwide Permit Program." 2003. Available: http://www.usace.army.mil/cw/cecwo/reg/33cfr330.htm
e. U.S. Environmental Protection Agency (EPA), "Overview of Section 404." 2007. Available: http://www.epa.gov/owow/wetlands/laws/
f. EPA, "Section 401 Certification and Wetlands." 2006. Available: http://www.epa.gov/owow/wetlands/facts/fact24.html
g. USACE. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, Environmental Laboratory, Waterways Experiment Station, Vicksburg, MS. http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf

4. Discussion.

a. Changes to military lands such as expansion and development of ranges often are land-disturbing and may potentially lead to negative impacts on streams and/or wetlands. These ground-disturbing activities in general require permits or notification under Sections 404 and 401 of the Clean Water Act (CWA). Stream systems, bodies of water, and areas that meet the wetland criteria as outlined in the 1987 USACE Wetlands Delineation Manual (USACE 1987) are, by definition, considered waters of the United States until otherwise verified by USACE. CWA permitting programs are intended to uphold water quality standards and to preserve the natural systems of the waters of the United States. Section 404 of the CWA authorizes the Secretary of the Army, acting through USACE, to issue these Federal permits. Whenever a Section 404 permit is required, a Section 401 water quality certification typically must also be obtained from the state environmental agency having jurisdiction over the project. The USACE should be contacted prior to beginning work.

b. This PWTB is intended to be a quick overview of the basic permitting process that may provide a stepping stone for individuals new to the permitting process. In order for a 404 permit application to be approved, applicants must obtain Section 401 water quality certification (WQC) from the appropriate State, which confirms that the proposed activity will comply with State water quality standards. Interviews of several USACE regional regulators revealed that it would be

advantageous to contact them first for a preliminary planning session or a pre-application meeting. They have a good understanding of nationwide permits (NWPs) and can quickly determine if the proposed project might fall within one of the existing permits. USACE regional regulators provide guidance and assistance with the Federal side of permit application, and in most instances can walk applicants through any necessary State applications. Regional and NWPs are reviewed regularly and dramatic changes can occur after a review, including the removal of that permit. With this in mind, the content and information provided within the PWTB can change without notice.

c. Appendix A contains a list of the steps for obtaining 404 and 401 permits.

d. Appendix B contains a list of suggestions to follow when applying for permits

e. Appendix C contains an overview of Section 401 and Section 404 of the Clean Water Act. It will help you learn when and where permits may be required.

f. Appendixes D and E, respectively contain contact information for USACE District by Installation and individual contacts for each State.

g. Appendix F shows examples of documents that may be required in the permit application process.

h. Appendix G lists acronyms used in this document.

5. Points of Contact (POCs). HQUSACE is the proponent for this document. The HQUSACE POC is Mr. Malcolm E. McLeod, CEMP-CEP, 217-761-5696, or e-mail: Malcolm.E.Mcleod@hq02.usace.army.mil.

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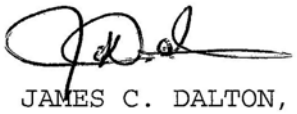

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Appendix A

Checklist for Obtaining 404 and 401 Permits

Appendix B within this PWTB is intended to provide a checklist for the steps generally needed in obtaining 404 and 401 permits. This list is intended as a general guide or questions that should be addressed when determining if or what type of permits may be required. It should not be assumed that this simplified checklist contains all pertinent materials that may be required before a project begins.

1. Determine the presence of waters of the US at the site of the proposed activity.

   a. See 33 CFR Part 328 Definition of Waters of the US at http://www.usace.army.mil/cw/cecwo/reg/33cfr328.htm

   b. Request a jurisdictional determination (JD) to identify boundaries for waters of the United States from your local district office, installation wetlands department, or contract to a qualified wetlands specialist/firm. Some district offices will direct you to seek a consultant. See USACE guidebook for requirements http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/jd_guidebook_051207final.pdf

      (1) Maps – State, project vicinity, topographic, or U.S. Geological Survey (USGS)

      (2) Aerial photograph less than 2 years old, 1:100 or 1:200 scale, proper label

      (3) Current digital elevation model (DEM) or LIDAR

      (4) On-ground photographs from all angles 0°, 45°, 90°, 180°

      (5) Routine Wetland Determination Data Form – see USACE 1987 Wetlands Delineation Manual http://www.nan.usace.army.mil/business/buslinks/regulat/formdocs/wlman87.pdf or the USACE Wetland Delineation Manual for your specific region http://el.erdc.usace.army.mil/wrap/pubs.cfm?Topic=TechReport&Code=wrap

      (6) Current USDA soil surveys

(7) Previous JDs, if available

2. Determine whether the proposed activity involves the discharge of dredged or fill material into waters of the United States. Is the proposed activity exempt from regulation?

   a. See 33 CFR Part 323 Permits for Discharges of Dredged or Fill Material Into Waters of the United States http://www.usace.army.mil/cw/cecwo/reg/33cfr323.htm

      For example, if less than x cubic yards, then the proposed activity is not significant. Your local district Regulatory Office can assist in determining "significance".

3. Determine impacts on waters of the United States that may result from the activity.

   a. Temporary disturbance or a permanent loss – see 2007 Nationwide Permits, Conditions, Further Information, and Definitions (with corrections) Part E http://www.usace.army.mil/cw/cecwo/reg/nwp/nwp2007_gen_conditions_def.pdf

   b. Quantity of proposed impact in surface area/acreage, cubic yards, or linear feet

      (1) Thresholds on the quantity of impact are state dependent. The most common thresholds are 1/10 acre and 600 linear feet.

          In Texas, for example, the proposed low water crossing will impact 1500 linear feet of stream bank and 3 acres of stream bed.

   c. Mitigation measures, if anticipated

      (1) Avoidance, minimization, rectification, reduction, or compensation mitigation

          (a) For example, all vegetation will be locally adapted native species. Best Management Practices (BMPs) will be utilized during and after construction.

          (b) For example, mitigation required if downstream disturbance or impact of a filling activity in a wetland system cumulatively exceeds 1/10 acre or more in Illinois, Indiana, and Minnesota.

4. Determine whether the proposed activity may fall under an NWP.

   a. Select required NWP – see 2007 Nationwide Permits, Conditions, Further Information, and Definitions (with corrections) Part B http://www.usace.army.mil/cw/cecwo/reg/nwp/nwp2007_gen_conditions_def.pdf

   b. Complete preconstruction notification, if required.

      (1) ENG Form 4345 (http://www.usace.army.mil/cw/cecwo/reg/eng4345a.pdf) and/or local county and State notification forms

      (2) Plan sheets depicting impacts

      (3) Topographic map

      (4) General Conditions Compliance – see 2007 Nationwide Permits, Conditions, Further Information, and Definitions (with corrections) Part C http://www.usace.army.mil/cw/cecwo/reg/nwp/nwp2007_gen_conditions_def.pdf

      (5) Compliance with regional conditions – see local District regulatory office

      (6) Proposed mitigation plan, if loss of waters of the United States or wetlands is greater than 1/10 acre

      (7) Description of project, purpose and adverse environmental effects

      (8) List of species, critical habitat, and historical property affected by proposed activity

      (9) Delineation of special aquatic sites and other waters of the United States on site

      (10) Provide evidence of avoidance and minimization efforts

5. Obtain Section 401 certification application or notification instructions from State agency.

   a. **Due to agreements between USACE and individual States, 401 permitting procedures vary from state to state.** These variations between states can significantly affect the evaluation and permitting process.

Appendix B

Suggestions, Tips, and Strategies to Follow When Applying for a Permit

Notably, the type of permit that an entity chooses to pursue, and the manner in which the permitting process is handled, can have a direct bearing on whether the project succeeds or fails. Following the tips and strategies discussed in this appendix can help ensure that a project becomes a reality.

1. Start early. As soon as one knows that a project is being considered, start the permitting process, individual permits can take up to a year or more to obtain. Due to the complicated and time-consuming nature of the permitting process, it is wise to retain experienced technical consultant and legal advisors at the outset of a project. A project-specific permitting strategy should be developed after a careful evaluation of all pertinent scheduling issues. Even so, **entities should be sure to build additional time into the project schedule in order to account for unanticipated delays**.
2. Avoid the permitting process entirely if possible. If it is feasible to do so, entities should consider designing projects so that stream and wetland impacts, and the associated permitting, can be avoided. If it is not possible to complete the given project without impacting streams and/or wetlands, entities should attempt to design the project so that NWP requirements can be met. Provide evidence of avoidance and minimization efforts for submission with the application.
3. Evaluate available permitting options carefully. When developing a permitting strategy for a project, it is often important to determine how the agencies have permitted similar projects in the past. In some situations, the Army Corps will require applicants to pursue an Individual Permit even though the project would appear to meet the applicable NWP criteria. When faced with such a permitting track record, an entity may want to apply for an Individual Permit right from the start in order to avoid lengthy delays in the permitting of the project.
4. Work closely with permitting agencies. In order to help ensure the success of a project and streamline the permitting process as much as possible, an entity should meet with the Army Corps and the pertinent state agency (i.e., the Ohio EPA) well before the necessary permit applications are submitted. Schedule a preliminary planning session or a pre-application meeting with the pertinent state agencies and Army Corps.

From that point forward, an entity should coordinate closely with the agencies throughout the entire permitting process.

5. Note differences in the various permitting processes. In some respects, the Section 404 and 401 permitting processes differ both procedurally and substantively. For instance, each permitting process requires a slightly different type of alternatives analysis and demands a somewhat distinct mitigation approach. To ensure that a project succeeds, an entity must thoroughly understand and address all of the differences in the Section 404 and 401 permitting processes as thoroughly as possible.
6. Don't forget the commenting agencies. When a Section 404 permit application is submitted to the Army Corps, the agency typically routes the application to numerous other agencies for review and comment. In Indiana, for example, Section 404 permit applications are often routed to U.S. EPA, the U.S. Fish and Wildlife Service, the Indiana Department of Natural Resources, and the Indiana Historic Preservation Office. Many times, the commenting agencies have vast and varied concerns that must be addressed by the applicant. **If the concerns of the commenting agencies are not adequately addressed, one or more of the commenting agencies may recommend against issuance of the requested permit**.
7. Find ways to shorten the permitting process. Usually, when Section 404/401 applications are submitted, the agencies accept public comments regarding the applications for at least 30 days. If, during the initial comment period, someone requests a public hearing regarding the applications, the agencies may issue another public notice scheduling a public hearing at least 30 or 45 days into the future. Public hearings are only conducted if the District Commander feels it will yield pertinent information cont available thru the normal evaluation process. Public hearings are not automatic. If an entity is attempting to complete a very controversial project, or it is highly likely that someone will request a public hearing regarding the permit applications, the entity may want to request that the agencies issue a public hearing notice at the same time that they issue the public notices regarding the receipt of the applications for the project. In addition, an entity may want to request that the Army Corps and the pertinent State agency (i.e., the Ohio EPA) hold joint agency public hearings regarding the applications. By taking such steps, applicants can often shorten the permitting process substantially.
8. Develop mitigation plans early. To avoid costly permitting delays, applicants should prepare and submit detailed mitigation plans with their initial transmittals to the

agencies. Applicants should ensure that all mitigation plans meet applicable regulatory requirements. In addition, applicants should request written agency concurrence of the acceptability of the mitigation plans promptly upon completion of the agency's review of the same.

9. Build the record in anticipation of an appeal. Whether during the public comment period or a public hearing that is held regarding the applications, it is always wise for applicants to make sure that supporters of the project submit favorable comment letters or public hearing testimony to the agencies. In addition, applicants should carefully categorize and respond to all adverse comments concerning the project. If these types of precautionary steps are taken during the permitting process, the odds of successfully defending a permit in the event of an appeal increase dramatically.
10. Be persistent. During the course of the permitting process, it is common for applicants to make numerous submittals to each of the regulatory agencies. To ensure that the applicant understands the agency's position regarding all of the issues of concern, the applicant should request written agency feedback regarding all permit submittals. To the extent that adverse responses are received, agency concerns should be promptly and effectively addressed. Of course, as soon as an issue has been resolved between the parties, the applicant should obtain written confirmation of such resolution from the pertinent regulatory agency.
11. Comply fully with permit terms and conditions. After permits are obtained for a given project, an applicant should develop a checklist of the various permit terms and conditions applicable to the project. Thereafter, an applicant should ensure that compliance is achieved with all such permit terms and conditions in a timely manner. Clearly, the failure to comply with applicable permit terms and conditions could result in not only agency enforcement, but permit revocation as well.
12. Be prepared to negotiate. In almost every instance, an applicant will need to engage in a substantial amount of negotiation in order to successfully navigate through the permitting process. In order to ensure the success of the negotiations, an applicant should make strategic proposals; take positions that are technically sound, and treat regulators in a professional manner. In addition, applicants should document all negotiations in writing. Even if such steps are taken, however, applicants should still be prepared to compromise regarding certain issues in order to expedite and streamline the permitting process.

While each and every Section 404/401 permitting project is unique, they often have several common issues. Though not exhaustive, by following the tips outlined above, applicants can greatly increase the odds that their various permitting endeavors will end in success.

Appendix C

Overview of Sections 401 and 404 of the Clean Water Act

Introduction

Section 404 of the Clean Water Act (CWA) establishes programs to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. The basic premise of the program is that no discharge of dredged or fill material may be permitted if a practical alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. In other words, when applying for a permit, applicants must show that they have, to the extent practicable:

- Taken steps to avoid wetland impacts;
- Minimized potential impacts on wetlands; and
- Provided compensation for any remaining unavoidable impacts (EPA 2007).

The U.S. Army Corps of Engineers (USACE) regulates proposed activities through a permit review process. An ***individual permit*** is required for potentially significant impacts. For most discharges that will have only minimal adverse effects, a ***general permit*** may be suitable. General permits are issued on a nationwide, regional, or State basis for particular categories of activities. The general permit process eliminates individual review and allows certain activities to proceed with little or no delay, provided that the general or specific conditions for the general permit are met (EPA 2007).

Nationwide permits (NWPs) are issued by the Chief of Engineers. They authorize activities on a nationwide basis. The NWPs are proposed, issued, modified, reissued (extended), and revoked from time to time after an opportunity for public notice and comment. Within 5 years of issuance of the NWPs, the Chief of Engineers will review them and propose modification, revocation, or reissuance (USACE 2003).

Regional permits are issued by a District or Division engineer. These permits provide authorization for a general category of activities in a certain District. For more information regarding regional general permits, contact your local USACE District regulatory office.

Section 401 of the Clean Water Act Overview

Section 401 certification allows States to take a more active role in wetland decisions. Under Section 401 of the CWA, States and Tribes can review and approve, condition, or deny all Federal permits or licenses that might result in a discharge to State or Tribal waters, including wetlands. Section 404 permits are subject to Section 401 certification. States and Tribes may issue Section 401 certification after ensuring that the proposed activity will comply with State water quality standards. In most cases, Section 401 certification review is conducted at the same time as the Federal agency review. Many States have established joint permit processing to ensure this occurs. In addition, the Section 401 review allows for better consideration of State-specific concerns (EPA 2006).

Section 404 NWPs Relevant to Military Land-Disturbing Activities

The following Section 404 NWPs have applicability to many of the ground disturbing activities performed on military training lands.

- 3. Maintenance
- 5. Scientific Measurement Devices
- 7. Outfall Structures and Associated Intake Structures
- 13. Bank Stabilization
- 14. Linear Transportation Projects
- 18. Minor Discharges
- 19. Minor Dredging
- 23. Approved Categorical Exclusions
- 25. Structural Discharges
- 27. Aquatic habitat Restoration, Establishment, and Enhancement Activities
- 30. Moist Soil Management for Wildlife
- 31. Maintenance of Existing Flood Control Facilities
- 41. Reshaping Existing Drainage Ditches
- 42. Recreational Facilities
- 43. Stormwater Management Facilities
- 45. Repair of Uplands Damaged by Discrete Events
- 46. Discharges in Ditches

Many NWPs have limitations to the area and volume of the disturbance (thresholds apply). Activities are additive (or cumulative); therefore, if a low water crossing is proposed every 200 feet along a stream, there may be need for a general

or individual permit if the total volume of disturbance exceeds the allowable NWP. Many NWPs also require that the District Engineer be notified of the activity before work can begin. Preconstruction notification (PCN) should be submitted as early as possible, preferably 45 days prior to the start of the activity, in order to allow enough time for the review process to be completed. Engineer Form 4345 (http://www.usace.army.mil/cw/cecwo/reg/eng4345a.pdf) can be used for PCN, but there may be additional requirements for a complete PCN. See NWP General Condition 27 for PCN requirements. For the complete listing of NWPs and NWP general conditions, see "2007 Nationwide Permits, Conditions, Further Information, and Definitions (with corrections)" at http://www.usace.army.mil/cw/cecwo/reg/nwp/nwp2007_gen_conditions_def.pdf.

DESCRIPTION OF NATIONWIDE PERMITS

NWP 3: Maintenance

- Authorizes the repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by Title 33 of the Code of Federal Regulations Part 330.3 (33 CFR 330.3), provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within 2 years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this 2-year limit may be waived by the District Engineer, provided the permittee can demonstrate funding, contract, or other similar delays.
- This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of and within existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in

the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend further than 200 feet in any direction from the structure. This 200-foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an upland area unless otherwise specifically approved by the District Engineer under separate authorization. The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the District Engineer.

- This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.
- This NWP does not authorize maintenance dredging for the primary purpose of navigation or beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.
- Notification: For activities authorized in the second paragraph of this NWP, the permittee must submit a pre-construction notification to the District Engineer before starting the activity (see General Condition 27). Where maintenance dredging is proposed, the pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.
- Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the CWA Section 404(f) exemption for maintenance.

NWP 5: Scientific Measurement Devices

- Authorizes the placement of devices, the purpose of which is to measure and record scientific data, including:
- staff gages, tide gages, water recording devices, water quality testing and improvement devices, and similar structures; and
- small weirs and flumes constructed primarily to record water quantity and velocity, provided the discharge is limited to 25 cubic yards.

NWP 7: Outfall Structures and Associated Intake Structures

- Authorizes activities related to the construction or modification of outfall structures and associated intake structures
- Activities must comply with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the CWA).
- The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity. (See General Condition 27.)

NWP 13: Bank Stabilization

- Authorizes bank stabilization activities necessary for erosion prevention, provided the activity meets all of the following criteria:
- No material is placed in excess of the minimum needed for erosion protection.
- The activity is no more than 500 feet in length along the bank, unless this criterion is waived in writing by the District Engineer.
- The activity will not exceed an average of 1 cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line, unless this criterion is waived in writing by the District Engineer.
- The activity does not involve discharges of dredged or fill material into special aquatic sites, unless this criterion is waived in writing by the District Engineer.
- No material is of the type, or is placed in any location or in any manner, to impair surface water flow into or out of any water of the United States.

- No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas).
- The activity is not a stream channelization activity.
- Notification: The permittee must submit a pre-construction notification to the District Engineer before starting the activity if the bank stabilization activity:
- involves discharges into special aquatic sites;
- is in excess of 500 feet in length; or
- will involve the discharge of greater than an average of 1 cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. (See General Condition 27.)

NWP 14: Linear Transportation Projects

- Authorizes activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States.
- For projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2 acre of waters of the United States.
- For projects in tidal waters, the discharge cannot cause the loss of greater than 1/3 acre of waters of the United States.
- Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.
- This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project.
- Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites.
- Temporary fills must meet the following criteria:
- They must consist of materials and be placed in a manner that will not be eroded by expected high flows.
- They must be removed in their entirety and the affected areas returned to pre-construction elevations.
- The areas affected by temporary fills must be revegetated, as appropriate.

- This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity if:
- the loss of waters of the United States exceeds 1/10 acre; or
- there is a discharge in a special aquatic site, including wetlands. (See General Condition 27.)
- Note: Some discharges for the construction of farm roads, forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under CWA Section 404(f) (see 33 CFR 323.4).

NWP 18: Minor Discharges

- Authorizes minor discharges of dredged or fill material into all waters of the United States, provided the activity meets all of the following criteria:
- The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line.
- The discharge will not cause the loss of more than 1/10 acre of waters of the United States.
- The discharge is not placed for the purpose of a stream diversion.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity if:
- the discharge or the volume of area excavated exceeds 10 cubic yards below the plane of the ordinary high water mark or the high tide line; or
- the discharge is in a special aquatic site, including wetlands. (See General Condition 27.)

NWP 19: Minor Dredging

- Authorizes dredging of no more than 25 cubic yards below the plane of the ordinary high water mark or the mean high water mark from navigable waters of the United States (i.e., Section 10 waters).
- This NWP does not authorize the dredging or degradation through siltation of coral reefs, sites that support submerged aquatic vegetation (including sites where submerged aquatic

vegetation is documented to exist but may not be present in a given year), anadromous fish spawning areas, or wetlands, or the connection of canals or other artificial waterways to navigable waters of the United States (see 33 CFR 322.5(g), Sections 10 and 404).

NWP 23: Approved Categorical Exclusions

- Authorizes activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:
- that agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from environmental documentation, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and
- the Office of the Chief of Engineers (Attn: CECW-CO) has concurred with that agency's or department's determination that the activity is categorically excluded and has approved the activity for authorization under NWP 23. The Office of the Chief of Engineers may require additional conditions, including preconstruction notification, for authorization of an agency's categorical exclusions under this NWP.
- Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the District Engineer before starting the activity (see General Condition 27). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letters.
- Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn: CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are the: Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07, which is available at: http://www.usace.army.mil/inet/functions/cw/cecwo/reg/rglsindx.htm. Any future approved categorical exclusions will be

announced in Regulatory Guidance Letters and posted on this same web site.

NWP 25: Structural Discharges

- Authorizes discharges of material such as concrete, sand, rock, etc., into tightly sealed forms or cells where the material will be used:
- as a structural member for standard pile-supported structures such as bridges, transmission line footings, and walkways; or
- for general navigation, such as mooring cells, including the excavation of bottom material from within the form prior to the discharge of concrete, sand, rock, etc.
- This NWP does not authorize filled structural members that would support buildings, building pads, homes, house pads, parking areas, storage areas and other such structures. The structure itself may require a Section 10 permit if located in navigable waters of the United States.

NWP 27: Aquatic Habitat Restoration, Establishment, and Enhancement Activities

- Authorizes activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas and the restoration and enhancement of non-tidal streams and other non-tidal open waters, provided those activities result in net increases in aquatic resource functions and services.
- To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to:
- the removal of accumulated sediments;
- the installation, removal, and maintenance of small water control structures, dikes, and berms;
- the installation of current deflectors;
- the enhancement, restoration, or establishment of riffle and pool stream structure;
- the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders;
- the backfilling of artificial channels and drainage ditches;
- the removal of existing drainage structures;
- the construction of small nesting islands;
- the construction of open water areas;

- the construction of oyster habitat over unvegetated bottom in tidal waters;
- shellfish seeding;
- activities needed to reestablish vegetation, including plowing or disking for seed bed preparation and the planting of appropriate wetland species;
- mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and
- other related activities.
- Only native plant species should be planted at the site.
- This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.
- Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa) or uplands.
- This NWP does not authorize stream channelization.
- This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.
- Reversion: This NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use for enhancement, restoration, and establishment activities conducted:
- in accordance with the terms and conditions of a binding wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), or their designated state cooperating agencies;
- as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or
- on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining (OSM) or the applicable state agency.
- The reversion must occur within 5 years after expiration of a limited term wetland restoration or establishment agreement or

permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires.

- The 5-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, or an appropriate state cooperating agency.
- This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on previously converted cropland that has not been abandoned or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a Section 404 permit).
- The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit.
- Before conducting any reversion activity, the permittee or the appropriate Federal or state agency must notify the District Engineer and include the documentation of the prior condition.
- Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time.
- The requirement that the activity result in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions.
- Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity (see General Condition 27). For the following activities pre-construction notification is not required; however, the permittee must submit a copy of the appropriate documentation:
- activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. FWS, NRCS, FSA, NMFS, NOS, or their designated state cooperating agencies;

- voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or U.S. Department of Agriculture (USDA) Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or
- the reclamation of surface coal mine lands, in accordance with an Surface Mining Control and Reclamation Act of 1977 (SMCRA) permit issued by the OSM or the applicable state agency.
- Reporting: For those activities that do not require pre-construction notification, at least 30 days prior to commencing activities in waters of the United States authorized by this NWP, the permittee must submit to the District Engineer a copy of:
- the binding wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map;
- the NRCS or USDA Technical Service Provider documentation for the voluntary wetland restoration, enhancement, or establishment action; or
- the SMCRA permit issued by OSM or the applicable state agency.
- Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee programs. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

NWP 30: Moist Soil Management for Wildlife

- Authorizes discharges of dredged or fill material into nontidal waters of the United States and maintenance activities that are associated with moist soil management for wildlife for the purpose of continuing ongoing, site-specific, wildlife management activities where soil manipulation is used to manage habitat and feeding areas for wildlife.
- Authorized activities include, but are not limited to, plowing or disking to impede succession, preparing seed beds, or establishing fire breaks.
- Sufficient riparian areas must be maintained adjacent to all open water bodies, including streams to preclude water quality degradation due to erosion and sedimentation. The activity must not result in a net loss of aquatic resource functions and services.
- This NWP does not authorize the construction of new dikes, roads, water control structures, or similar features associated with the management areas.

- This NWP does not authorize the conversion of wetlands to uplands, impoundments, or other open water bodies.
- Note: The repair, maintenance, or replacement of existing water control structures or the repair or maintenance of dikes may be authorized by NWP 3. Some such activities may qualify for an exemption under Section 404(f) of the CWA (see 33 CFR 323.4).

NWP 31: Maintenance of Existing Flood Control Facilities

- Authorizes discharges of dredged or fill material resulting from activities associated with the maintenance of existing flood control facilities, including debris basins, retention/detention basins, levees, and channels that:
- were previously authorized by the Corps by individual permit, general permit, by 33 CFR 330.3, or did not require a permit at the time they were constructed; or
- were constructed by the Corps and transferred to a non-Federal sponsor for operation and maintenance.
- Activities authorized by this NWP are limited to those resulting from maintenance activities that are conducted within the "maintenance baseline," as described in the definition below. Discharges of dredged or fill materials associated with maintenance activities in flood control facilities in any watercourse that have previously been determined to be within the maintenance baseline are authorized under this NWP.
- All dredged material must be placed in an upland site or an authorized disposal site in waters of the United States, and proper siltation controls must be used.
- This NWP does not authorize the removal of sediment and associated vegetation from natural water courses except when these activities have been included in the maintenance baseline.
- This NWP does not authorize maintenance of a flood control facility that has been abandoned. A flood control facility will be considered abandoned if it has operated at a significantly reduced capacity without needed maintenance being accomplished in a timely manner.
- Maintenance Baseline: The maintenance baseline is a description of the physical characteristics (e.g., depth, width, length, location, configuration, or design flood capacity, etc.) of a flood control project within which maintenance activities are normally authorized by NWP 31, subject to any case-specific conditions required by the District Engineer.

- The District Engineer will approve the maintenance baseline based on the approved or constructed capacity of the flood control facility, whichever is smaller, including any areas where there are no constructed channels, but which are part of the facility.
- The prospective permittee will provide documentation of the physical characteristics of the flood control facility (which will normally consist of as-built or approved drawings) and documentation of the approved and constructed design capacities of the flood control facility. If no evidence of the constructed capacity exists, the approved capacity will be used. The documentation will also include best management practices to ensure that the impacts to the aquatic environment are minimal, especially in maintenance areas where there are no constructed channels. (The Corps may request maintenance records in areas where there has not been recent maintenance.)
- Revocation or modification of the final determination of the maintenance baseline can be done only in accordance with 33 CFR 330.5.
- Except in emergencies as described below, this NWP cannot be used until the District Engineer approves the maintenance baseline and determines the need for mitigation and any regional or activity-specific conditions.
- Once determined, the maintenance baseline will remain valid for any subsequent reissuance of this NWP.
- Mitigation: The District Engineer will determine any required mitigation one-time only for impacts associated with maintenance work at the same time that the maintenance baseline is approved. Such one-time mitigation will be required when necessary to ensure that adverse environmental impacts are no more than minimal, both individually and cumulatively. Such mitigation will be required only once for any specific reach of a flood control project. However, if one-time mitigation is required for impacts associated with maintenance activities, the District Engineer will not delay needed maintenance, provided the District Engineer and the permittee establish a schedule for identification, approval, development, construction and completion of any such required mitigation. Once the one-time mitigation described above has been completed, or a determination made that mitigation is not required, no further mitigation will be required for maintenance activities within the maintenance baseline. In determining appropriate mitigation, the District Engineer will give special consideration to natural water courses that have been included in the maintenance baseline and require

compensatory mitigation and/or best management practices as appropriate.

- Emergency Situations: In emergency situations, this NWP may be used to authorize maintenance activities in flood control facilities for which no maintenance baseline has been approved. Emergency situations are those which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if action is not taken before a maintenance baseline can be approved. In such situations, the determination of mitigation requirements, if any, may be deferred until the emergency has been resolved. Once the emergency has ended, a maintenance baseline must be established expeditiously, and mitigation, including mitigation for maintenance conducted during the emergency, must be required as appropriate.
- Notification: The permittee must submit a pre-construction notification to the District Engineer before any maintenance work is conducted (see General Condition 27). The preconstruction notification may be for activity-specific maintenance or for maintenance of the entire flood control facility by submitting a 5-year (or less) maintenance plan. The preconstruction notification must include a description of the maintenance baseline and the dredged material disposal site.

NWP 41: Reshaping Existing Drainage Ditches

- Authorizes discharges of dredged or fill material into nontidal waters of the United States, excluding non-tidal wetlands adjacent to tidal waters, to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in waters of the United States, for the purpose of improving water quality by regrading the drainage ditch with gentler slopes, which can reduce erosion, increase growth of vegetation, and increase uptake of nutrients and other substances by vegetation.
- The reshaping of the ditch cannot increase drainage capacity beyond the original as-built capacity nor can it expand the area drained by the ditch as originally constructed (i.e., the capacity of the ditch must be the same as originally constructed and it cannot drain additional wetlands or other waters of the United States).
- Compensatory mitigation is not required because the work is designed to improve water quality.

- This NWP does not authorize the relocation of drainage ditches constructed in waters of the United States; the location of the centerline of the reshaped drainage ditch must be approximately the same as the location of the centerline of the original drainage ditch.
- This NWP does not authorize stream channelization or stream relocation projects.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity, if more than 500 linear feet of drainage ditch will be reshaped. (See General Condition 27.)

NWP 42: Recreational Facilities

- Authorizes discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of recreational facilities.
- Examples of recreational facilities that may be authorized by this NWP include playing fields (e.g., football fields, baseball fields), basketball courts, tennis courts, hiking trails, bike paths, golf courses, ski areas, horse paths, nature centers, and campgrounds (excluding recreational vehicle parks).
- This NWP also authorizes the construction or expansion of small support facilities, such as maintenance and storage buildings and stables that are directly related to the recreational activity, but it does not authorize the construction of hotels, restaurants, racetracks, stadiums, arenas, or similar facilities.
- The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the District Engineer.
- This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity. (See General Condition 27.)

NWP 43: Stormwater Management Facilities

- Authorizes discharges of dredged or fill material into nontidal waters of the United States for the construction and maintenance of stormwater management facilities, including the excavation of stormwater ponds/facilities, detention basins,

and retention basins; the installation and maintenance of water control structures, outfall structures, and emergency spillways; and the maintenance dredging of existing stormwater management ponds/facilities and detention and retention basins.

- The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the District Engineer.
- This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.
- This NWP does not authorize discharges of dredged or fill material for the construction of new stormwater management facilities in perennial streams.
- Notification: For the construction of new stormwater management facilities, or the expansion of existing stormwater management facilities, the permittee must submit a preconstruction notification to the District Engineer prior to commencing the activity. (See General Condition 27.) Maintenance activities do not require pre-construction notification if they are limited to restoring the original design capacities of the stormwater management facility.

NWP 45: Repair of Uplands Damaged by Discrete Events

- This NWP authorizes discharges of dredged or fill material, including dredging or excavation, into all waters of the United States for activities associated with the restoration of upland areas damaged by storms, floods, or other discrete events.
- This NWP authorizes bank stabilization to protect the restored uplands. The restoration of the damaged areas, including any bank stabilization, must not exceed the contours (or ordinary high water mark) that existed before the damage occurred. The District Engineer retains the right to determine the extent of the pre-existing conditions and the extent of any restoration work authorized by this NWP.
- The work must commence, or be under contract to commence, within 2 years of the date of damage, unless this condition is waived in writing by the District Engineer.
- This NWP cannot be used to reclaim lands lost to normal erosion processes over an extended period. Minor dredging is limited to the amount necessary to restore the damaged upland area and should not significantly alter the pre-existing bottom contours of the waterbody.

- Notification: The permittee must submit a pre-construction notification to the District Engineer (see General Condition 27) within 12 months of the date of the damage. The preconstruction notification should include documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration.
- Note: Uplands lost as a result of a storm, flood, or other discrete event can be replaced without a Section 404 permit, if the uplands are restored to the ordinary high water mark (in non-tidal waters) or high tide line (in tidal waters). (See also 33 CFR 328.5.)

NWP 46: Discharges in Ditches

- Discharges of dredged or fill material into non-tidal ditches that are:
- constructed in uplands;
- receive water from an area determined to be a water of the United States prior to the construction of the ditch;
- divert water to an area determined to be a water of the United States prior to the construction of the ditch; and
- are determined to be waters of the United States.
- The discharge must not cause the loss of greater than one acre of waters of the United States.
- This NWP does not authorize discharges of dredged or fill material into ditches constructed in streams or other waters of the United States, or in streams that have been relocated in uplands.
- This NWP does not authorize discharges of dredged or fill material that increase the capacity of the ditch and drain those areas determined to be waters of the United States prior to construction of the ditch.
- Notification: The permittee must submit a pre-construction notification to the District Engineer prior to commencing the activity. (See General Condition 27.)

Appendix D

USACE Contacts Listed by District

PWTB 200-1-XX	State	County	Tier	District Name	District POC	District POC Telephone	District POC E-mail	District Website
Anniston Army Depot	AL	Calhoun		Mobile	CESAM-RD	251-690-2658	dll-cesam-rd-pn@sam.usace.army.mil	http://www.sam.usace.army.mil/
Fort Benning	AL	Russell	1	Mobile	CESAM-RD	251-690-2658	dll-cesam-rd-pn@sam.usace.army.mil	http://www.sam.usace.army.mil/
Fort Rucker	AL	Coffee	2	Mobile	CESAM-RD	251-690-2658	dll-cesam-rd-pn@sam.usace.army.mil	http://www.sam.usace.army.mil/
Fort Rucker	AL	Dale	2	Mobile	CESAM-RD	251-690-2658	dll-cesam-rd-pn@sam.usace.army.mil	http://www.sam.usace.army.mil/
Redstone Arsenal	AL	Morgan		Nashville	No Name Specified	615-369-7500		http://www.lrn.usace.army.mil/
Wheeler National Wildlife Refuge	AL	Madison		Nashville	No Name Specified	615-369-7500		http://www.lrn.usace.army.mil/
Buckeye National Guard Target Range	AZ	Maricopa		Los Angeles	Ron Fowler	602-640-5385 x226	ronald.w.fowler@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Florence Military Reservation	AZ	Pinal		Los Angeles	Sallie McGuire	602-640-5385 x221	sallie.mcguire@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Fort Huachuca	AZ	Cochise		Los Angeles	Robert Dummer	602-640-5385 x224	robert.j.dummer@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Navajo Army Depot	AZ	Coconino		Los Angeles	Daisy Eldridge	602-640-5385 x268	daisy.eldridge@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Yuma Proving Ground	AZ	La Paz		Los Angeles	Marjorie Blaine	520-584-1684	marjorie.e.blaine@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Yuma Proving Ground	AZ	Yuma		Los Angeles	Ron Fowler	602-640-5385 x226	ronald.w.fowler@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php

PWTB 200-1-XX	State	County	Tier	District Name	District POC	District POC Telephone	District POC E-mail	District Website
Camp Joseph T. Robinson	AK	Faulkner		Little Rock	No Name Specified	501-324-5295		http://www.swl.usace.army.mil/
Camp Joseph T. Robinson	AK	Pulaski		Little Rock	No Name Specified	501-324-5295		http://www.swl.usace.army.mil/
Fort Chaffee (Closed)	AK	Franklin	2	Little Rock	No Name Specified	501-324-5295		http://www.swl.usace.army.mil/
Fort Chaffee (Closed)	AK	Sebastian	2	Little Rock	No Name Specified	501-324-5295		http://www.swl.usace.army.mil/
Pine Bluff Arsenal	AK	Jefferson		Little Rock	No Name Specified	501-324-5295		http://www.swl.usace.army.mil/
Camp Parks Military Reservation	CA	Contra Costa		San Francisco	Greg Brown	415-503-6791	gregory.g.brown@usace.army.mil	http://www.spn.usace.army.mil/
Camp Roberts Military Reservation	CA	San Luis Obispo		San Francisco	Greg Brown	415-503-6791	gregory.g.brown@usace.army.mil	http://www.spn.usace.army.mil/
Fort Irwin	CA	San Bernardino	1	Los Angeles	Gerry Salas	213-452-3417	gerardo.salas@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Fort MacArthur	CA	Los Angeles		Los Angeles	Aaron Allen	805-585-2148	aaron.o.allen@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Fort Ord	CA	Monterey		San Francisco	Greg Brown	415-503-6791	gregory.g.brown@usace.army.mil	http://www.spn.usace.army.mil/
Los Alamitos Armed Forces Reserve Center	CA	Orange		Los Angeles	Corice Farrar	213-452-3296	corice.j.farrar@usace.army.mil	http://www.spl.usace.army.mil/cms/index.php
Oakland Army Base	CA	Alameda		San Francisco	Greg Brown	415-503-6791	gregory.g.brown@usace.army.mil	http://www.spn.usace.army.mil/
Sacramento Army Depot (Closed)	CA	Sacramento		Sacramento	Kathleen A Dudley	916-557-7253	kathleen.a.dudley@usace.army.mil	
Sharpe General Depot (Field Annex)	CA	San Joaquin		Sacramento	Patti P. Johnson	916-557-6611	patti.p.johnson@usace.army.mil	
Sierra Army	CA	Lassen		Sacramento	Matthew P.	530-223-9534	matthew.p.kelley@us	

PWTB 200-1-XX	State	County	Tier	District Name	District POC	District POC Telephone	District POC E-mail	District Website
Depot					Kelley		ace.army.mil	
Hunter Liggett (INCL. PARKS)	CA	Monterey	2	San Francisco	Greg Brown	415-503-6791	gregory.g.brown@usace.army.mil	
Buckley Air Ntl Guard AF Base	CO	Arapahoe		Omaha	No Name Specified	303-979-4120	**N/A**	https://www.nwo.usace.army.mil/
Fitzsimons Army Medical Center	CO	Adams		Omaha	No Name Specified	303-979-4120	**N/A**	https://www.nwo.usace.army.mil/
Fort Carson Military Reservation	CO	El Paso	1	Albuquerque	Van Truan	719-543-6915	van.a.truan@usace.army.mil	http://www.spa.usace.army.mil/
Fort Carson Military Reservation	CO	Fremont	1	Albuquerque	Van Truan	719-543-6915	van.a.truan@usace.army.mil	http://www.spa.usace.army.mil/
Fort Carson Military Reservation	CO	Las Animas	1	Albuquerque	Van Truan	719-543-6915	van.a.truan@usace.army.mil	http://www.spa.usace.army.mil/
Fort Carson Military Reservation	CO	Otero	1	Albuquerque	Van Truan	719-543-6915	van.a.truan@usace.army.mil	http://www.spa.usace.army.mil/
Fort Carson Military Reservation	CO	Pueblo	1	Albuquerque	Van Truan	719-543-6915	van.a.truan@usace.army.mil	http://www.spa.usace.army.mil/
Malabar Transmitter Annex	FL	Brevard		Jacksonville	Irene Sadowski	321-504-3771 x12	Irene.Sadowski@usace.army.mil	http://www.saj.usace.army.mil/
Camp Blanding	FL	Clay	2	Jacksonville	Thad Hart	904-264-1273	Thaddieus.L.Hart@usace.army.mil	http://www.saj.usace.army.mil/
Fort Benning	GA	Chatta-hoochee	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Benning	GA	Marion	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Benning	GA	Muscogee	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Benning	GA	Talbot	1	Savannah	Piedmont Branch	678-422-2720 Ext. 2721		http://www.sas.usace.army.mil/

PWTB 200-1-XX	State	County	Tier	District Name	District POC	District POC Telephone	District POC E-mail	District Website
Fort Gillem Heliport	GA	Clayton		Savannah	Piedmont Branch	678-422-2720 Ext. 2721		http://www.sas.usace.army.mil/
Fort Gordon	GA	Columbia		Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Gordon	GA	Jefferson		Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Gordon	GA	McDuffie		Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Gordon	GA	Richmond		Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort McPherson	GA	Fulton		Savannah	Piedmont Branch	678-422-2720 Ext. 2721		http://www.sas.usace.army.mil/
Fort Stewart	GA	Bryan	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Stewart	GA	Evans	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Stewart	GA	Liberty	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Stewart	GA	Long	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Fort Stewart	GA	Tattnall	1	Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Hunter Army Airfield	GA	Chatham		Savannah	Coastal Branch	800-448-2402		http://www.sas.usace.army.mil/
Gowen Field (Orchard TA)	ID	Ada	2	Walla Walla	No Name Specified	208-345-2286	cenww-rd-22@usace.army.mil	http://www.nww.usace.army.mil/
Charles Melvin Price Support Center	IL	Madison		St. Louis	Alan Edmondson	314-331-8811	Alan.R.Edmondson@usace.army.mil	http://www.mvs.usace.army.mil/
Fort Sheridan	IL	Lake		Chicago	No Name Specified	312-846-5530		http://www.lrc.usace.army.mil/
Joliet Army Ammunition Plant	IL	Will		Chicago	No Name Specified	312-846-5530		http://www.lrc.usace.army.mil/
Rock Island Arsenal	IL	Rock Island		Rock Island	No Name Specified	309-794-5351		http://www.mvr.usace.army.mil/

PWTB 200-1-XX	State	County	Tier	District Name	District POC	District POC Telephone	District POC E-mail	District Website
Savanna Army Depot	IL	Carroll		Rock Island	No Name Specified	309-794-5351		http://www.mvr.usace.army.mil/
Savanna Army Depot	IL	Jo Daviess		Rock Island	No Name Specified	309-794-5351		http://www.mvr.usace.army.mil/
Camp Atterbury	IN	Bartholomew	2	Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Camp Atterbury	IN	Brown	2	Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Camp Atterbury	IN	Johnson	2	Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Crane Army Ammunition Plant	IN	Martin		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Crane Army Ammunition Plant	IN	Greene		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Crane Army Ammunition Plant	IN	Lawrence		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Fort Benjamin Harrison (Closed)	IN	Marion		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Indiana Arsenal Army Ammunition Plant	IN	Clark		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Jefferson Proving Ground	IN	Jefferson		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Jefferson Proving Ground	IN	Jennings		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Jefferson Proving Ground	IN	Ripley		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
LaPorte Outdoor Training Facility	IN	LaPorte		Detroit	Barb Anderson	574-232-1952	Barb.H.Anderson@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Newport Army Ammunition Plant	IN	Parke		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Newport Army Ammunition Plant	IN	Vermillion		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Camp Dodge	IA	Polk		Rock Island	No Name Specified	309-794-5351		http://www.mvr.usace.army.mil/

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Iowa Army Ammunition Plant	IA	Des Moines		Rock Island	No Name Specified	309-794-5351		http://www.mvr.usace.army.mil/
Iowa Army Ammunition Plant	IA	Lee		Rock Island	No Name Specified	309-794-5351		http://www.mvr.usace.army.mil/
Fort Leavenworth	KS	Leaven-worth		Kansas City	William R. Jeffries	816-389-3742	william.r.jeffries@usace.army.mil	http://www.nwk.usace.army.mil/
Fort Riley Military Reservation	KS	Clay	1	Kansas City	William R. Jeffries	816-389-3742	william.r.jeffries@usace.army.mil	http://www.nwk.usace.army.mil/
Fort Riley Military Reservation	KS	Geary	1	Kansas City	William R. Jeffries	816-389-3742	william.r.jeffries@usace.army.mil	http://www.nwk.usace.army.mil/
Fort Riley Military Reservation	KS	Riley	1	Kansas City	William R. Jeffries	816-389-3742	william.r.jeffries@usace.army.mil	http://www.nwk.usace.army.mil/
Kansas Army Ammunition Plant	KS	Labette		Kansas City	William R. Jeffries	816-389-3742	william.r.jeffries@usace.army.mil	http://www.nwk.usace.army.mil/
Sunflower Army Ammunition Plant	KS	Johnson		Kansas City	William R. Jeffries	816-389-3742	william.r.jeffries@usace.army.mil	http://www.nwk.usace.army.mil/
Fort Campbell	KY	Christian	1	Nashville	Brad Bishop	615-369-7502	Bradley.N.Bishop@usace.army.mil	http://www.lrn.usace.army.mil/
Fort Campbell	KY	Trigg	1	Nashville	Brad Bishop	615-369-7502	Bradley.N.Bishop@usace.army.mil	http://www.lrn.usace.army.mil/
Fort Knox	KY	Bullitt	2	Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Fort Knox	KY	Hardin	2	Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Fort Knox	KY	Meade	2	Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Lexington-Blue Grass Army Depot (Closed)	KY	Bourbon		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Lexington-Blue Grass Army Depot (Closed)	KY	Fayette		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/
Lexington-Blue Grass Army Depot (Closed)	KY	Madison		Louisville	No Name Specified	502-315-6733		http://www.lrl.usace.army.mil/

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Fort Polk	LA	Vernon	1	New Orleans	No Name Specified	504-862-1950		http://www.mvn.usace.army.mil/index.asp
Louisiana Ordnance Plant	LA	Bossier		Vicksburg	Mike Mcnair	601-631-5721	mike.mcnair@usace.army.mil	http://www.mvk.usace.army.mil/
Louisiana Ordnance Plant	LA	Webster		Vicksburg	Mike Mcnair	601-631-5721	mike.mcnair@usace.army.mil	http://www.mvk.usace.army.mil/
Aberdeen Proving Ground	MD	Baltimore		Baltimore	Northern Maryland	410-962-4252		http://www.nab.usace.army.mil/
Aberdeen Proving Ground	MD	Harford		Baltimore	Northern Maryland	410-962-4252		http://www.nab.usace.army.mil/
Blossom Point Field Test Facility	MD	Charles		Baltimore	Southern Maryland	410-962-4500		http://www.nab.usace.army.mil/
Fort George G. Meade	MD	Anne Arundel		Baltimore	Northern Maryland	410-962-4252		http://www.nab.usace.army.mil/
Fort Ritchie	MD	Washington		Baltimore	Northern Maryland	410-962-4252		http://www.nab.usace.army.mil/
Globecom Radio Receiving Station	MD	Prince George's		Baltimore	Southern Maryland	410-962-4500		http://www.nab.usace.army.mil/
U.S. Garrison, Fort Detrick	MD	Frederick		Baltimore	Northern Maryland	410-962-4252		http://www.nab.usace.army.mil/
Fort Devens	MA	Middlesex		New England	No Name Specified	978-318-8335		http://www.nae.usace.army.mil/
Fort Devens	MA	Worcester		New England	No Name Specified	978-318-8335		http://www.nae.usace.army.mil/
U.S. Army Reserve Center	MA	Norfolk		New England	No Name Specified	978-318-8335		http://www.nae.usace.army.mil/
U.S. Army Reserve Center	MA	Plymouth		New England	No Name Specified	978-318-8335		http://www.nae.usace.army.mil/
Camp Grayling Military Reservation	MI	Crawford	2	Detroit	Mark Lesinski	989-684-5969	Mark.T.Lesinski@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Camp Grayling Military Reservation	MI	Kalkaska	2	Detroit	Jeff Fritsma	616-842-5510 Ext. 25525	Jeffry.J.Fritsma@lre02.usace.army.mil	http://www.lre.usace.army.mil/

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Camp Grayling Military Reservation	MI	Missaukee	2	Detroit	Jeff Fritsma	616-842-5510 Ext. 25525	Jeffry.J.Fritsma@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Camp Grayling Military Reservation	MI	Otsego	2	Detroit	Ed Arthur	906-635-3461	Edward.J.Arthur@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Camp Grayling Military Reservation	MI	Roscommon	2	Detroit	Jeff Fritsma	616-842-5510 Ext. 25525	Jeffry.J.Fritsma@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Custer Reserve Forces Training Area	MI	Calhoun		Detroit	Jeff Fritsma	616-842-5510 Ext. 25525	Jeffry.J.Fritsma@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Custer Reserve Forces Training Area	MI	Kalamazoo		Detroit	Jeff Fritsma	616-842-5510 Ext. 25525	Jeffry.J.Fritsma@lre02.usace.army.mil	http://www.lre.usace.army.mil/
Camp Ripley	MN	Morrison	2	St Paul	Leo Grabowski	218-829-8402	Leonard.A.Grabowski@usace.army.mil	http://www.mvp.usace.army.mil/
Camp Shelby	MS	Forrest	2	Mobile	CESAM-RD	251-690-2658	dll-cesam-rd-pn@sam.usace.army.mil	http://www.sam.usace.army.mil/
Camp Shelby	MS	Perry	2	Mobile	CESAM-RD	251-690-2658	dll-cesam-rd-pn@sam.usace.army.mil	http://www.sam.usace.army.mil/
Ford Leonard Wood	MO	Laclede	2	Kansas City	Gary W. Lenz	816-389-3835	gary.w.lenz@usace.army.mil	http://www.nwk.usace.army.mil/
Ford Leonard Wood	MO	Pulaski	2	Kansas City	Gary W. Lenz	816-389-3835	gary.w.lenz@usace.army.mil	http://www.nwk.usace.army.mil/
Ford Leonard Wood	MO	Texas	2	Kansas City	Gary W. Lenz	816-389-3835	gary.w.lenz@usace.army.mil	http://www.nwk.usace.army.mil/
Lake City Army Ammunition Plant	MO	Jackson		Kansas City	Gary W. Lenz	816-389-3835	gary.w.lenz@usace.army.mil	http://www.nwk.usace.army.mil/
Bearmouth National Guard Training Area	MO	Granite		Omaha	Allan Steinle	303-979-4120	Allan.E.Steinle@usace.army.mil	https://www.nwo.usace.army.mil/

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Fort William H. Harrison	MO	Lewis and Clark		Omaha	Allan Steinle	303-979-4120	Allan.E.Steinle@usace.army.mil	https://www.nwo.usace.army.mil/
Army Training Area	NB	Howard		Omaha	John Moeschen	none given	john.l.moeschen@usace.army.mil	https://www.nwo.usace.army.mil/
Army Training Area	NB	Merrick		Omaha	John Moeschen	none given	john.l.moeschen@usace.army.mil	https://www.nwo.usace.army.mil/
Cornhusker Army Ammunition Plant	NB	Hall		Omaha	John Moeschen	none given	john.l.moeschen@usace.army.mil	https://www.nwo.usace.army.mil/
Kearney Rifle Range	NB	Kearney		Omaha	John Moeschen	none given	john.l.moeschen@usace.army.mil	https://www.nwo.usace.army.mil/
Mead Army National Guard Facility	NB	Saunders		Omaha	John Moeschen	none given	john.l.moeschen@usace.army.mil	https://www.nwo.usace.army.mil/
Hawthorne Army Ammunition Depot	NV	Mineral		Sacramento	Kevin J. Roukey	775-784-5305	kevin.j.roukey@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Nellis Air Force Base	NV	Nye		Sacramento	Kevin J. Roukey	775-784-5305	kevin.j.roukey@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Nevada Test Site	NV	Lincoln		Sacramento	Steve Roberts	435-986-3979	Steven.W.Roberts@spk01.usace.army.mil	www.spk.usace.army.mil/regulatory.html
Nevada Test Site	NV	Clark		Sacramento	Steve Roberts	435-986-3979	Steven.W.Roberts@spk01.usace.army.mil	www.spk.usace.army.mil/regulatory.html
Belle Mead General Depot	NJ	Somerset		New York	No Name Specified	917-790-8511	cenan.publicnotice@usace.army.mil	http://www.nan.usace.army.mil/
Fort Dix	NJ	Burlington	2	Philadelphia	Regulator-of-the-Day	215-656-6728		http://www.nap.usace.army.mil/
Fort Dix	NJ	Ocean	2	Philadelphia	Regulator-of-the-Day	215-656-6728		http://www.nap.usace.army.mil/
Fort Monmouth	NJ	Monmouth		New York	No Name Specified	917-790-8511	cenan.publicnotice@usace.army.mil	http://www.nan.usace.army.mil/
Picatinny Arsenal	NJ	Morris		New York	No Name Specified	917-790-8511	cenan.publicnotice@usace.army.mil	http://www.nan.usace.army.mil/
Fort Wingate Depot Activity (Closed)	NM	McKinley		Albuquerque	Deanna Cummings	970-375-9509	Deanna.L.Cummings@usace.army.mil	http://www.spa.usace.army.mil/

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White Sands Missile Range	NM	Dona Ana		Albuquerque	James Mace	915-568-1359	james.e.mace@usace.army.mil	http://www.spa.usace.army.mil/
White Sands Missile Range	NM	Lincoln		Albuquerque	Donald Borda	505-342-3282	donald.borda@usace.army.mil	http://www.spa.usace.army.mil/
White Sands Missile Range	NM	Otero		Albuquerque	James Mace	915-568-1359	james.e.mace@usace.army.mil	http://www.spa.usace.army.mil/
White Sands Missile Range	NM	Sierra		Albuquerque	Donald Borda	505-342-3282	donald.borda@usace.army.mil	http://www.spa.usace.army.mil/
White Sands Missile Range	NM	Socorro		Albuquerque	Donald Borda	505-342-3282	donald.borda@usace.army.mil	http://www.spa.usace.army.mil/
Camden Test Annex	NY	Oneida		Buffalo	No Name Specified	716-879-4321	LRB.Regulatory@LRB01.usace.army.mil	http://www.lrb.usace.army.mil/
Fort Drum	NY	Jefferson	1	Buffalo	No Name Specified	716-879-4321	LRB.Regulatory@LRB01.usace.army.mil	http://www.lrb.usace.army.mil/
Fort Drum	NY	Lewis	1	Buffalo	No Name Specified	716-879-4321	LRB.Regulatory@LRB01.usace.army.mil	http://www.lrb.usace.army.mil/
Fort Drum	NY	St. Lawrence	1	Buffalo	No Name Specified	716-879-4321	LRB.Regulatory@LRB01.usace.army.mil	http://www.lrb.usace.army.mil/
Seneca Army Depot (Scheduled to close)	NY	Seneca		Buffalo	No Name Specified	716-879-4321	LRB.Regulatory@LRB01.usace.army.mil	http://www.lrb.usace.army.mil/
West Point U.S. Military Academy	NY	Orange		New York	No Name Specified	917-790-8411	cenan.publicnotice@usace.army.mil	http://www.nan.usace.army.mil/
Camp MacKall Military Reservation	NC	Richmond		Wilmington	Liz Hair	910-251-4469	Sarah.E.Hair@usace.army.mil	http://www.saw.usace.army.mil/
Camp MacKall Military Reservation	NC	Scotland		Wilmington	Liz Hair	910-251-4469	Sarah.E.Hair@usace.army.mil	http://www.saw.usace.army.mil/
Fort Bragg Military Reservation	NC	Cumberland	1	Wilmington	Ronnie Smith	910-251-4829	ronnie.dale.smith@us.army.mil	http://www.saw.usace.army.mil/
Fort Bragg Military Reservation	NC	Harnett	1	Wilmington	Ronnie Smith	910-251-4829	ronnie.dale.smith@us.army.mil	http://www.saw.usace.army.mil/

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Fort Bragg Military Reservation	NC	Hoke	1	Wilmington	Ronnie Smith	910-251-4829	ronnie.dale.smith@us.army.mil	http://www.saw.usace.army.mil/
Fort Bragg Military Reservation	NC	Moore	1	Wilmington	Emily Burton	910-251-4635	emily.r.burton@usace.army.mil	http://www.saw.usace.army.mil/
Military Ocean Terminal Sunny Point	NC	Brunswick		Wilmington	Kimberly Garvey	910-251-4482	kimberly.l.garvey@usace.army.mil	http://www.saw.usace.army.mil/
Military Ocean Terminal Sunny Point	NC	New Hanover		Wilmington	Kimberly Garvey	910-251-4482	kimberly.l.garvey@usace.army.mil	http://www.saw.usace.army.mil/
Ravenna Arsenal	OH	Portage		Pittsburgh	Scott Hans	412-395-7152		http://www.lrp.usace.army.mil/
Ravenna Arsenal	OH	Trumbull		Pittsburgh	Scott Hans	412-395-7152		http://www.lrp.usace.army.mil/
Fort Sill Military Reservation	OK	Comanche	2	Tulsa	No Name Specified	918-669-7401		http://www.swt.usace.army.mil/
U.S. Army Ammunition Depot	OK	Pittsburg		Tulsa	No Name Specified	918-669-7401		http://www.swt.usace.army.mil/
Camp Adair Military Reservation	OR	Benton		Portland	Shelly Hanson	541-465-6878		https://www.nwp.usace.army.mil/home.asp
Camp Adair Military Reservation	OR	Polk		Portland	Tina Teed	503-808-4384		https://www.nwp.usace.army.mil/home.asp
Camp Riley Military Reservation	OR	Clatsop		Portland	Karla Ellis	503-808-4377		https://www.nwp.usace.army.mil/home.asp
Umatilla Chemical Depot	OR	Morrow		Portland	Mary Hoffman	541-962-0401		https://www.nwp.usace.army.mil/home.asp
Umatilla Chemical Depot	OR	Umatilla		Portland	Mary Hoffman	541-962-0401		https://www.nwp.usace.army.mil/home.asp
Fort Indiantown Gap	PA	Lebanon	2	Baltimore	Pennsylvania Section	410-962-1846		http://www.nab.usace.army.mil/

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Fort Ritchie Raven Rock Site	PA	Adams		Baltimore	Pennsylvania Section	410-962-1846		http://www.nab.usace.army.mil/
Letterkenny Army Depot	PA	Franklin		Baltimore	Pennsylvania Section	410-962-1846		http://www.nab.usace.army.mil/
New Cumberland General Depot	PA	Cumberland		Baltimore	Pennsylvania Section	410-962-1846		http://www.nab.usace.army.mil/
New Cumberland General Depot	PA	Dauphin		Baltimore	Pennsylvania Section	410-962-1846		http://www.nab.usace.army.mil/
New Cumberland General Depot	PA	York		Baltimore	Pennsylvania Section	410-962-1846		http://www.nab.usace.army.mil/
Fort Jackson	SC	Kershaw	2	Charleston	Columbia Office	803-253-3444		http://www.sac.usace.army.mil/
Fort Jackson	SC	Richland	2	Charleston	Columbia Office	803-253-3444		http://www.sac.usace.army.mil/
Fort Campbell	TN	Montgomery	1	Nashville	Brad Bishop	615-369-7502	Bradley.N.Bishop@usace.army.mil	http://www.lrn.usace.army.mil/
Fort Campbell	TN	Stewart	1	Nashville	Brad Bishop	615-369-7502	Bradley.N.Bishop@usace.army.mil	http://www.lrn.usace.army.mil/
Milan Arsenal And Wildlife Management Area	TN	Carroll		Memphis	Joe Brougher	901-544-3472	Joseph.f.brougher@usace.army.mil	http://www.mvm.usace.army.mil/
Milan Arsenal And Wildlife Management Area	TN	Gibson		Memphis	Joe Brougher	901-544-3472	Joseph.f.brougher@usace.army.mil	http://www.mvm.usace.army.mil/
Camp Bullis / Sam Houston	TX	Bexar	2	Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Camp Bullis	TX	Comal	2	Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Camp Swift N. G. Faciltiy	TX	Bastrop		Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Fort Bliss	TX	El Paso	1	Albuquerque	James Mace	915-568-1359	james.e.mace@usace.army.mil	http://www.spa.usace.army.mil/
Fort Bliss McGregor Range	TX	Hudspeth	1	Albuquerque	James Mace	915-568-1359	james.e.mace@usace.army.mil	http://www.spa.usace.army.mil/

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Fort Hood	TX	Bell	1	Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Fort Hood	TX	Coryell	1	Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Fort Wolters	TX	Parker		Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Longhorn Ordnance Army Ammo Plant	TX	Harrison		Fort Worth	No Name Specified	817-886-1731		http://www.swf.usace.army.mil/index.asp
Red River Army Depot	TX	Bowie		Tulsa	No Name Specified	918-669-7401		http://www.swt.usace.army.mil/
Camp Williams	UT	Salt Lake		Sacramento	Hollis G. Jencks	801-295-8380 x18	hollis.g.jencks@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Camp Williams	UT	Utah		Sacramento	James M. McMillan	801-295-8380 x17	james.m.mcmillan@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Defense Depot Ogden (Closed)	UT	Weber		Sacramento	John E. Urbanic	801-295-8380 x13	john.e.urbanic@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Dugway Proving Grounds	UT	Tooele		Sacramento	John E. Urbanic	801-295-8380 x13	john.e.urbanic@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Utah Launch Complex White Sands Missile Range	UT	Grand		Sacramento	Stephen A. Moore	970-243-1199 x13	stephen.a.moore@usace.army.mil	www.spk.usace.army.mil/regulatory.html
Fort Ethan Allen	VT	Chittenden		New England	Vermont Project Office	800-343-4789		http://www.nae.usace.army.mil/
Arlington National Cemetery	VA	Arlington		Norfolk	Terri Crockett-Augustine	703-221-9736	theresita.m.crockett-augustine@nao02.usace.army.mil	http://www.nao.usace.army.mil/
Fort A. P. Hill	VA	Caroline	2	Norfolk	Regena Bronson	301-475-2720	regena.d.bronson@usace.army.mil	http://www.nao.usace.army.mil/
Fort A. P. Hill	VA	Essex	2	Norfolk	Alicia Riley	804-824-9492	alicia.g.riley@usace.army.mil	http://www.nao.usace.army.mil/
Fort Belvoir	VA	Fairfax		Norfolk	Terri Crockett-Augustine	703-221-9736	theresita.m.crockett-augustine@nao02.usace.army.mil	http://www.nao.usace.army.mil/

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Fort Eustis	VA	James City		Norfolk	Robert Berg	757-201-7793	robert.a.berg@usace.army.mil	http://www.nao.usace.army.mil/
Fort Eustis	VA	Newport News		Norfolk	Robert Berg	757-201-7793	robert.a.berg@usace.army.mil	http://www.nao.usace.army.mil/
Fort Lee	VA	Hopewell		Norfolk	Robert Berg	757-201-7793	robert.a.berg@usace.army.mil	http://www.nao.usace.army.mil/
Fort Lee	VA	Petersburg		Norfolk	Julie Hamilton	804-323-3783	julie.s.hamilton@usace.army.mil	http://www.nao.usace.army.mil/
Fort Lee	VA	Prince George		Norfolk	Robert Berg	757-201-7793	robert.a.berg@usace.army.mil	http://www.nao.usace.army.mil/
Fort Monroe	VA	Hampton		Norfolk	Katy Damico	757-201-7121	katy.r.damico@usace.army.mil	http://www.nao.usace.army.mil/
Fort Pickett Military Reservation (Closed)	VA	Brunswick	2	Norfolk	Nick Konchuba	757-201-7684	nicholas.l.konchuba@usace.army.mil	http://www.nao.usace.army.mil/
Fort Pickett Military Reservation (Closed)	VA	Dinwiddie	2	Norfolk	Julie Hamilton	804-323-3783	julie.s.hamilton@usace.army.mil	http://www.nao.usace.army.mil/
Fort Pickett Military Reservation (Closed)	VA	Nottoway	2	Norfolk	Nick Konchuba	757-201-7684	nicholas.l.konchuba@usace.army.mil	http://www.nao.usace.army.mil/
Fort Story	VA	Virginia Beach		Norfolk	Katy Damico	757-201-7121	katy.r.damico@usace.army.mil	http://www.nao.usace.army.mil/
Radford Army Ammunition Plant	VA	Montgomery		Norfolk	Mike Schwinn	757-201-7182	michael.a.schwinn@usace.army.mil	http://www.nao.usace.army.mil/
Radford Army Ammunition Plant	VA	Pulaski		Norfolk	Carolyn Cannella	276-228-8806	carolyn.m.cannella@usace.army.mil	http://www.nao.usace.army.mil/
Warrenton Training Center	VA	Fauquier		Norfolk	Anna Lawston	540-428-2864	anna.r.lawston@usace.army.mil	http://www.nao.usace.army.mil/

PWTB 200-1-XX	State	County	Tier	District Name	District POC	District POC Telephone	District POC E-mail	District Website
Camp Bonneville Military Reservation (Closed)	WA	Clark		Seattle	Bill Abadie	360-694-1171	william.d.abadie@usace.army.mil	http://www.nws.usace.army.mil/
Fort Lewis	WA	Pierce	1	Seattle	Koko Ekendiz	206-764-6878	koko.ekendiz@usace.army.mil	http://www.nws.usace.army.mil/
Fort Lewis	WA	Thurston	1	Seattle	Koko Ekendiz	206-764-6878	koko.ekendiz@usace.army.mil	http://www.nws.usace.army.mil/
Mount Baker Helicopter Training Area	WA	Skagit		Seattle	Randel Perry	206-764-6985	randel.j.perry@usace.army.mil	http://www.nws.usace.army.mil/
Mount Baker Helicopter Training Area	WA	Whatcom		Seattle	Randel Perry	206-764-6985	randel.j.perry@usace.army.mil	http://www.nws.usace.army.mil/
Nap of the Earth Army Helicopter Training Area	WA	Kitsap		Seattle	Casey Ehorn	206-764-6900	casey.h.ehorn@usace.army.mil	http://www.nws.usace.army.mil/
Nap of the Earth Army Helicopter Training Area	WA	Lewis		Seattle	Olivia Romano	206-764-6960	olivia.h.romano@usace.army.mil	http://www.nws.usace.army.mil/
Yakama Firing Center	WA	Kittitas		Seattle	Alisa Ralph	206-764-3262	alisa.a.ralph@usace.army.mil	http://www.nws.usace.army.mil/
Yakama Firing Center	WA	Yakima		Seattle	Alisa Ralph	206-764-3262	alisa.a.ralph@usace.army.mil	http://www.nws.usace.army.mil/
Badger Army Ammunition Plant	WI	Sauk		St Paul	Bruce Norton	507-895-8059	Bruce.C.Norton@usace.army.mil	http://www.mvp.usace.army.mil/
Camp Williams	WI	Juneau		St Paul	Simone Kolb	715-345-7911	Simone.E.Kolb@usace.army.mil	http://www.mvp.usace.army.mil/
Fort McCoy	WI	Jackson	2	St Paul	Bruce Norton	507)895-8059	Bruce.C.Norton@usace.army.mil	http://www.mvp.usace.army.mil/
Fort McCoy	WI	Monroe	2	St Paul	Bruce Norton	507)895-8059	Bruce.C.Norton@usace.army.mil	http://www.mvp.usace.army.mil/

Appendix E

401 Water Quality Certification (WQC) by State

- Alabama – Department of Environmental Management (DEM) – all NWPs conditionally certified
  http://www.sam.usace.army.mil/RD/reg/section401.htm
  information about WQC
  http://www.adem.state.al.us/FieldOps/Permitting/Guidance/MiningProgOverview.htm
- Arizona – Department of Environmental Quality (DEQ) – WQC application
  http://www.azdeq.gov/environ/water/permits/download/401app2.pdf
- Arkansas – DEQ – all NWPs conditionally certified
  http://www.swl.usace.army.mil/regulatory/pdf/ARNWPwqc.pdf
- California – Environmental Protection Agency (EPA) – list of certified or denied NWPs
  http://www.spk.usace.army.mil//organizations/cespk-co/regulatory/pdf/CA WQCert 2007.pdf
  - N Select appropriate Regional Water Quality Control Board (RWQCB) from http://www.waterboards.ca.gov/water boards.shtml, and submit Section 401 water quality certification application to that office.
  - N For proposed projects involving more than 1 RWQCB, use State Water Resources Control Board application http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/applicationform.doc
- Colorado – Department of Public Health and Environment – Water Quality Control Division certifies all NWPs by statute and does not require any documents to be submitted.
  http://www.cdphe.state.co.us/wq/assessment/Assess pdf/401Brochure.pdf
- Connecticut – Department of Environmental Protection (DEP) – WQC application information
  http://www.ct.gov/dep/cwp/view.asp?a=2709&depNav GID=1643&q=324168
- Delaware – Department of Natural Resources and Environmental Control – list of certified or denied NWPs
  http://www.nap.usace.army.mil/cenap-op/regulatory/spn/PN NWP DE reg cond 2008.pdf, individual WQC application
  http://www.dnrec.state.de.us/water2000/Sections/Wetlands/Originals/basic.htm

- Florida – DEP – all NWPs conditionally certified http://www.dep.state.fl.us/water/wetlands/erp/nwp.htm
- Georgia – Department of Natural Resources (DNR) – USACE and Georgia DNR joint application http://crd.dnr.state.ga.us/assets/documents/jrgcrddnr/Coastal_Georgia_NPS_Background_Final_with_disclaimer.pdf
- Idaho – DEQ – list of certified or denied NWPs http://www.deq.state.id.us/water/permits_forms/permitting/final_nationwide_certification.pdf, information about WCQ process http://www.deq.state.id.us/water/permits_forms/permitting/401_certification.cfm
- Illinois – EPA – list of certified, conditionally certified or denied NWPs http://www2.mvr.usace.army.mil/Regulatory/Documents/Illinois401.pdf, application for individual WQC http://www.mvr.usace.army.mil/Regulatory/JointApplicationPackets/Illinois/Illinois-HomePage.htm
- Indiana – DEM – list of certified, conditionally certified, or denied NWPs http://www.lre.usace.army.mil/functions/rf/html/NWP-07-Section_401_WQC.pdf, application and information for individual WQC certification http://www.in.gov/idem/4388.htm
- Iowa – DNR – USACE and Iowa DNR joint application http://www.iowadnr.gov/water/section401/index.html
- Kansas – Department of Health and Environment (DHE) – conditional certification of NWPs http://www.nwk.usace.army.mil/regulatory/2007nwps/KS401.pdf
- Kentucky – DEP – list of certified, conditionally certified, or denied NWPs http://www.water.ky.gov/permitting/wqcert/cert2007permits/, application for individual WQC http://www.water.ky.gov/NR/rdonlyres/B307B981-074A-485D-902D-1DF382C7AF1D/0/WRNew_Stream_Construction_WQC_Application2_20_06.pdf
- Louisiana – DEQ – WQC has been denied for NWPs 21, 29, 31, 39, 40, 43, and 44, but WQC for all other NWPs has been issued. http://www.swg.usace.army.mil/reg/permits.asp. If necessary, USACE will request WQC from Louisiana DEQ using Section 404 permit application http://www.deq.louisiana.gov/portal/tabid/2268/Default.aspx
- Maine – DEP or Land Use Regulation Commission (LURC) – WQC obtained through other necessary state permits http://www.maine.gov/dep/blwq/docstand/wqc/wqc.htm
- Maryland – Department of the Environment – all NWPs conditionally certified

http://www.nab.usace.army.mil/Regulatory/PublicNotice/SPN/spn07-37EnclB.pdf

- Massachusetts – DEP – WQC through Programmatic General Permit (PGP) http://www.mass.gov/dep/service/regulations/314cmr09.pdf
- Michigan – DEQ – Joint Permit Application for WQC http://www.michigan.gov/deq/0,1607,7-135-3307_29692_24403---,00.html
- Minnesota – Pollution Control Agency – WQC information and application http://www.pca.state.mn.us/water/401.html
- Mississippi – DEQ – Section 404 application serves as a WQC application. USACE will then notify MDEQ http://www.deq.state.ms.us/mdeq.nsf/page/WQCB_Steam_Wetland_Alteration03
- Missouri – DNR – list of certified, conditionally certified or denied NWPs http://www.nwk.usace.army.mil/regulatory/2007nwps/MO%20NWP%20General%20Conditions.pdf, application for individual WQC http://www.dnr.mo.gov/env/wpp/401/
- Montana – DEQ – list of certified, conditionally certified, or denied NWPs https://www.nwo.usace.army.mil/html/od-rmt/cert.htm, information about WQC http://www.deq.mt.gov/wqinfo/OtherCert/401Certification.asp
- Nebraska – DEQ – list of certified, conditionally certified, or denied NWPs http://www.deq.state.ne.us/SurfaceW.nsf/23e5e39594c064ee852564ae004fa010/51dc6453fe0ccfb9862572c20051fa56/$FILE/WQC%20for%202007%20NWPs.pdf, information about WQC http://www.deq.state.ne.us/SurfaceW.nsf/Pages/S401
- Nevada – Division of Environmental Protection – list of waived, certified, or denied NWPs http://ndep.nv.gov/BWQP/401cert_2.htm, WQC information and application http://ndep.nv.gov/BWQP/401cert.htm
- New Hampshire – Department of Environmental Services (DES) – general WQC reviewed through PGP application process http://www.des.state.nh.us/wmb/Section401/reviewProcess.html
- New Jersey – DEP – The State has assumed Section 404/401 permitting responsibilities under the Freshwater Wetlands Program http://www.state.nj.us/dep/landuse/forms/index.html#fww.
- New Mexico – Environment Department (NMED) – conditional certification or denial of NWPs http://www.nmenv.state.nm.us/SWQB/wps/NMEDSection401WQCEphemeralBlanketNWP2007.pdf, joint application for Department of the Army Permit and NMED individual WQC

http://www.spa.usace.army.mil/reg/application%20process/application.htm

- New York – Department of Environmental Conservation – information about WQC http://www.dec.ny.gov/docs/permits_ej_operations_pdf/401.pdf, WQC contact information http://www.dec.ny.gov/about/39381.html
- North Carolina – Division of Water Quality – PCN application form http://h2o.enr.state.nc.us/ncwetlands/documents/PCNrevisionMar08.pdf
- North Dakota – Department of Health – list of certified, conditionally certified or denied NWPs https://www.nwo.usace.army.mil/html/od-rnd/pn/NDDH401Cert.tif, WQC contact information http://www.health.state.nd.us/WQ/
- Ohio – EPA – conditional certification of NWPs http://www.epa.state.oh.us/dsw/401/NationwideCertification_final_jul07.pdf
- Oklahoma – DEQ – conditional certification of NWPs http://www.swt.usace.army.mil/PERMITS/Documents%20-%20Nationwide%20Permits/OKcert2007.pdf
- Oregon – DEQ – list of certified, partially certified, or denied NWPs https://www.nwp.usace.army.mil/op/g/docs/documents/DEQ_wq_cert_2007.pdf, information about WQC http://www.oregon.gov/DSL/PERMITS/docs/WRPPIT_guide_2008_lms.doc
- Pennsylvania – DEP – all NWPs conditionally certified http://www.nab.usace.army.mil/Regulatory/PublicNotice/SPN/spn07-37EnclB.pdf
- Rhode Island – DEM – WQC application http://www.dem.ri.gov/programs/benviron/water/permits/wqc/index.htm
- South Carolina – Department of Health and Environmental Control (DHEC) – submit a copy of the 404 application to DHEC to apply for WQC http://www.scdhec.net/environment/water/regs/r61-101.pdf
- South Dakota – Department of Environment & Natural Resources – WQC contact information http://www.state.sd.us/denr/DES/Surfacewater/401certification.htm
- Tennessee – Department of Environment & Conservation – WQC application http://www.state.tn.us/environment/permits/arap.shtml
- Texas – Commission on Environmental Quality – list of certified, conditionally certified, or denied NWPs

http://www.tceq.state.tx.us/assets/public/permitting/waterquality/attachments/401certification/NWcertltr.pdf, application for individual WQC for NWP 16 http://www.tceq.state.tx.us/permitting/water quality/wq assessment/401certification/401certification nationwide.html

- Utah – DEQ – conditional certification of NWPs http://www.spk.usace.army.mil//organizations/cespk-co/regulatory/pdf/UT WQCert 2007.pdf
- Vermont – Department of Environmental Conservation – send letter requesting certification http://www.anr.state.vt.us/dec/waterq/wetlands/docs/wl_factsheet19.PDF, information about WQC http://www.anr.state.vt.us/dec/permit hb/sheet27.pdf
- Virginia – DEQ – conditional certification of NWPs http://www.deq.state.va.us/export/sites/default/wetlands/pdf/CorpsPermits-DEQCertifications.pdf
- Washington – Department of Ecology – flow chart of 401 certification process http://www.ecy.wa.gov/programs/sea/pac/ppds info/401 Water Quality Cert.pdf Joint Aquatic Resource Permit Application (JARPA) must be submitted to USACE and to Department of Ecology http://www.ecy.wa.gov/biblio/ecy07015.html
- West Virginia – DEP – conditional certification for mining-related projects http://www.wvdep.org/Docs/13859_401%20Cert.%20NWP%2021-49-50.pdf, non-mining projects http://www.wvdep.org/item.cfm?ssid=11&ss1id=170
- Wisconsin – DNR – WQC application http://dnr.wi.gov/org/water/fhp/waterway/permits/pack20a.pdf http://dnr.wi.gov/org/water/fhp/waterway/wetlands.html
- Wyoming – DEQ – list of waived, certified or denied NWPs http://deq.state.wy.us/wqd/watershed/Downloads/401/wdeq32007.pdf, application for individual WQC http://deq.state.wy.us/wqd/watershed/#401 Certification

Appendix F

Examples of Documents from Four Permit Applications

- In the case of the installation at Camp Dodge in Iowa, an individual 404 permit was necessary. Copies of the permit, water quality certification, and wetland mitigation plan are shown on pages F-2 through F-14, F-15 through F-23, and F-24 through F-38, respectively.

- The jurisdictional determination for Crittenberger Multi-Use Range at Fort Hood (pages F-39 through F-154) shows the background information, maps, and photographs that are required to identify the boundaries of waters of the United States in the proposed project area.

- A regional general permit covered the construction activities at Camp Atterbury, IN. The notification form that was necessary for the activities to begin is shown on pages F-155 through F-175.

- Fort Drum, NY, has an excellent setup for permitting within their Wetlands Division. See pages F-176 through F-187.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Iowa Army National Guard	File Number: CEMVR-OD-P-440290	Date: August 25, 2003
Attached is:		See Section below
X	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	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 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.
- 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 district engineer. Your objections must be received by the 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 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 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 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 division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

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 division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

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 division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

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: Neal Johnson US Army Corps of Engineers District, Rock Island **ATTN: Regulatory Branch** Clock Tower Building Post Office Box 2004 Rock Island, Illinois 61204-2004 Telephone: 309/794-5379	If you only have questions regarding the appeal process you may also contact: Martha S. Chieply U.S. Army Corps of Engineers Division, Mississippi Valley ATTN: CEMVD-TD-OR P.O. Box 80 Vicksburg, Mississippi 39181-0080 Telephone: 601/634-5820 Fax : 601/634-7073	
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.		
David B Rogers COL/GS, CFMO Signature of appellant or agent.	Date: 22 Sep 2003	Telephone number: 515.252.4316

DEPARTMENT OF THE ARMY PERMIT

Permit Number: CEMVR-OD-P-440290

Section: 404

Permittee: Iowa Army National Guard
Camp Dodge
7700 NW Beaver Drive
Johnston, Iowa 50131

POC: Ms. Mary Jones
Tel: 515/252-4648

Effective Date:

Expiration Date: December 31, 2008

Issuing Office: U.S. Army Corps of Engineers, Rock Island District
Clock Tower Building - P.O. Box 2004
Rock Island, Illinois 61204-2004

You are authorized to perform work in accordance with the terms and conditions specified below.

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

Project Description. The permittee will construct a gravel trail through a farmed wetland. The trail will be approximately 3,500 feet long and 30 feet wide. Each side of the trail will have a 5-foot-wide earthen, sloped shoulder. The trail will be constructed by spreading a 6-inch-thick layer of rock directly on the existing ground surface. A 6-inch-thick layer of gravel will then be placed on top of the rock. The soil for the shoulders will be borrowed from an existing borrow site approximately ½-mile north of the northern end of the trail. The rock and gravel will be imported from commercial quarries. This project will adversely impact approximately 1.3 acres of emergent wetland. The wetland impacts will include 0.9 acres of permanent fill and 0.4 acres of temporary disturbance. To compensate for the adverse wetland impacts, the permittee has constructed a water retention structure to create wetland in an old borrow site approximately 2.5 miles southeast of the south end of the trail. Hydrology for the wetland mitigation area will be provided both by ground water and a 94-acre watershed. The site will be vegetated through a combination of natural regeneration and the planting of seeds harvested from nearby wetlands. Preliminary surveys indicate that the mitigation site will have 21 acres of seasonally and permanent ponded water. It is the permittee's intent that 1.3 acres of the created emergent wetland at the mitigation site will be used as compensation for this trail project. The remainder of the created wetlands will be considered as compensation for wetlands that will be lost during other future Iowa Army National Guard projects.

Locations.

a. Project Location: Wetland adjacent to Beaver Creek in Sections 16, 21, and 22, Township 80 North, Range 25 West. Polk County, Iowa.

b. Wetland Mitigation Location. Cropland in Section 35, Township 80 North, Range 25 West, Polk County, Iowa.

In accordance with the plans and drawings attached hereto which are incorporated in and made a part of this permit.

Drawings No. CEMVR-OD-P-440290	Sheet 1 of 4, Location Map
	Sheet 2 of 4, Location Map
	Sheet 3 of 4, Trail Route
	Sheet 4 of 4, Wetland Mitigation Site and Trail Cross Section

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on the date specified on page 1. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before that date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party, in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions. (Condition is not applicable for Section 10 Permits.)

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. That the 6 General Conditions and 9 Mitigation Conditions in the attached Section 401 water quality certification from the Iowa Department of Natural Resources dated July 31, 2003, are considered to be part of this permit.

2. That if construction work uncovers an item or items that may be of historic or archaeological interest or if important new historical data comes to light in the project area, the work must be delayed sufficient time to notify the U.S. Army Corps of Engineers, Rock Island District, Clock Tower Building – Post Office Box 2004, Rock Island, Illinois 61204-2004 (telephone 309/794-5384) and the State Historical Society of Iowa, Bureau of Historic Preservation, Historical Building/Capitol Complex, Des Moines, Iowa 50319 (telephone 515/281-8744) and to allow the significance of the discovery to be determined. The permittee may be held responsible for cost associated with identification and recovery.

3. That wetland hydrology will be returned to at least 1.3 acres at the wetland mitigation site. Wetland hydrology is defined as shallow inundation (2 feet or less) and/or saturation within 12 inches of the surface for at least 5% of the growing season. Growing season is determined based on the 28 degrees F or lower temperature threshold at the frequency of 5 years in 10.

4. That at least 10 pieces of coarse woody debris will be placed on the 1.3-acre wetland mitigation site to provide structure and microhabitat for wildlife. The debris should consist of logs or branches at least 6 inches in diameter and at least 6 feet long. The logs or branches must be spaced at least 50 feet apart.

5. That at least two shallow retention areas will be created in the grassy swales that lead into the wetland mitigation site. The shallow retention areas will be created by grading small bumps (berms) across the swales or by excavating shallow depressions in the swales. The purpose of the shallow retention areas is to keep runoff pollutants from entering the wetland mitigation during a small storm while allowing the passage of most of the water from larger storm events. This will allow some falling out and breaking down of storm water pollutants outside the wetland mitigation area.

6. That the permittee will notify the U.S. Army Corps of Engineers, Rock Island District when the trail crossing, the shallow retention areas, and the 1.3-acre mitigation site are complete and other performance standards have been met.

7. A post-construction report for the wetland mitigation site must be prepared and submitted to the U.S. Army Corps of Engineers' Rock Island District office and to the Iowa Department of Natural Resources within one year from the date that the first dredged or fill material is discharged into any wetland related to this project. The post-construction report must include planting plans, maps with drawn boundaries indicating exactly what areas were planted, the location of all photo points and observation wells, the location of all areas meant to be mitigation wetlands, locations and depths of transplanted top soils, locations, dimensions and treatment of buffer areas, and plans and cross sectional drawings of all excavations, fill, and structures.

8. The permittee shall conduct at least five complete annual surveys to assess vegetation, hydrology, and soils at the mitigation site and the need for a culvert at the trail crossing. Monitoring must begin before the end of the 2004 growing season. The results of each survey will be documented in an annual progress report. These annual reports must be submitted to the Corps of Engineer's Rock Island District office and the Iowa Department of Natural Resources by December 31 of each year for at least five years. For the mitigation site, the reports must include photos, a vegetative cover map indicating dominant species (based on the 1987 Corps of Engineers Wetlands Delineation Manual) in each vegetative community, an assessment of wetland hydrology in each vegetative community (also according to the 1987 Corps of Engineers Wetlands Delineation Manual), a soil profile description for each vegetative community, a map with drawn boundaries indicating exactly what areas are wetland according to the 1987 Corps of Engineers Wetlands Delineation Manual, a description of wildlife use, and any corrective actions taken or needed. For the trail crossing, the reports must include photos, a list of dominant species, and an assessment of hydrology on each side of the trail. All maps and drawings must be to scale and must have the scale plainly labeled.

9. That the permittee will perform any corrective measures and monitoring (in a timely manner) deemed necessary by the District Engineer to insure the success of the wetland mitigation. The permittee will assume all liability for accomplishing this corrective work. The corrective actions

may include modifications to the mitigation site (re-grading, importing top soil, re-seeding, the planting of emergent plant plugs in standing water, additional erosion control, installation of a culvert, control of invasive vegetation, etc.) or moving the mitigation to a new site. Corrective action may also involve additional monitoring to insure successful wetland restoration.

10. That by October 31, 2008, each plant community in the 1.3-acre wetland mitigation area will contain at least 5 hydrophytic plant species and that each of the species will have cover areas of at least 20 percent. If, at that time, there are not at least 5 hydrophytic plant species with cover areas of at least 20 percent in each plant community, corrective actions will be taken. The corrective actions may include re-grading, importing top soil, re-planting, control of invasive vegetation, etc. The permittee will assume all liability for accomplishing any required corrective work.

Further information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Mary L Jones — Permittee
9/23/03 — Date

The issuing officer for this permit is William J. Bayles, Colonel, U.S. Army, District Engineer, Rock Island District.

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, and in accordance with CEMVR-OD-P appointment order dated 28 March 2000, has signed below.

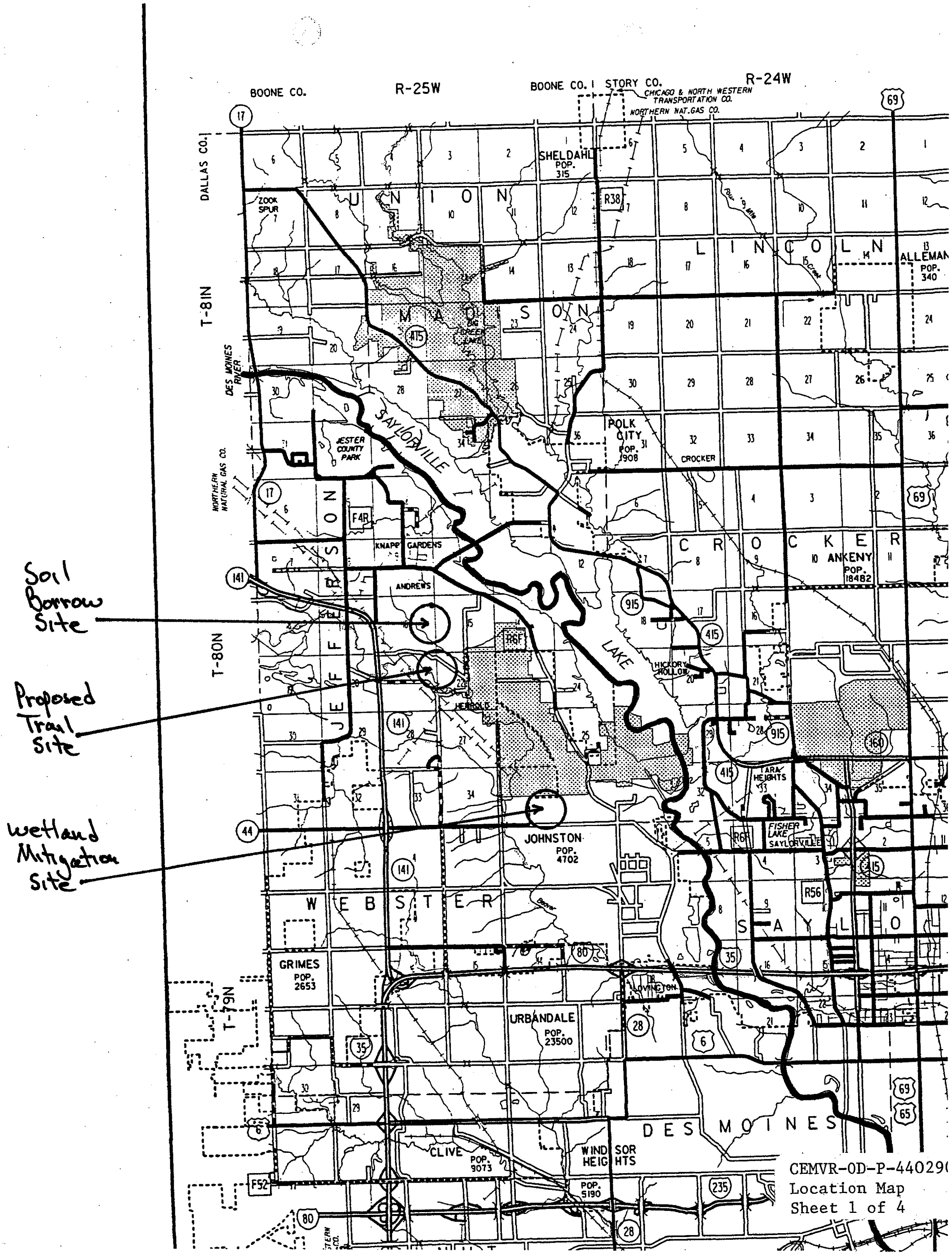
Neal Johnson
Project Manager
Regulatory Branch

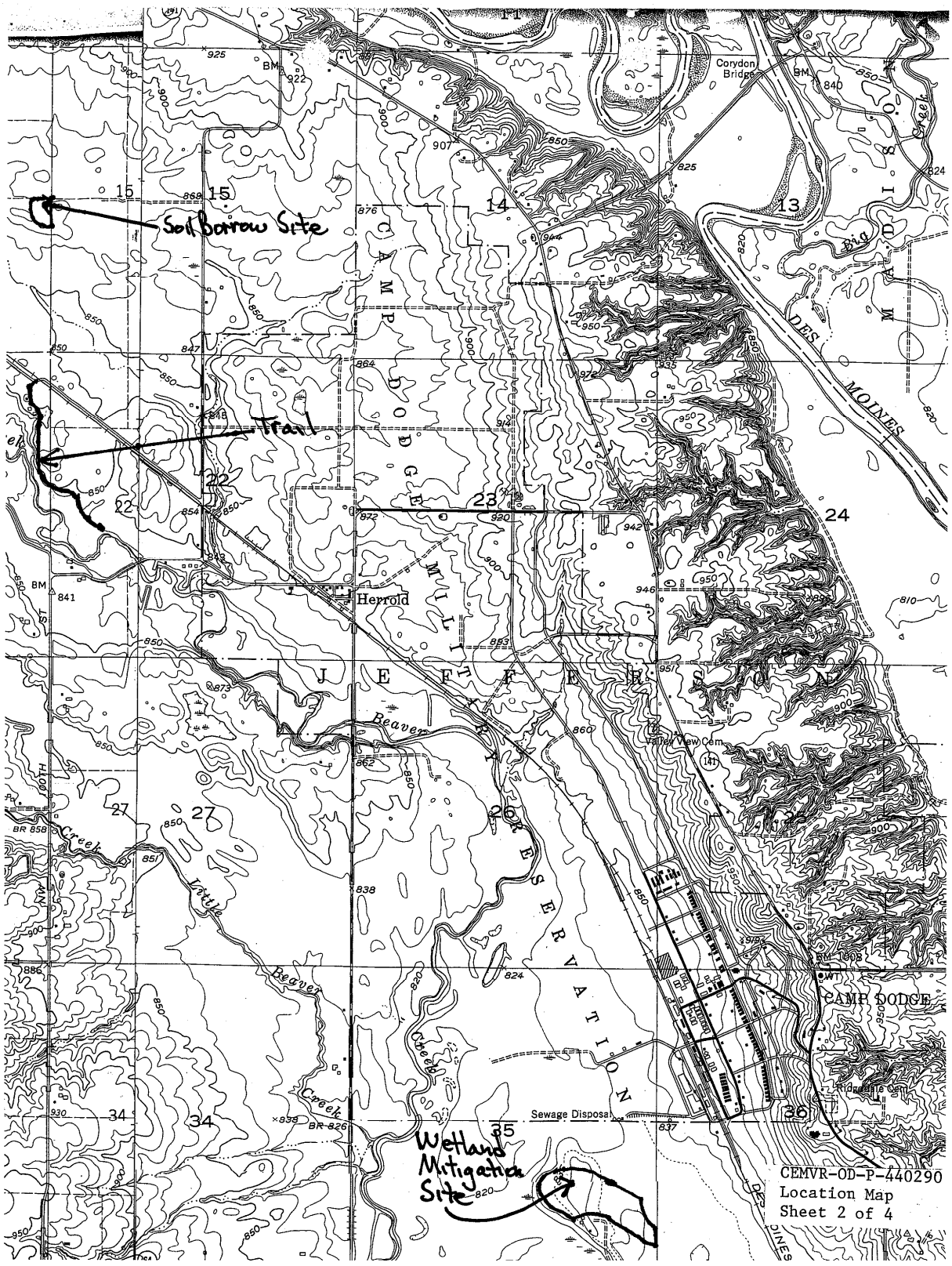
Date

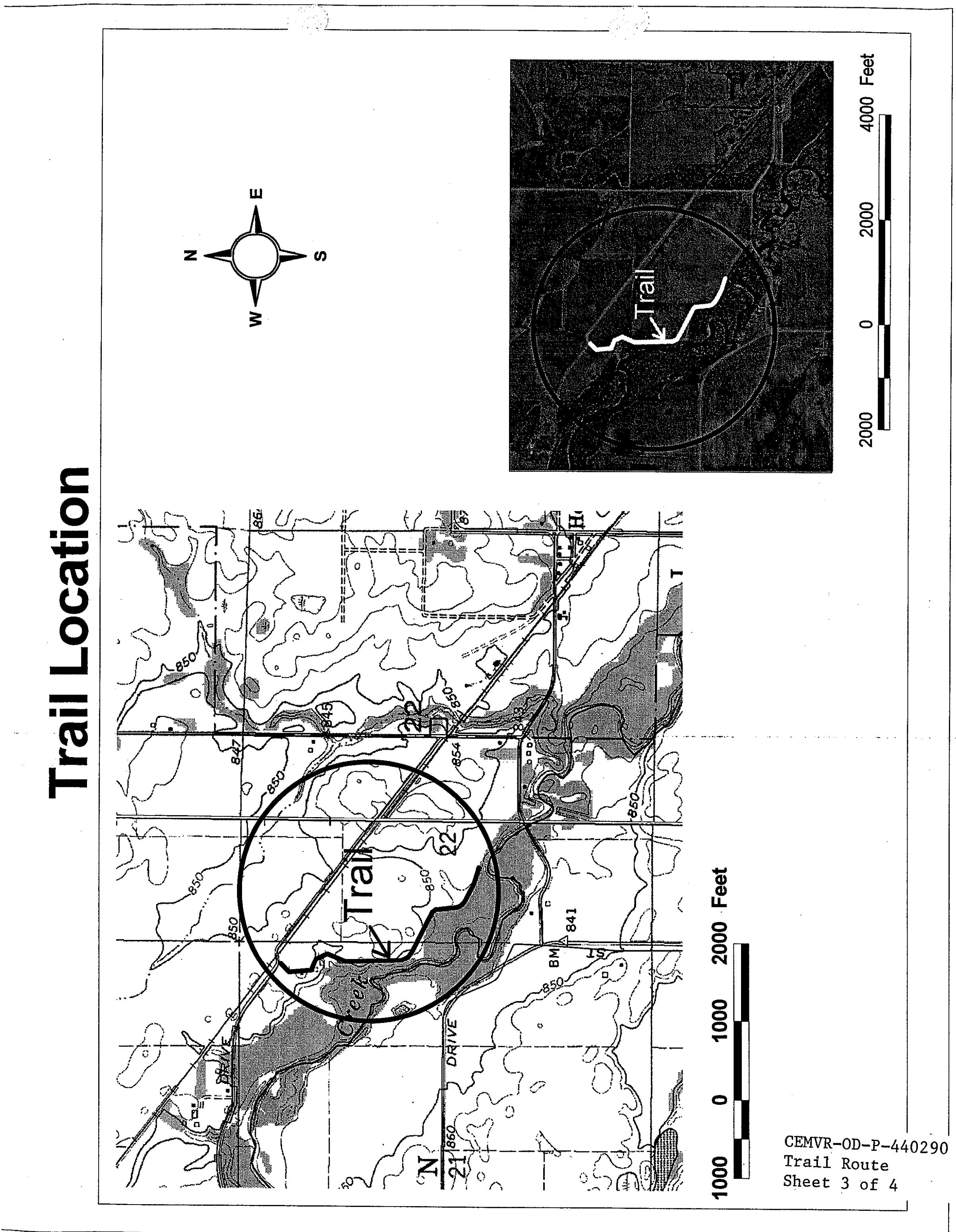
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

Transferee

Date


Soil Borrow Site
Proposed Trail Site
Wetland Mitigation Site
BOONE CO.
R-25W
BOONE CO.
STORY CO.
R-24W
DALLAS CO.
T-81N
T-80N
T-79N
UNION
LINCOLN
MADISON
CROCKER
JEFFERSON
WEBSTER
SAYLOR
DES MOINES
SAYLORVILLE
LAKE
SHELDAHL POP. 315
ALLEMAN POP. 340
POLK CITY POP. 1908
ANKENY POP. 18482
JOHNSTON POP. 4702
GRIMES POP. 2653
URBANDALE POP. 23500
CLIVE POP. 9073
WINDSOR HEIGHTS POP. 5190
CEMVR-OD-P-44029(
Location Map
Sheet 1 of 4


Soil Borrow Site
Trail
Wetland Mitigation Site
CAMP DODGE
Herrold
Corydon Bridge
Valley View Cem
Sewage Disposal
DES MOINES
CEMVR-OD-P-440290
Location Map
Sheet 2 of 4


Trail Location
Trail
N
E
S
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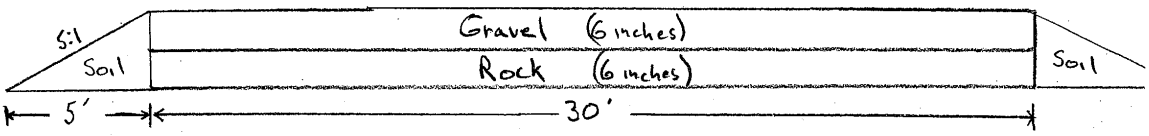
1000 0 1000 2000 Feet
2000 0 2000 4000 Feet
CEMVR-OD-P-440290
Trail Route
Sheet 3 of 4

Proposed Borrow Site Restoration Area, Polk County, IA

Wetland Mitigation Site



Trail Cross Section

CEMVR-OD-P-440290
Wetland Mitigation Site
and Trail Cross Section
Sheet 4 of 4

Fields of Opportunities

STATE OF IOWA

THOMAS J. VILSACK, GOVERNOR
SALLY J. PEDERSON, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

July 31, 2003

Iowa Army National Guard
Ms. Mary Jones
Camp Dodge, Building B-61
7700 NW Beaver Drive
Johnston, IA 50131

Dear Ms. Jones:

After reviewing your request for State 401 Water Quality Certification, the Department has issued the enclosed Certification. Please read the attached conditions carefully before beginning work on the project.

A copy of this Certification has been forwarded to the office of the Army Corps of Engineers as indicated below. You are advised to contact that office upon receipt of this certification.

If you have any questions or comments about the certification or any conditions contained therein, please contact me at the address shown below or call (515) 281-6615.

Sincerely,

Christine M. Schwake

Christine M. Schwake
Environmental Specialist

cc: Mr. Neal Johnson, Department of the Army Corps of Engineers, Rock Island District, Clock Tower Building, P.O. Box 2004, Rock Island, IL 61204-2004

WALLACE STATE OFFICE BUILDING / DES MOINES, IOWA 50319
515-281-5918 TDD 515-242-5967 FAX 515-281-6794 WWW.STATE.IA.US/DNR

IOWA DEPARTMENT OF NATURAL RESOURCES

SECTION 401 WATER QUALITY CERTIFICATION

Certification issued to: **Effective:** July 31, 2003

Iowa Army National Guard
Camp Dodge
7700 NW Beaver Drive
Johnston, IA 50131

Project certified: US Army Corps of Engineers, Joint Public Notice No. CEMVR-OD-P-440290
State 401 Water Quality Certification, Application Log No.: 03-D-153-05-03-S

Proposal to construct a 3,500'-long (30' wide) gravel trail in S16, 21 &22, T80N, R25W in Polk County. Each side of the trail will have a 5'-wide earthen, sloped shoulder. The trail will be constructed by spreading a 6"-thick layer of rock directly on the existing ground surface. A 6"-thick layer of gravel will then be placed on top of the rock. The soil for the shoulders will be borrowed from an existing borrow site approximately ½ mile north of the northern end of the trail. The rock and gravel will be imported from commercial quarries. This project will impact approximately 1.3 acres of emergent wetland. The wetland impacts will include 0.9 acres of permanent fill and 0.4 acre of temporary disturbance. To compensate for the adverse wetland impacts, the applicant has constructed a water retention structure to create wetland in an old borrow site approximately 2 ½ miles southeast of the south end of the trail. Hydrology for the wetland mitigation area will be provided both by groundwater and a 94-acre watershed. The site will be vegetated through a combination of natural regeneration and the planting of seeds harvested from nearby wetlands. Preliminary surveys indicate that the mitigation site will have 21 acres of seasonally and permanently ponded water. It is the applicant's intent that 1.3 acres of the created wetlands will be used as compensation for wetlands that will be lost during other future Iowa Army National Guard projects.

Water quality use designation:

The impacted wetlands are designated as General Use Water and are protected at all places at all times for livestock and wildlife water, aquatic life, non-contact recreation, crop irrigation, and industrial, domestic, agricultural, and other incidental water withdrawal uses.

The Iowa Department of Natural Resources (Department) has issued this State 401 Water Quality Certification pursuant to Section 401 of the Clean Water Act. The Army Corps of Engineers requires state Certification before a Section 404 permit can be issued. Section 401 Certification represents the Department's concurrence that the project certified is consistent with the Water Quality Standards of the state of Iowa as set forth in Chapter 61, Iowa Administrative Code.

Subject to the attached conditions, incorporated by reference herein, the Department has determined that there is reasonable assurance the proposed activities will be conducted in a manner that will not violate water quality standards of the state of Iowa.

By: Christine M. Schwake Date Executed: July 31, 2003

Christine M. Schwake, IDNR, Wallace State Office Building, Des Moines, IA 50319-0034 (515) 281-6615

STATE OF IOWA COUNTY OF POLK
I HEARBY CERTIFY I AM THE OFFICIAL AND LAWFUL CUSTODIAN OF THE PUBLIC RECORDS MAINTAINED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES AND THE FOREGOING DOCUMENT IS A TRUE AND ACCURATE PHOTOCOPY OF THE RECORD COPY MAINTAINED IN MY CUSTODY AS A PUBLIC RECORD OF THE DEPARTMENT IN THE ORDINARY COURSE OF ITS BUSINESS.
EXECUTED AT DES MOINES ON Cecilia Nelson JUL 31 '03

GENERAL CONDITIONS

1. Permittee is responsible for securing and for compliance with such other permits or approvals as may be required by this Department, federal, or local governmental agencies for the project activities described.

2. Clearing of vegetation, including trees located in or immediately adjacent to waters of the state, shall be limited to that which is absolutely necessary for construction of the project. All vegetative clearing material shall be removed to an upland, non-wetland disposal site.

3. All construction debris shall be disposed of on land in such a manner that it cannot enter a waterway or wetland. Construction equipment, activities, and materials shall be kept out of the water to the maximum extent possible. Equipment for handling and conveying materials during construction shall be operated to prevent dumping or spilling the material into waterbodies, streams or wetlands except as approved herein. Care shall be taken to prevent any petroleum products, chemicals, or other deleterious materials from entering waterbodies, streams or wetlands.

4. Erosion control features (i.e., silt fences, silt ditches, silt dikes, silt basins, etc.) must be installed to provide continuous erosion control throughout the construction and post construction period as well as the revegetation of all disturbed areas upon project completion. Where siltation control features have been reduced in capacity by 50% or more, the features shall be restored to their original condition with a minimum of delay.

5. All disturbed areas not covered by riprap shall be seeded with native grasses consistent with those included in the NRCS Critical Areas Seeding Mixture, excluding Reed Canarygrass (*Phalaris arundinacea*), during an optimal seeding period. If excavation and construction are completed outside an optimal seeding period, temporary erosion control protection shall be implemented immediately upon completion of excavation and construction and shall be maintained until such time as seeding can be completed during an optimal period. The applicant shall monitor revegetated areas continuously to assure success of revegetation. If rye is initially planted to stabilize the soil then native warm season grasses shall be planted during the following growing season.

6. Construction activities shall employ controls to reduce the erosiveness of land adjacent to surface waters and wetlands, including establishment and maintenance of the erosion controls during and after construction and revegetation of all disturbed areas upon project completion. Erosion control features (i.e., silt fences, silt ditches, silt dikes, silt basins, etc.) must be installed to provide continuous erosion control throughout the construction and post construction period. Where siltation control features have been reduced in capacity by 50% or more, the features shall be restored to their original condition with a minimum of delay.

MITIGATION CONDITIONS

1. Mitigation shall be completed within one year from the date that the first fill is placed in any wetland. An as-built plan shall be submitted to the Department of Natural Resources and to the Corps of Engineers upon completion. The 1.3-acre replacement wetland shall be monitored annually and managed to confirm whether it has successfully replaced the function and values of the impacted wetlands after a five-year period. If, at the end of the fifth year, the expected water level is not achieved, more than 50 percent of the emergent vegetation are non-native species, or if evidence exists that the replacement wetland is becoming less effective, then additional monitoring and/or corrective actions shall be taken to achieve the compensation ratio as originally approved. Annual monitoring reports shall be submitted to the Department of Natural Resources and to the Corps of Engineers' office by August 31 of each year for five years following planting.

2. Future development or land-use conversion of the wetland mitigation area, or any part thereof, for any purpose which may interfere with or be detrimental to wetland functions, is prohibited without prior written approval from this Department and the Corps of Engineers. Prior to commencement of project construction the applicant shall, with the knowledge and approval of the property owner of record, file a copy of this certification in its entirety with the County Recorder for entry into the property records, thereby notifying all parties of this restriction. Further, prior to commencement of construction, said applicant shall provide the Department and the Corps of Engineers with a "Filed" stamped copy of this certification. If the certification cannot be filed in the manner indicated, the applicant shall provide the Department with documentation of agreements, contracts, etc., demonstrating to the Department's satisfaction that the wetland mitigation site will be protected from future activities that may interfere with or be detrimental to wetland functions and values to a level of assurance equivalent to that provided by the aforementioned filing process.

3. The annual site surveys of the mitigation site shall assess the vegetation, hydrology, and soils. The results of each survey will be documented in an annual monitoring report. Annual monitoring reports shall be submitted to the IDNR and to the Corps by August 31 of each year for five years following planting. The reports must include photos, a vegetative cover map indicating dominant species in each area, an assessment of wetland hydrology according to the 1987 Corps of Engineers Wetland Delineation Manual ('87 Manual) and any subsequent updates, a map with drawn boundaries indicating exactly what areas are wetland according to the '87 Manual, and any corrective actions taken or needed. All maps must be to scale and have the scale plainly labeled.

4. Photo documentation will adhere to the following conventions: all photographs shall be labeled as to the date, direction of view and location using latitude-longitude coordinates, along with a brief description of the work being documented by the photographs. Planned photographs of critical and representative targets should be taken from common locations.

5. The Iowa Army National Guard shall assume all liability for accomplishing any needed corrective work. Corrective work will be required if 1.3 acres of emergent wetland not develop as wetland (according to the '87 Manual) or if the District Engineer determines that the mitigation site is not developing satisfactorily. Remedial work may include grading and/or planting the mitigation site, or may require a new mitigation site. Corrective action may also require additional monitoring to insure successful wetland restoration on 1.3 acres.

6. To ensure diversity of the wetland community, five or more hydrophytic emergent species shall be established and maintained to the end of the final monitoring period.

7. The Iowa Army National Guard shall prepare a Contingency Plan, which shall be subject to approval by the Corps, which identifies measures to be taken to restore or create emergent wetlands in the event that monitoring reveals the unsuccessful establishment of the 1.3 acres of emergent wetland.

8. Measures shall be taken to ensure the control of pest and invasive plant species to levels not to exceed 10% of the monitoring site.

9. Information to be developed in the monitoring reports at a minimum shall include progress being made toward achieving performance standards identified in this certificate and the following:

    a) The location (legal description and latitude/longitude coordinates, where practicable, of each wetland type), associated Corps permit number (CEMVR-OD-P-440290), date of initial development and photographs of the site to indicate successes/failures as well as progress in general. Areas so photographed in any given year will be repeated in

subsequent monitoring years or as required by the Rock island District. All photography will be taken during the growing season. See photo documentation conventions above.

b) Success of efforts to control pest and invasive plant species.

c) Wetland plant community structure (i.e., identify all dominant plant species, including percent canopy cover for trees compared to percent cover for ground species) as well as percent of open water on the site. It is recommended that this information be provided in a format acceptable to the Corps that can be readily utilized in an electronically transmittable format (and incorporated into a GIS mapping convention, as applicable).

d) Wildlife species identified as using the area.

e) Maps identifying photo and monitoring points, wetland plantings, and general wetland types within the mitigation area.

f) Measures taken within and adjacent to the mitigation site to better ensure protection of water quality within the mitigation site.

g) Estimates of the actual or anticipated acreage(s) of wetland type(s) in the overall and specific mitigation area, using the Cowardin classification, including system, class, water regime – to reflect trends in community development.

h) Status of any construction at the mitigation site at the end of the reporting period.

i) A discussion of concerns and problems identified during the reporting period, and the corrective measures undertaken, or projected to be taken.

j) For plantings, species, propagules, and locations and types of plantings, if any.

HEADQUARTERS IOWA NATIONAL GUARD
Office of the Adjutant General
Camp Dodge
7700 NW Beaver Drive
Johnston, Iowa 50131-1902

16 July 2003

Environmental Branch
Division of Installation Management

SUBJECT: CEMVR-OD-P-440290

Mr. Neal Johnson
Project Manager, Regulatory Branch
Rock Island District, Corps of Engineers
Clock Tower Building – Box 2004
Rock Island, IL 61204-2004

Dear Mr. Johnson:

Attached is information requested in the letter dated June 24, 2003 concerning CEMVR-OD-P-440290, C-7 Training Trail. I have placed a summary of the needed information at the beginning of each section, with our response in blue italics.

1. Site Selection: "Please submit more information on what minimization was considered and the reasons for discarding ay options that may have been less environmentally damaging. For example, please explain why a culvert cannot be installed through the proposed trail to allow the passage of surface water."

The IAARNG considered relocating the existing farm trail to avoid wetland impacts, however the entire PEMA wetland area mapped at this site is marginal in function and until purchased by Camp Dodge was in row crop farming. The site was revegetated to a brome/alfalfa field in the conversion for troop use. The site is so dry that the moisture-intolerant alfalfa continues to grow at this site. Now that we are in a period of normal rainfall again, it is conceivable that the site will regain some of

its wetland hydrology. However, it is doubtful if this area would ever be considered a high-quality wetland. Many decades of agricultural use have degraded this site and it currently exhibits no vegetation or hydrology that would indicate a wetland environment.

We decided NOT to re-route the trail away from this particular wetland because it is located adjacent to a river access point where the troops set up Reverse Osmosis Water Purification equipment. If the area is not hardened for troop use, the site will suffer further degradation due to the disturbance caused by vehicles and equipment in the area.

No culvert was planned because the wetland area under discussion is not within the Beaver Creek Flood Plain and is not influenced by surface water from Beaver Creek; therefore water runoff to Beaver Creek would be minimal. To cut down on site disturbance, road ditches were minimized so that water would not be channeled out of the area. The road itself will be about 1 foot above the original ground surface - the 5-foot wide shoulders will ramp to the road surface so that water can move over the site during rainfall events. Since the trail is not in the flood plain, so there will be no hold back of any floodwaters, nor is there direct input of water from Beaver Creek. The trail may create a temporary holdback of storm water flow to Beaver Creek during a heavy rain event. However, this water would percolate through the soil at the site. We are willing to monitor this site for changes to hydrology and add culverts if necessary. Currently, the addition of culverts would create additional ditch construction and further site disturbance. Constructing a ditch may even further drain the area by channeling water further down the trail and away from the wetland.

2. Mitigation plan – to include success criteria, invasive species control strategy, contingency plan, a plan to improve or import topsoil, planting plan, etc.

The original mitigation plan provided to the Corps has been revised and is attached to this letter.

3. Review and comment letters.

The IAARNG has received and reviewed the letters that have been incorporated into the official record. Comments from tribal representatives have been filed and noted. Past archeological studies have not indicated the presence of Native American graves, artifacts, funerary objects or other related items. However, due to the uncertain nature of any ground disturbing activity, we have operational procedures that require the immediate stoppage of any work that unearths items of this nature. If this happens, notification and consultation will be initiated immediately to ensure that a respectful and proper evaluation of the artifacts can be made.

In addition, we were also sent correspondence by the Osage Tribal Council expressing the same concerns and comments. I have enclosed a copy so that it may be added to the official file.

4. 106 and Archeological Concerns

The mitigation site and the trail site have both been examined through various archeological surveys conducted by the Omaha Corps of Engineers, Iowa State

University, Iowa Geologic Survey Bureau and the Office of the State Archeologist. These reports were reviewed by the State Historical Society of Iowa when they were completed, and reviewed again by reference through the Iowa Army National Guard Integrated Cultural Resources Management Plan and separate Integrated Natural Resources Management Plan, which outlined these two projects. At that time, these projects were subject to both 106 and NEPA review. No further action was recommended by the State Historical Preservation Officer. As with all construction projects, there will be a contingency included in the scope of work that requires an immediate halt to the project should an inadvertent discovery be made.

5. Section 401 water quality certification from the Iowa Department of Natural Resources

Documentation was submitted to the Iowa DNR through the joint application process. Although we have received a letter (enclosed) from the Flood Plain Management Program, the 401 Water Quality Certification is pending the resolution of final comments and questions.

6. Concerns outlined in the EPA mitigation site review.

Concerns were expressed about the management of storm water run-off into the wetland mitigation area, due to further development at the site. Future plans for the area to the east of the site do include the construction of buildings, parking areas, but also include green space, including walking trails, baseball diamonds and soccer fields. In addition, the approach to the site will include meandering grassed swales. As suggested in the correspondence, design features that minimize the extent of impervious surfaces will be incorporated into the site's Master Plan. In addition, Camp Dodge's storm water management plan highlights areas that may be at risk of contamination and spill events. Contingency plans, which are currently in force should also reduce the risk of site contamination. While the Guard hopes that this wetland area continues to develop into a viable and diverse wetland, this area is also considered a "retention cell" designed to protect the sensitive native wetlands to the immediate west of the site.

Legitimate concerns were also raised about the possible monoculture that may develop at this site, as well as the presence of sandy soils that may promote more aggressive weedy species. Current monitoring of the site indicates that a diverse plant population is developing under the willow and poplar canopy. Research published by van der Valk and Galatowitsch indicates that willow and poplar infiltration at wetlands may be a fairly recent phenomenon, possibly due to the decrease of natural fire as a control. Others view these woody species as transitional, serving as a "nurse" to vegetation developing below its canopy. Because of the presence of diverse seed sources nearby, as well as the commitment to future monitoring, no control of these woody species is foreseen until monitoring indicates that their presence is inhibiting diversity. Van der Valk and Galatowitsch indicate the sapling stem cuttings or fall burning are effective methods of eradication if this should happen.

As suggested in the EPA correspondence, Camp Dodge has outlined a number of potential sites suitable for other types of wetland communities, should future mitigation become necessary for other in-kind wetland replacement. These are outlined in the Iowa Guard Integrated Natural Resources Management Plan, as well as a separate floodplain and wetland management plan.

Current plans for the site do not include the introduction of additional topsoil for fear of the introduction of additional aggressive species. Some research has indicated that many fens, sedges meadows and wet prairies need low-nutrient soils and seasonally rising, shallow waters (Joy Zedler, Wetlands at Your Service: Reducing Impacts of Agriculture at the Watershed Scale. Frontiers in Ecology. 1: 65-72). Although a plan of "letting nature take its course" might be considered risky in such a degraded environment, one goal of this research project is to determine low cost and simple approaches to site recovery. Some research indicates that using a combined strategy of intentional design (seeding) with self-design (natural seed recruitment) is more successful in the long-term. This project can be monitored, evaluated, and the data made available to others if successful – or presented as a "lessons learned" if not. If current planting plans and woody species controls fail, seed bank soils may be considered at a later date.

We have incorporated the recommended conditions provided into the updated mitigation plan (attached).

I hope that this provides sufficient information to answer questions and concerns about this project. Should there by any additional questions, comments or concerns please contact me at the above address, by email at Mary.Jones@ia.ngb.army.mil or by phone at 515-252-4648.

Sincerely,

Enclosures

Mary L. Jones
Environmental Specialist
Iowa Army National Guard

Mitigation Plan
For
Proposed Trail Construction
Area C-7
Beaver Creek Watershed
NW Quarter Section 21
Range 25W, Township 80N
Polk County, Iowa

Application #44029 0

April 8, 2003
(Revised July 15, 2003)

Prepared in compliance with the US Army Corps of Engineers REGUALTORY GUIDANCE LETTER No. 02-2, December 24, 2002 and incorporating guidelines provided by Region VII Environmental Protection Agency.

I. Introduction

1. **Wetland Debit.** The wetland debit involves the proposed construction of a gravel training area trail in Training Area C-7 at Camp Dodge Military Reservation. Portions of this trail will border wooded areas adjacent to Beaver Creek. One portion of the trail will cross an open area which is classified as a Palustrine, Emergent, Temporarily Flooded (PEMA) wetland in the National Wetland Inventory. The wetland in question is currently planted to brome-alfalfa and is hayed several times per season. It borders, but does not lie in the Beaver Creek 100-year flood plain. The current wetland has been modified through long-term agricultural use, making its natural function minimal. This proposal concerns the mitigation for the proposed trail construction through **1.3 acres** of wetland in Section 21 R25W, T80N, Polk County, Iowa. Current guidelines recommend a 1:1 mitigation from palustrine wetlands.

Area delineated as wetland is the open area to the left of the tree line.

Project location (Adjacent to Beaver Creek, Polk County, Iowa)

2. **WETLAND CREDIT.** The proposed mitigation site lies to the south of the Debit Ste on federal land also controlled the Iowa Army National Guard (IAARNG).

a. **Site Choice**. As part of the IAARNG Integrated Natural Resources Management Plan (INRMP)(2002-2006), a wetland inventory was conducted in order to identify and protect existing wetlands. In addition, a plan was developed to identify the most successful potential mitigation sites. The sites outlined in this earlier plan provided the basis for this mitigation proposal.

b. **Watershed Considerations**. The proposed credit area also lies within the same watershed (Beaver Creek).

c. **Practicability.** The recommended site has been analyzed for suitability and cost effective restoration using existing technology. Partners have included Polk County NRCS, Iowa State University, and the Iowa Geologic Survey Bureau.

d. **Air Traffic**. The site has been analyzed for the threat to aircraft by waterfowl and other bird species. This includes a consideration for military aircraft that land at Camp Dodge. The size and nature of the planned wetland will create minimal change to existing habitat and bird nesting.

II. WORKPLAN

a. **Boundaries/Location**. The proposed mitigation site is located to the south of the debit project, in the southeast quarter of Section 35, Jefferson Township, T80N, R25W, Polk County, Iowa. The area selected for wetland creation is a closed borrow site located adjacent to a high-quality existing wetland. To the immediate south is a forest restoration project conducted in partnership with Iowa State University. This site will provide a habitat mix of open water, ephemeral wetlands and adjacent uplands. The site is directly east of the Beaver Creek 100 year floodplain.

Proposed Borrow Site Restoration Area, Polk County, IA

Approximate Project Location, Polk County, IA, Section 35, Jefferson Township, T80N, R25W

b. **Construction Methods and Timing**. Although hydrologic surveys indicate that the ground water level is quite close to the current ground surface, consultation with the Polk County NRCS resulted in a recommendation for the construction of a water retention structure, both to retain water in the wetland creation area and to protect the existing wetland complex from stormwater runoff during heavy rain events. NRCS surveyed the area and provided construction specifications. In order to anticipate the immediate mitigation of negative wetland impacts, the retention structure for the site was completed in the fall of 2002. Late fall construction minimized disturbance to vegetation and wildlife in the area and allowed for an immediate implementation of a seeding plan. This is in keeping with current guidance, which suggests, "Advance or concurrent mitigation can reduce temporal losses of aquatic functions and facilitate compliance." This advance work has also assisted in demonstrating the water-holding capacity of the site.

c. **Source of water supply and connections to existing waters**. Preliminary surveys indicate that the site's drainage area will be approximately 94 acres. To the east of the project is an area that has been subject to building and parking lot construction. Additional construction is anticipated as well, creating additional stormwater runoff. The diversion of this storm water through the construction of several grassed swales, combined with existing ground water levels, will provide the primary water source for this wetland. This stormwater diversion will also protect the natural wetland complex to the west.

d. **Native vegetation proposed for planting.** The seeding program has been developed under the guidance of Dr. Cathy Mabry, Iowa State University. The majority of seed to be introduced at the site is ecotype seed harvested at other Camp Dodge wetland locations. A list of plant materials is provided in Appendix A.

e. **Allowances for natural regeneration from existing seed bank**. Preliminary site surveys have indicated a rapid natural regeneration of the site due to the adjacent high quality wetland complex. Planting plans will reflect the monitoring of this revegetation, as well as additional seeding and planting. A list of current plants inventoried at the site is attached at Appendix B.

f. **Plans for control of exotic invasive vegetation.** The preliminary assessment of the floristic quality of the site is mixed. Twenty-three (26 percent) of the 87 species recorded were exotic species non-native to Iowa. However, only seven of these species were common or abundant in the borrow site. While most were very sparse or present in the borrow site as one to a few individuals. This likely

reflecting the nutrient poor substrate of the borrow area, and the adaptation of many weedy and exotic species to nutrient rich sites. Species of concern at the site are primarily Siberian Elm (*Ulmus pumilla*) and Reed Canary Grass (*Phalaris arundinacea*), which may enter the site at any time. A long range plan, developed in conjunction with Iowa State Univeristy and Camp Dodge Building and Grounds section, will allow for a targeted removal effort for the elm, along with the monitoring and attempted control of phalaris. Efforts to control Siberian Elm in the surrounding upland began in 2001 and is ongoing. Other invasive plant species will be monitored through annual plant inventories and controlled if necessary.

g. **Elevation and slopes of mitigation area.** The site has been surveyed and planting plans developed with the assistance of Iowa State University will target appropriate species for soil and moisture conditions.

h. **Erosion control measures.** The borrow site and construction areas have been managed under an Iowa Department of Natural Resources Storm Water Pollution Prevention site permit and plan. Additional construction and improvements in the area will be monitored and erosion control measures (temporary seeding, silt fences, etc.) will be used when deemed necessary. IAARNG personnel conduct weekly site inspections while permits are in force.

i. **Site management and maintenance.** Agreements involving natural resources (including compliance with "no net loss" of wetlands) are outlined in annual updates of the IAARNG INRMP, which is rewritten on a five-year basis. This process ensures public comment and IAARNG access to federal funding for compliance issues.

j. **Total acres created.** Preliminary surveys indicate a permanent pond area of approximately 21 acres. This pond is currently predicted to be similar in hydrology to an ephemeral wetland system, with a small area (under 5 acres) of permanently ponded water.

Wetland debit and mitigation at a 1:1 ratio would require creation of 1.3 acres of new wetland. Since it is impractical to view this project as simply the creation of 1.3 acres, the IAARNG requests that 1.3 acres be the minimum mitigation required, with the understanding that the approximately 50 acre site (including surrounding upland) be managed as a complete system. Should the IAARNG require additional mitigation acres in the future, this site would be re-evaluated for additional credits (with the mutual consent of IAARNG and USACE).

k. **Contingency plan.** Multiple wetland restoration and rehabilitation areas have been identified through intensive survey on Camp Dodge. These are summarized in the post's Integrated Natural Resources Management Plan, as well as in a separate floodplain and wetland management plan. Should the use of an alternate site become necessary at the time of the five-year evaluation, alternate sites will be selected from this list in order to match wetland type and function.

These sites are outlined in Table 1 (Below).

Table 1. Existing Wetland Areas and Other Sites with Potential for Wetland Enhancement and/or Restoration.

Sites are listed in order of highest to lowest priority of action.

Wetland Site (Figure Location)	Location (Training Area) [Size (acres)]	Protection Required	High Potential For		Brief Description of Possible Enhancement or Restoration Activities
			Enhance-ment	Restora-tion	
Bottomland Forest	Along Beaver Creek [587]	Yes	X		• Allow forest succession within 100 yr. floodplain boundaries. • Plant native vegetation buffer strips along edge of forest in areas of agricultural land use.
Betz Farm	E–2 [37]	Yes	X		• Minimize woody invasion with periodic burning. • Control reed canary grass.
Prairie Pothole	D–2/D–3 [1]	Yes	X		• Restore prairie vegetation on surrounding hillsides. • Monitor for exotic plant invasions.
Western Wetland	D–1/D–5 [33]	Yes		X	• Break drainage tile. • Seed native wetland plants to prevent domination by weedy exotics. • Control reed canary grass. • Seed surrounding hillsides with native prairie vegetation. • Restore savanna ecosystems.
Wet Meadow	B–3 [8]	Yes		X	• Break drainage tile. • Landscape and plant drainage ditch out of wetland. • Frequently burn the wetland. • Opportunity to restore rare and ecologically valuable wet meadow wetland types.
Complex of Small Wetlands	B–7 [4]	Yes	X		• Plug drainage ditch. • Remove and control woody vegetation form some wetlands. • Plant buffer strip of native vegetation around wetlands. Burn buffer strips periodically.
Prairie Pothole	NW Corner D–2 [7]	Not at this time		X	• Break drainage tile. • Seed native wetland plants to prevent domination by weedy exotics. • Seed surrounding hillsides with native prairie vegetation.
Wet Meadows/ Floodplain Forest	E–2 [40]	Not at this time		X	• Break any drainage tiles. • Plant trees near Beaver Creek. • Seed native wetland plants in low areas and native prairie grasses and forbs in surrounding areas. • Opportunity to restore rare and ecologically valuable wet meadow wetland types.

III. MONITORING GUIDELINES AND CONDITIONS

a. The IAARNG will be responsible for annual monitoring of the site (through contracts with accredited natural resource professionals) for a period of at least 5 years.

b. The IAARNG will guarantee site protection. If the site is unsuccessful after this five year period, or is subject to alteration or filling, the IAARNG agrees to select an alternate location and renegotiate proper mitigation measures.

c. The IAARNG will monitor invasive species at the site and attempt to control these species to the extent possible with current technology.

d. The IAARNG will contact the USACE on an annual basis to determine if a meeting, site visit or report is required. At the end of the initial 5-year monitoring period the IAARNG and USACE will consult to determine if additional monitoring will be necessary.

e. All wetland delineations and delineation documentation shall be conducted as per the 1987 Corps of Engineers Wetlands Delineation Manual and any subsequent updates.

f. The IAARNG will continue to seed the site as necessary.

IV. REPORT GUIDELINES

Annual Reports shall include:

a. Site Location, to include legal description, Corps permit number
b. Supporting map identifying photo and monitoring points and planting areas
c. Photo documentation, with photos labeled as to date, location, and direction of view. Photos will reflect successes/failures and general progress. Photos will be updated annually and taken during the growing season.
d. Invasive species section discussing the presence/absence of pest and invasive species and efforts taken to control them.
e. Wetland plant community structure, to include percent of open water on the site.
f. Wildlife species using the area.
g. Annual estimate of wetland acreage and type(s) in the mitigation area
h. Concerns and problems identified during the reporting period and corrective measures undertaken.
i. Planting lists
j. Report will also contain similar content to the site evaluation report conducting at the original site feasibility survey (attached as Appendix C).

Appendix A. Plant Species for Borrow Site Planting .

Latin Name	Common Name	Family	Seed Source
Dry plot seeding			
Andropogon scoparius	little blue stem	Poaceae	Ion Exchange
Anemone cylindrica	windflower	Ranunculaceae	Camp Dodge
Asclepias syriaca	common milkweed	Asclepiadaceae	Camp Dodge
Asclepias verticillata	whirled milkweed	Asclepiadaceae	Camp Dodge
Aster ericoides	heath aster	Asteraceae	Camp Dodge
Bouteloua curtipendula	side oats grama	Poaceae	Ion Exchange
Carex bicknelli	Bicknell's sedge	Cyperaceae	Camp Dodge
Carex brevior	few headed straw sedge	Cyperaceae	Camp Dodge
Carex leavenworthii	Leavenworth's sedge	Cyperaceae	Camp Dodge
Carex molesta	repulsive sedge	Cyperaceae	Camp Dodge
Crotolaria sagittalis	rattle box	Fabaceae	Camp Dodge
Desmanthus illinoensis	Illinois bundle flower	Fabaceae	Camp Dodge
Elymus canadensis	Canada wild rye	Poaceae	Ion Exchange
Gaura biennis	biennial gaura	Onagraceae	Camp Dodge
Gentiana puberulenta	prairie gentian	Gentianaceae	Camp Dodge
Geranium carolinianum	cranesbill	Geraniaceae	Camp Dodge
Gnaphalium obtusifolium	everlasting	Asteraceae	Camp Dodge
Juncus tenuis	path rush	Juncaceae	Camp Dodge
Kuhnia eupatorioides	false boneset	Asteraceae	Sand Hill
Lespedeza capitata	bush clover	Fabaceae	Camp Dodge
Lobelia spicata	pale spiked lobelia	Campanulaceae	Camp Dodge
Monarda fistulosa	wild bergamot	Lamiaceae	Ion Exchange
Petalostemon species	prairie clover	Fabaceae	Rolling Thunder
Plantago aristata	buckhorn	Plantaginaceae	Camp Dodge
Pycnanthemum tenuifolium	slender mountain mint	Lamiaceae	Rolling Thunder
Ratibida pinnata	gray headed coneflower	Asteraceae	Camp Dodge
Rudbeckia hirta	black eyed susan	Asteraceae	Ion Exchange
Sisyrinchium campestre	blue eyed grass	Iridaceae	Camp Dodge
Solidago nemoralis	field goldenrod	Asteraceae	Sand Hill
Solidago rigida	stiff goldenrod	Asteraceae	Sand Hill
Sporobolis cryptandrus	sand dropseed	Poaceae	Camp Dodge
Tridens flavus	purple top	Poaceae	Rose Hill Nursery
Verbena stricta	hoary vervain	Verbenaceae	Camp Dodge
Vernonia baiwinii	Baldwin's ironweed	Asteraceae	Camp Dodge
Mesic plots			
Andropogon scoparius	little blue stem	Poaceae	Ion Exchange
Anemone canadensis	Canada anemone	Ranunculaceae	Camp Dodge
Asclepias incarnata	swamp milkweed	Asclepiadaceae	Camp Dodge
Aster novae-angliae	New England aster	Asteraceae	Camp Dodge

Bouteloua curtipendula	side oats grama	Poaceae	Ion Exchange
Calamagrostis canadensis	blue joint	Poaceae	Ion Exchange
Carex bicknelli	Bicknell's sedge	Cyperaceae	Camp Dodge
Carex conjuncta/gravida	soft fox/heavy sedge	Cyperaceae	Camp Dodge
Carex davisii	Davis's sedge	Cyperaceae	Camp Dodge
Carex molesta	repulsive sedge	Cyperaceae	Camp Dodge
Carex stricta	tussock sedge	Cyperaceae	Camp Dodge
Carex vulpinoidea	fox sedge	Cyperaceae	Camp Dodge
Elymus canadensis	Canada wild rye	Poaceae	Ion Exchange
Eupatorium perfoliatum	common boneset	Asteraceae	Camp Dodge
Glycera striata	fowl manna grass	Poaceae	Ion Exchange
Helianthus species	sunflower species	Asteraceae	Camp Dodge
Leersia oryzoides	rice cut grass	Poaceae	Ion Exchange, Camp Dodge
Lobelia siphilitica	great lobelia	Campanulaceae	Camp Dodge
Mimulus ringens	monkey flower	Scrophulariaceae	Camp Dodge
Monarda fistulosa	wild bergamot	Lamiaceae	Ion Exchange
Phyla lanceolata	fog fruit	Verbenaceae	Camp Dodge
Pycnanthemum virginiana	mountain mint	Lamiaceae	Camp Dodge
Ratibida pinnata	gray headed coneflower	Asteraceae	Camp Dodge
Rudbeckia hirta	black eyed susan	Asteraceae	Ion Exchange
Sagittaria latifolia	arrowhead	Alismataceae	Camp Dodge
Scirpus atrovirens	dark green bullrush	Cyperaceae	Camp Dodge
Scirpus pendulus	reddish bullrush	Cyperaceae	Camp Dodge
Spartina pectinata	cord grass	Poaceae	Ion Exchange
Stachys species	hedge nettle species	Lamiaceae	Camp Dodge
Verbena hastata	blue vervain	Verbenaceae	Camp Dodge

Appendix B. Vascular plant species colonizing the Camp Dodge borrow site through natural succession. Introduction refers to whether the species was introduced by natural succession (S) or was introduced by seeding (I). Coefficient is the coefficient of conservatism (introduced species are designated with an asterisk).

Introduction	Coefficient	Latin name	Common name	Family	Habitat	Abundance
S	0	*Achillea millefolium*	western yarrow	Asteraceae	dry	S
S	*	*Agropyron repens*	quack grass	Poaceae	open	A
S/I	3	*Alisma plantago-aquatica*	water plantain	Alismataceae	marsh	R
S	0	*Alopecurus carolinianus*	common foxtail	Poaceae	marsh	S
S	0	*Amaranthus tuberculatus*	water hemp	Amaranthaceae	marsh	S
S	0	*Ambrosia artemisiifolia*	common ragweed	Asteraceae	open	C
S	0	*Ambrosia trifida*	giant ragweed	Asteraceae	open	C
S	4	*Ammannia coccinea*	tooth cup	Lythraceae	marsh	A
S/I	4	*Asclepias incarnata*	swamp milkweed	Asclepiadaceae	mesic, marsh	R
S/I	0	*Asclepias syriaca*	common milkweed	Asclepiadaceae	dry, mesic	S
S	0	*Asclepias verticillata*	whorled milkweed	Asclepiacaceae	dry, mesic	R
S	0	*Aster cf pilosus*	small-headed aster	Asteraceae	dry, mesic	A
I	3	*Aster ericoides*	frost aster	Asteraceae	dry	S
S	3	*Aster novae-anglae*	New England Aster	Asteraceae	mesic, marsh	R
S	*	*Barbarea vulgaris*	yellow rocket	Brassicaceae	general	S
S	2	*Bidens cernua*	nodding bur marigold	Asteraceae	mesic, marsh	A
S	*	*Bromus japonicus*	Japanese brome	Poaceae	open	A
S	0	*Calystegia sepium*	morning glory	Convolvulaceae	dry, mesic	R
S/I	4	*Carex brevior*	few headed straw sedge	Cyperaceae	dry, mesic	R
S/I	5	*Carex cristatella*	round-spikelet sedge	Cyperaceae	mesic, marsh	R
S	1	*Chamaecrista fasciculata*	partridge pea	Fabaceae	dry	A
S	*	*Chenopodium* species	goosefoot	Chenopodiaceae	open	S
S	*	*Cirsium* species	thistle	Asteraceae	general	S
S	0	*Conyza canadensis*	horseweed	Asteraceae	dry	C
S	6	*Crotalaria sagittalis*	rattle box	Fabaceae	dry	A
S	2	*Cyperus squarrosus*	nut rush	Cyperaceae	marsh	S
S	2	*Cyperus strigosus*	nut rush	Cyperaceae	dry to marsh	C
S	1	*Descurainia pinnata*	tansey mustard	Brassicaceae	dry	C
I	6	*Desmodium canadense*	showy tick trefoil	Fabaceae	dry	R

Introduction	Coefficient	Latin name	Common name	Family	Habitat	Abundance
S	*	*Dianthus armeria*	deptford pink	Caryophyllaceae	open	S
S	*	*Digitaria* species	crabgrass	Poaceae	open	S
S	*	*Echinochloa crusgalli*	barnyard grass	Poaceae	open	S
S	7	*Eleocharis compressa*	spike rush	Cyperaceae	mesic	C
S/I	4	*Eleocharis palustris*	pale spikerush	Cyperaceae	marsh	C
S	1	*Equisetum hyemale*	scouring rush	Equisetaceae	mesic	S
S	*	*Eragrostis cilianensis*	stinkgrass	Poaceae	open	S
S	0	*Eragrostis pectinacea*	Carolina lovegrass	Poaceae	dry, mesic	A
S	0	*Erigeron annuus*	annual fleabane	Asteraceae	dry, mesic	C
S	2	*Erigeron philadelphicus*	philadelphia daisy	Asteraceae	mesic	S
S	2	*Erigeron strigosus*	daisly fleabane	Asteraceae	dry, mesic	S
S/I	6	*Eupatorium perfoliatum*	common boneset	Asteraceae	mesic, marsh	R
S	0	*Euphorbia maculata*	carpet spurge	Euphorbiaceae	dry	S
S	4	*Geranium carolinianum*	cranesbill	Geraniaceae	dry	S
S	2	*Hedeoma hispidum*	rough pennyroyal	Lamiaceae	dry	S?
S	0	*Helianthus annuus*	annual sunflower	Asteraceae	open	A
S	0	*Hordeum jubatum*	squirrel tail barley	Poaceae	dry	S
I	0	*Juncus tenuis*	path rush	Juncaceae	dry, mesic	S
I	5	*Kuhnia eupatorioides*	false boneset	Asteraceae	dry	S
S	*	*Lactuca cf serriola*	prickly lettuce	Asteraceae	open	S
S	*	*Leonurus cardiaca*	motherwort	Lamiaceae	general	R
S	*	*Lepidium campestre*	field cress	Brassicaceae	open	C
S	4	*Lindernia dubia*	false pimpernel	Scrophulariaceae	marsh	C
S	*	*Medicago lupulina*	black medic	Fabaceae	open	S
S	*	*Melilotus alba*	white sweet clover	Fabaceae	open	S
S	*	*Melilotus officinalis*	yellow sweet clover	Fabaceae	open	S
S	*	*Mollugo verticillata*	carpet weed	Aizoaceae	open	S
S	0	*Oenethera biennis*	evening primrose	Onagraceae	dry, mesic	C
S	0	*Panicum dichotomiflorum*	knee grass	Poaceae	mesic, marsh	C
I	3	*Phyla lanceolata*	fog fruit	Verbenaceae	marsh	C
S	0	*Plantago rugelii*	common plantain	Plantaginaceae	dry	S
S	0	*Polygonum pensylvanicum*	Pennsylvania smartweed	Polygonaceae	mesic	C
S	*	*Polygonum persicaria*	Lady's thumb	Polygonaceae	marsh	A

Introduction	Coefficient	Latin name	Common name	Family	Habitat	Abundance
S	1	*Populus deltoides*	cottonwood	Salicaceae	mesic, marsh	A
I	8	*Potentilla cf arguta*	tall potentilla	Rosaceae	dry	S/C
I	6	*Pycnanthemum virginianum*	common mountain mint	Lamiaceae	mesic, marsh	S
S	4	*Ranunculus sceleratus*	cursed crowfoot	Ranunculaceae	marsh	R
S/I	4	*Ratibida pinnata*	gray-headed coneflower	Asteraceae	dry, mesic	R
I	2	*Rudbeckia hirta*	black eyed susan	Asteraceae	dry	S
I	4	*Sagittaria latifolia*	arrowhead	Alismataceae	marsh	S
S	1	*Salix amygdaloides*	peach leaved willow	Salicaceae	marsh	A
S	0	*Salix exigua*	sandbar willow	Salicaceae	marsh	A
S	3	*Salix nigra*	black willow	Salicaceae	marsh	S
S/I	4	*Scirpus acutis*	hard-stem bulrush	Cyperaceae	marsh	C
S	*	*Setaria glauca*	yellow foxtail	Poaceae	open	C
S	1	*Silene antirrhina*	sleepy catchfly	Caryophyllaceae	dry	C
S	0	*Solanum americanum*	Black nightshade	Solanaceae	dry	S
S	0	*Solidago canadensis*	tall goldenrod	Asteraceae	dry, mesic	C
S	3	*Solidago gigantea*	smoothgoldenrod	Asteraceae	dry, mesic	C
S	7	*Strophostyles leiosperma*	wild bean	Fabaceae	dry	C
S	*	*Taraxacum officinale*	common dandelion	Asteraceae	general	R
S	*	*Trifolium pratense*	red clover	Fabaceae	open	A
S	*	*Trifolium repens*	white clover	Fabaceae	open	C/S
S	*	*Ulmus pumila*	Siberian elm	Ulmaceae	general	S
S	*	*Verbascum thapsus*	mullein	Scrophulariaceae	open	S
I	3	*Verbena hastata*	blue vervain	Verbenaceae	mesic, marsh	S/C
S/I	1	*Verbena stricta*	hoary vervain	Verbenaceae	dry, mesic	S
S	0	*Veronica peregrina*	purslane speedwell	Scrophulariaceae	dry, mesic	C

Species abundance categories (abundance within appropriate habitat)

A = abundant (many individuals and/or large colonies; immediately evident in appropriate season with basically no search)

C = common (easily found in appropriate season with some searching)

S = sparse (unlikely to find without prior knowledge of locality or with extended search

R = uncommon (one to a few individuals or colonies)

APPENDIX C:
TRAINING SITE RESTORATION AND MANAGEMENT PROGRESS REPORT FOR 2002
Camp Dodge Army National Guard, Johnston, Iowa
June 11, 2003

Cathy Mabry, Ph.D.
Iowa State University, Department of Natural Resource Ecology and Management, Ames, IA

Borrow site sand prairie and wetland restoration

The Betz site borrow area at Camp Dodge is an approximately 18-acre site that was created from 1994 – 2000 when the area was excavated for fill. In 2000-01 all but the eastern area of the borrow site was closed to excavation and in 2001 re-vegetation of the closed areas began (Fig. 1). The borrow site restoration is a multi-year project. In 2001 I assessed the status of the site and determined appropriate vegetation communities for restoration, developed a protocol for seed collection, collected seeds and began re-vegetation of the site

In 2002 my goals were to 1) monitor the plots seeded in 2001, particularly to document the species that successfully germinated in the three vegetation zones. Monitoring allowed me adjust seed mixes used for the remainder of the site; 2) To provide an overall assessment of the plant community using a complete inventory by walking the borrow site at least three times in the growing season (spring to fall) and recording the presence of all species; 3) to collect sufficient seed to plant double the area planted in 2002 over 2001 (for a total of approximately 10 acres revegetated over two years). 4) To present a preliminary report of the project at the 2002 annual meeting of the Iowa Academy of Science, held in Des Moines April 19-20, 2002.

Monitoring

During 2002 I recorded 87 plant species in the plots, or in the borrow site but outside the plots (Table 1). The 14 plots seeded in the fall of 2001 were monitored three times (spring, summer and fall) during 2002 (Table 2). These data, along with data from plots established in 2002, will form a basis for long-term monitoring of the borrow area in order to assess its quality as a native plant community and as an assessment of its ecological function.

The preliminary assessment of the floristic quality of the site is mixed. Twenty-three (26 percent) of the 87 species recorded were exotic species non-native to Iowa. However, only seven of these species were common or abundant in the borrow site. While most were very sparse or present in the borrow site as one to a few individuals (Table 1). This likely reflecting the nutrient poor substrate of the borrow area, and the adaptation of many weedy and exotic species to nutrient rich sites. Forty-four (51 percent) of the 87 species recorded that were native arrived through the process of natural succession, and 20 of these native species were entirely or primarily introduced as seeds sown in 2001. Ten of these 20 species were recorded before seed sowing; however, only two of these were common or abundant, and the rest were only present as one to few individuals. Thus, even for species that were recorded at the site before seed sowing and plot establishment, it is likely that their presence in the plots was due to the seeding rather than arriving through succession. *Carex* species sowed in 2001 did not flower in 2002, and could only be identified to genus; thus, 20 is likely to underestimate the number of species sowed that produced seedlings. The number of species recorded that were introduced by seed (at least 20 of the 66 species sowed) was encouraging, particularly because 2002 was the third successive summer of below normal rainfall with virtually no rain falling during June and July, probably the peak period of germination for many of these prairie and wetland species. In addition, some of the prairie and wetland species have long residence times in the seed bank, and will not germinate until suitable conditions arrive. Because of the extremely dry weather though most of the 2002 growing season, most of the species grown from seed in the greenhouse in 2001-2002 to be transplanted in 2002 were held for a year in the greenhouse or, in the case of annuals, the seeds will be re-collected and grown if time allows.

In addition to species composition and diversity, a qualitative assessment of the species present is another method for evaluating the success of seed sowing. Some methods for assessing floristic quality have been developed, for example the Floristic Quality Assessment of Wilhelm (1991), which assigns each native plant

species in a region a coefficient of conservatism from 1-10 based on its tolerance of human disturbance and adherence to a specific habitat type. Species with a value of 10 generally do not tolerate human disturbance, and have a high affinity for specialized habitats; in contrast species with low values are tend to occur in disturbed habitats and have general distributions (exotic species are assigned no value). This index is valuable because it allows for a generally objective method of assessing the aggregate conservatism, or quality of species based on habitat affinity, of species at a site. At the borrow site, the species that arrived through natural succession had an average index of conservatism of 1.43, indicating that as a group these species tolerate disturbance and have general distributions. The species that were introduced by seed had a mean coefficient of conservatism of 3.75 (Table 1), indicating that they are a more conservative group of species in their tolerance of disturbance and in habitat. The mean coefficient of conservatism of the 66 species that were seeded in 2001 was 4.3 (Table 4). In sum, the index data suggest that the floristic quality of the borrow site would be very low if re-vegetation were through natural succession only. Seeding with the species that have been introduced at this point will improve the floristic quality of the borrow area, although will not result in an unusual floristic community, such as a sedge meadow.

There are two general strategies for creation of wetlands and prairies. The first involves intentional design or an attempt to match introduction of species to site conditions. The second puts greater stake in "self-design", the natural capacity of nature to suitably sort species following introduction by humans, and through natural colonization (Mitsch and Wilson 1996). My initial approach was relied more on the designer strategy. The initial seed mix was divided into three community types, dry prairie, mesic and wetland. Based on the existing flora and my observation of the hydrology of the wetland in 2001. I then designated the 14 plots planted in 2001 and monitored in 2002 as dry, mesic or wetland and matched them with the seed mix. However, 2003 has been a year of above average rainfall, and the hydrology of the borrow site is dramatically different from 2000-2002 (75 percent of the area was covered with shallow water in May, 2003). Thirty percent of the species sowed in 2001 were observed in the plots in 2002, a high number considering the harshness of the site (lack of moisture, nutrients and organic matter), coupled with the drought conditions during 2002. However, long-term monitoring is needed to determine whether self or intentional design, or some combination of the two strategies is the most cost and time effective for re-establishing native vegetation on this and other similar sites.

Animal use is often neglected but is important because it is an indicator of the quality and success of a project, especially the use by more conservative species (Byre 1997, Mierzwa 1997). I also continued to compile a list of birds, reptiles and amphibians using the site (Table 3). In the future, these surveys should be done more systematically and completely in order to be usable as part of a more formal assessment. In sum, monitoring is central to the evaluating the success of this reconstruction (Masters 1997), and has allowed the project to be modified and corrected as it develops.

Seeding

Based on the monitoring results in 2002, seed collection in 2002 put greater emphasis on species that I observed germinating well in the borrow site. The planting strategy was altered to comprise of just two mixes, a dry and a mesic/marsh, planted in a blanket pattern over the site rather than into plots. A total of 25 forbs and nine graminoids were included in the dry mix, and 15 forbs and 15 graminoids in the marsh/mesic mix (Table 5).

In 2001, the 14 seeded plots amounted to 3.25 acres. In 2002, an additional 5.5 acres were sowed in two large and another two small areas rather than in plots (Figure 1). Within in the areas sowed in 2002, 0.25-acre plots will be established in order to monitor the outcome of this second seeding. In addition, four control plots will be established for comparison with the seeded areas from 2001-2003. With the exception of the east end of the borrow site basin, where excavation work was continuing, seeding work in the basin is now largely complete (Fig. 1).

Seed was sown on 12 December 2002 by Troy Siefert of Tallgrass Ecological Services (Ames, IA). The seed was applied at a rate of four to five pounds per acre using a Truax Trillion Seeder. As the seeder goes over the surface a first roller firms the seed bed, the seed is dropped onto the soil surface, then a second roller presses the seed in to the soil. This insured that there was contact between the seeds and soil but that the seed was not

pressed too deeply into the sand. In order to better mix the seed and insure that it dropped at an even rate out of the seeding box, before planting the seed was mixed with 16 pounds/acre of sawdust. After seeding was complete, the corners of the seeded areas were marked with wooden stakes and labeled.

Protocol for Seed Collecting

Developing a protocol for future seed collection is important for a number of reasons. Using local seed matches the ecotypes in the restored area to those of the local community, helping to preserve the local genetic diversity of the species and avoiding introduction of foreign genotypes. Using local genotypes also avoids potential problems with lower viability, flowering and survival that may occur when non-local seeds are used (Etterson and Shaw 2001). A collecting protocol can reduce the cost of restoration because it allows much of the work to be done by volunteers, reducing staff or consulting time. Cost is an important factor because many areas at Camp Dodge are suitable for wetland and sand prairie restoration, an important step in reaching the ecosystem management goals listed the Camp Dodge Integrated Natural Resources Management Plan. This is dramatically illustrated by comparing the time spent collecting seed in 2001 versus 2002. In 2001 I spent approximately 135 hours collecting 3.2 million seeds or 14 pounds of seed compared with 115 hours collecting 15 million seeds or 12 pounds of seed in 2002. Although part of the difference in seed number was accounted for the greater collection of very small seeded species in 2002, it was also partly due to greater efficiency in seed collecting due to reduced the time spent searching for suitable source populations and more accurate knowledge of the time of seed maturation.

The protocol for sand prairie and wetland restoration at Camp Dodge has been compiled into an electronic database, which will be archived at the Environmental Branch at Camp Dodge. The database includes information on species habitat, location of populations of sufficient size for collection, time and signs of seed maturation, and collection, cleaning and storage methods.

Unfortunately, while prairie restoration has been a focus of restoration ecology for at least 25 years, little is known about restoring woodland understory species – what species to assemble, how to collect, store, germinate, grow and establish woodland herbaceous species, particularly in a way that is feasible both from the standpoint of time and money. Beginning in 1998, Larissa Mottle and I, then both graduate students at Iowa State University, began researching the feasibility of completed for 102 central Iowa woodland species. While database is meant to be dynamic, with

Bibliography

Masters, L.A. 1997. Monitoring vegetation. In, Packard, Stephen and Cornelia Mutel eds. The Tallgrass Restoration Handbook. Island Press, Washington, D.C.

Mierzwa, K. S. 1997. Amphibians and Reptiles. In, Packard, Stephen and Cornelia Mutel eds. The Tallgrass Restoration Handbook. Island Press, Washington, D.C.

Mitsch, W. J. and Wilson, R.F. 1996. Improving the success of wetland creation and restoration through know-how, time, and self-design. Ecological Applications 6: 77-83.

Wilhelm, G. 1991. Implications of changes in floristic composition on the Morton Arboretum's East Woods. Proceedings of the Oak Woods Management Workshop. Eastern Illinois University, Charleston, Il, pp. 31-54.

Whitney, G.G. 1994. From Coastal Wilderness to Fruited Plain. Cambridge University Press, Cambridge.

OCTOBER 2007

Proposed Jurisdictional Determination

Area R/LTA 113

Fort Hood, Texas

Prepared By:

ERG

Environmental Research Group, LLC

Executive Summary

This proposed jurisdictional determination assesses land located within the Area R/Live Fire Training Area (LTA) 113 project area on Fort Hood Military Reservation, Bell County, Texas. The project area is located on the Post Oak Mountain, Texas U.S. Geological Survey, 7.5 Minute Topographic Quadrangle Map (USGS 1978). A routine delineation with an on-site inspection was conducted on June 3-6, 2007. The total land area surveyed was approximately 1,283 acres and consisted of live fire training ranges and undeveloped areas. ERG biologists identified 49 water features, including 5 ephemeral streams, 10 intermittent streams, 1 perennial stream, and 33 wetland features within the project area.

All of the streams identified in this report contained an ordinary high water mark (OHWM) exhibiting a combination of some or all of the physical characteristics that define an OHWM. Through examination of topographic quadrangle maps, it was determined that all of the streams identified in the project area contain a surface connection to navigable waters of the U.S. All of the streams in the project area drain into unnamed tributaries of Bull Run Creek and unnamed tributaries of Long Branch Creek. Bull Run Creek flows into House Creek which flows into Lake Belton (Leon River). Long Branch Creek flows into South Nolan Creek which drains into the Leon River. The Leon River flows into the Brazos River, which is a navigable water of the U.S. (USACE 1999). All of the wetlands identified as waters of the U.S. in this report (Water Features 4, 15, 19, 20, 22, 32, 35, and 39) have a surface connection to a tributary of navigable waters of the U.S. or are adjacent to a tributary of a navigable waters of the U.S.

All of the identified water features are waters of the U.S., except for Water Features 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 23, 24, 25, 26, 28, 33, 43, 44, 45, 46, 47, 48, and 49. Water Features 5, 23, 24, 25, 26, 28, and 48 are artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and are used exclusively for stock watering. Water Features 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 33, 46, and 47 are isolated depressions incidental to construction/training activities. Water features 43, 44, 45, and 49 are caliche pits excavated in uplands for the purpose of obtaining fill, sand, or gravel. These identified features total approximately 3.78 acres. They are isolated in upland areas and have no surface tributary connection to navigable waters of the U.S.; are not adjacent to waters of the U.S.; and are not used for, never was in the past, and likely never would be used for interstate commerce; and are not an intrastate waters. Therefore, these water features are not a waters of the U.S.

Based on this effort, waters of the U.S. within the project area total 34,937 linear feet (288,518 ft^2) of streams and 51.35 acres of wetlands.

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List of Acronyms/Abbreviations

AR	Army Regulation
CFR	Code of Federal Regulations
DOD	Department of Defense
ERG	Environmental Research Group
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GIS	Geographic Information System
GPS	Global Positioning System
HQDA	Headquarters Department of the Army
LTA	Live Fire Training Area
N/A	Not Applicable
OBL	Obligate Wetland
OHWM	Ordinary High Water Mark
PEM	Palustrine Emergent
PEM/PSS	Palustrine Emergent/Palustrine Scrub-Shrub
PSS	Palustrine Scrub-Shrub
POW	Palustrine Open Water
UPL	Upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

1.1 Background and Objective

The Fort Hood Military Reservation (Fort Hood) occupies 214,778 acres in central Texas in Bell and Coryell Counties. It is 58 miles north of Austin, Texas, and 39 miles southwest of Waco, Texas (Appendix A, Figure 1). The installation has three cantonment areas (designated the Main Cantonment Area, West Fort Hood, and North Fort Hood) on 8,604 acres, two instrumented airfields on 2,915 acres, and maneuver and live-fire training areas on 197,603 acres (Appendix A, Figure 2). The cantonment areas have primarily urban land uses. The Main Cantonment Area is at the southern edge of the large, central portion of the installation and is adjacent to the City of Killeen, Texas.

As part of Fort Hood's Integrated Natural Resources Management Plan, one of Fort Hood's goals is to identify, delineate, and characterize the wetlands on the reservation. Fort Hood is initiating jurisdictional determinations to meet their stated objectives. The following is taken directly from Fort Hood's Draft Integrated Natural Resources Management Plan (Fort Hood 2005) on the importance and requirements for wetlands management on Fort Hood:

> "Wetlands are of critical importance to the protection and maintenance of living resources because they provide essential breeding, spawning, nesting, and wintering habitats for many fish and wildlife species. Wetlands also enhance the quality of surface waters by impeding the erosive forces of moving water, trapping waterborne sediment and associated pollutants, maintaining baseflow to surface waters through the gradual release of stored floodwaters and groundwater, and providing a natural means of flood control and storm damage protection through the absorption and storage of water during high-runoff periods."

Department of Defense (DoD) natural resources policy states that wetlands will be protected to the extent possible. All activities that affect wetlands require an environmental analysis in accordance with AR 200-1, AR 200-2, and applicable federal and state laws and regulations. The U.S. Army Corps of Engineers (USACE) permits are required under Section 10 of the Rivers and Harbors Act of 1899 prior to commencing any work or building any structures in a navigable water of the United States. Also, USACE permits are required under Section 404 of the Clean Water Act for the discharge of dredge or fill material into waters of the United States, including wetlands. The regulations established at Title 33 of the *Code of Federal Regulations* (CFR), Parts 320–330, prescribe the statutory authorities and general and special policies and procedures applicable to the review of applications for USACE permits. Before commencing any new work in waters of the United States, the USACE must be contacted and a permit obtained, as appropriate (Headquarters, Department of the Army [HQDA] 1995).

Executive Order 11990 requires that federal agencies minimize any significant action that contributes to the loss or degradation of wetlands and that action be initiated to enhance their natural value. Department of the Army policy is to avoid adverse impacts on existing aquatic resources and offset adverse impacts that are unavoidable. In addition, the Army will strive to achieve a goal of no net loss of the value and functions of existing wetlands and will permit no overall net loss of wetlands on Army-controlled lands. The Department of the Army will also take a progressive approach toward protecting existing wetlands, rehabilitating degraded wetlands, restoring former wetlands, and creating wetlands in an effort to increase the quality and quantity of the Nation's wetland resources (HQDA 1995).

The objective of this study is to provide a complete and accurate survey of the 1,283 acres identified within the Area R/Live Fire Training Area (LTA) 113 project area for water features and provide a determination of whether or not the identified features are waters of the U.S. The project area is bounded

to the west by Black Gap Road, to the south by Hood Army Airfield, to the east by Phantom Run Range, and to the north by LTA 114. The project area is part of Training Area 30, LTA 113, cantonment area, and part of the Phantom Run Range. The location of the project area is shown on Figures 2-5 in Appendix A. Currently Fort Hood is in the planning process of siting mission critical infrastructure and this delineation will assist Fort Hood in avoiding impacts to waters of the U.S.

1.2 Clean Water Act

The objective of the Clean Water Act is to maintain and restore the chemical, physical, and biological integrity of the waters of the U.S. Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill material into waters of the U.S., including deepwater habitats, special aquatic sites, and wetlands. The USACE has the authority to make decisions regarding the jurisdictional status of waters of the U.S. Therefore, the USACE should be contacted prior to disturbance of any area investigated during this delineation effort. Areas of the subject property which are determined to be waters of the U.S. or which meet the wetland criteria outlined in the 1987 USACE Wetlands Delineation Manual (Environmental Laboratory 1987) should hereafter be considered waters of the U.S. until verified by the USACE.

2.0 METHODS

Potential waters of the U.S. were delineated utilizing the three-parameter approach for a routine on-site determination as defined by the USACE (Environmental Laboratory 1987). The USACE manual defines wetlands as:

> "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

In order for an area to be considered jurisdictional by the USACE, it must have evidence of hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances (site not altered in the last 5 years), the absence of any one of these three parameters results in a non jurisdictional determination. If disturbed conditions are present, then consideration must be given to what conditions would have been present had the disturbance not occurred.

A routine delineation with an on-site inspection was conducted on June 3-6, 2007, by Mike Schulze and Steve Smith of Environmental Research Group, LLC (ERG). Copies of the wetland determination data forms along with site photographs have been included as Appendix B and C. Plant communities and the dominant plant species were identified to determine the presence of hydrophytic vegetation. The National List of Plant Species that Occur in Wetlands (Reed 1988) was used to determine the indicator status of dominant plant species. Plants were classified as obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL) species. Hydrophytic vegetation is prevalent in an area when the dominant species comprising the plant community or communities are typically adapted for life in saturated soil conditions (Environmental Laboratory 1987).

Wetland hydrology was determined by on-site visual observation of geomorphic and hydrologic characteristics including inundation, saturation in the upper 12 inches, water marks, drift lines, and sediment deposits. Additionally, soil pits were dug to a minimum depth of 16 inches to determine if hydrology indicators were present in non-inundated areas. Soil profiles were examined to determine if hydric soil indicators were present. Additional soils information was obtained from the Soil Surveys of Bell and Coryell Counties, Texas (U.S. Department of Agriculture 1977, 1985).

Wetlands were delineated using the 1987 Wetland Delineation Manual (Environmental Laboratory 1987) and the limits of the streams and ponds were delineated by identifying the Ordinary High Water Marks (OHWM). An OHWM is defined as that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR part 328.3e). All of the streams identified in this report contained an OHWM exhibiting a combination of some or all of the physical characteristics that define an OHWM. Through examination of topographic quadrangle maps (USGS 1978), it was determined that all of the streams identified in the project area contain a surface connection to navigable waters of the U.S. All of the streams in the project area drain into unnamed tributaries of Bull Run Creek and unnamed tributaries of Long Branch Creek. Bull Run Creek flows into House Creek which flows into Lake Belton (Leon River). Long Branch Creek flows into South Nolan Creek which drains into the Leon River. The Leon River flows into the Brazos River, which is a navigable water of the U.S. (USACE 1999). All of the wetlands identified as waters of the U.S. in this report have a surface connection to a tributary of navigable waters of the U.S. or are adjacent to a tributary of a navigable waters of the U.S.

Pedestrian surveys were conducted parallel to stream segments to note average width, adjacent vegetation, adjacent community type, flow regime, water presence, bottom substrate, hydrophytic vegetation, OHWM, and deposited material. The stream locations were also compared to the U.S. Geological Survey, topographic quadrangles for the presence of mapped streams. Flow regime was determined based on pedestrian surveys of the streams and classified as perennial, intermittent, or ephemeral. General guidelines of the classifications are as follows:

> *Ephemeral Stream* – Ephemeral (stormwater) stream means a feature that only carries stormwater in direct response to precipitation with water only flowing during and shortly after large precipitation events. An ephemeral stream may or may not have a well-defined channel, the aquatic bed is always above the water table, and stormwater runoff is the primary source of water.
>
> *Intermittent Stream* – Intermittent stream contain a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table. The flow may be heavily supplemented by stormwater runoff. An intermittent stream often lacks the biological and hydrological characteristics commonly associated with the conveyance of water.
>
> *Perennial Stream* – Perennial stream means a well-defined channel that contains water year round during a year of normal rainfall with the aquatic bed located below the water table for most of the year. Groundwater is the primary source of water for a perennial stream, but it also carries stormwater runoff. A perennial stream exhibits biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water. A stream channel was considered perennial when biological indicators such as fish, amphibians, or other aquatic species were present.

The limits of the waters of the U.S. identified in this report were mapped using a Trimble GeoXH global positioning system (GPS) unit and the data was input into a geographic information system (GIS) program for analysis.

3.0 RESULTS

The combination of soils, topography, climate, and human activities has produced a diverse mix of vegetation communities or habitats within the installation. Fort Hood is in the southernmost extension of the Cross Timbers and Prairies region and the northwestern reaches of the Edwards Plateau ecological region. Range and training activities have resulted in the area being disturbed, with numerous roadways and target stations. The project area is composed primarily of grasslands with scattered wooded areas occurring primarily along drainages with the exception of large stands of Ashe juniper (*Juniperus ashei*). Water features within the project area consist of wetlands and ephemeral, intermittent, and perennial drainages, all of which serve to drain the area. Photographs of the water features within the project area are located in Appendix C.

3.1 Vegetation

The grasslands, which comprised much of the area historically, are representative primarily of the mid-grass associations of the Cross Timbers and Prairies regions, with inclusions of the tall-grass associations of the Blackland Prairie. Frequent range fires throughout the grasslands confine the woody vegetation to the riparian areas and the rocky slopes and hills. Four distinct communities have been classified and were observed within the areas surveyed: Grasslands, Coniferous Forest and Shrub, Deciduous Forest and Shrub, and Mixed Forest and Shrub communities. Mixed Forest and Shrub communities are a mixture of coniferous and deciduous forests.

Grasslands are the most common vegetation community in the project area and are common in areas with gently sloping topography. Grasslands in the area are composed primarily of perennial herbaceous species, and may include little bluestem (*Schizachyrium scoparium*), hairy grama (*Bouteloua hirsuta*), sideoats grama (*Bouteloua curtipendula*), Texas wintergrass (*Nassella leucotricha*), blue grama (*Bouteloua gracilis*), seep muhly (*Muhlenbergia reverchonii*), silver bluestem (*Bothriochloa saccharoides*), prairie-tea (*Croton monanthogynus*), broomweeds (*Amphiachyris* sp.), ragweed (*Ambrosia artemisiifolia*), three-awn (*Aristida* sp.), and snow-on-the-prairie (*Euphorbia bicolor*).

Coniferous Forest and Shrub Communities are found in the project area and are primarily composed of Ashe juniper. Other species found in this community include flameleaf sumac (*Rhus lanceolata*), Texas ash (*Fraxinus texensis*), Plateau live oak (*Quercus fusiformis*), broomweeds, and a variety of grasses.

Some sections of the project area contain the Deciduous Forest and Shrub Community. This community is composed of broad-leaf trees and shrubs and is found in lowlands and on protected slopes. Tree species representative of this community include Plateau live oak, post oak (*Quercus stellata*), and pecan (*Carya illinoinensis*). Understory species include supple-jack (*Berchemia scandens*), common buttonbush (*Cephalanthus occidentalis*), Texas persimmon (*Diospyros texana*), saw greenbriar (*Smilax bona-nox*), hairy grama, Texas grama (*Bouteloua rigidiseta*), prairie-tea, broomweed, silver bluestem, prairie three-awn (*Aristida oligantha*), and mist-flower (*Eupatorium coelestinum*).

3.2 Soils

There are 9 soils or soil associations within the project area (See Figure 3, Appendix A). The soil map units are identified in the United States Department of Agriculture (USDA), Soil Conservation Service (now the Natural Resource Conservation Service) Soil Survey of Bell County, Texas (USDA 1977). Table 1.0 provides a listing of soil map units occurring within the project area. Project area soils are shown in Figure 3 of Appendix A. The soils descriptions were taken from the Coryell County Soil Survey (USDA 1985).

Table 1.0 Soil Map Units in the Project Area.

Soil Map Unit	Symbol
Brackett-Topsey association, 3 to 8 percent slopes, eroded	BtC2
Denton silty clay, 1 to 3 percent slopes	DeB
Eckrant cobbly silty clay, 1 to 3 percent slopes	EcB
Evant silty clay, 1 to 3 percent slopes	EvB
Frio silty clay, frequently flooded	Fs
Krum silty clay, 1 to 3 percent slopes	KrB
Lewisville clay loam, 1 to 3 percent slopes	LeB
Real-Rock outcrop complex, 12 to 40 percent slopes	ReF
Slidell silty clay, 1 to 3 percent slopes	SlB

Brackett-Topsey association, 3 to 8 percent slopes, eroded (BtC2)
The Brackett-Topsey association consists of deep, loamy soils on undulating uplands. Brackett soils make up 40 to 60 percent of the association, Topsey soils make up 30 to 45 percent, and other soils make up 10 to 20 percent. The Brackett soils are on the summits of knolls and low hills while the Topsey soils are lower on the landscape on side slopes. Both soils are well drained and runoff is medium. The taxonomic subgroup of the Brackett series is Typic Ustochrepts. The taxonomic subgroup of the Topsey series is Typic Calciustolls. The Brackett-Topsey association is not designated as a hydric soil.

Denton silty clay, 1 to 3 percent slopes (DeB)
Denton silty clay is a deep, gently sloping, clayey soil on uplands. This soil is on midslopes between drainageways and ridgetops or summits. This soil is well drained. Permeability is slow and available water capacity is medium. Surface runoff is medium, and the hazard of erosion is moderate. Deep cracks extend to the surface when the soil is dry. The high content of calcium carbonate causes chlorosis in some plants. Denton soils make up 60 to 85 percent of the map unit. The taxonomic subgroup of the Denton series is Typic Calciustolls. Denton silty clay is not designated as a hydric soil.

Eckrant cobbly silty clay, 1 to 3 percent slopes (EcB)
Eckrant cobbly silty clay is a shallow and very shallow, gently sloping clayey soil on broad plane areas and convex ridgetops. This soil is well drained. Permeability is moderately slow and available water capacity is very low. Surface runoff is rapid. Eckrant soils make up 70 to 80 percent of the map unit. The taxonomic subgroup of the Eckrant series is Lithic Haplustolls. Eckrant cobbly silty clay is not designated as a hydric soil.

Evant silty clay, 1 to 3 percent slopes (EvB)
Evant silty clay is a shallow, gently sloping soil on plane to convex uplands. The map unit is 60 to 75 percent Evant soils. This soil is well drained and surface runoff is slow. Permeability is slow and available water capacity is very low. The taxonomic subgroup of the Evant series is Petrocalcic Paleustolls. Evant silty clay is not designated as a hydric soil.

Frio silty clay, frequently flooded (Fs)
Frio silty clay consists of deep, nearly level, clayey soils on floodplains of major streams. This soil is well drained and surface runoff is slow. Permeability is moderately slow and available water capacity is high. The taxonomic subgroup of the Evant series is Cumulic Haplustolls. Evant silty clay is listed as having hydric inclusions in depressional areas.

Krum silty clay, 1 to 3 percent slopes (KrB)
Krum silty clay is a deep, gently sloping clayey soil on stream terraces and in filled valleys. The soil is well drained and permeability is moderately slow. When the soil is dry, cracks extend to the surface and water enters the soil rapidly. When the soil is wet and the cracks are sealed, water enters the soil slowly. This map unit is 60 to 95 percent Krum soils. The taxonomic subgroup of the Krum series is Vertic Haplustolls. Krum silty clay is not designated as a hydric soil.

Lewisville clay loam, 1 to 3 percent slopes (LeB)
Lewisville clay loam is a deep, gently sloping soil on major stream terraces. The soil is well drained and permeability is moderate. Available water capacity is high and surface runoff is medium. This map unit is 70 to 95 percent Lewisville soils. The taxonomic subgroup of the Lewisville series is Typic Calciustolls. Lewisville clay loam is not designated as a hydric soil.

Real-Rock outcrop complex, 12 to 40 percent slopes (ReF)
The Real-Rock outcrop complex soils consist of shallow, moderately steep to steep soils and areas of Rock outcrop on side slopes and uplands. This soil map unit is about 65 to 75 percent Real soil, 10 to 25 percent Rock outcrop, and 10 to 25 percent similar soils. The Real soil is well drained and permeability is moderate. Runoff is very rapid and available water capacity is very low. The taxonomic subgroup of the Real series is Typic Calciustolls. The Real-Rock outcrop complex is not designated as a hydric soil.

Slidell silty clay, 1 to 3 percent slopes (SlB)
Slidell silty clay is a deep, gently sloping soil in valley fill areas along drainageways. This soil is well drained. Permeability is very slow, and available water capacity is high. Surface runoff is slow to medium. When dry, this soil has cracks as much as one inch wide and more than 20 inches deep. Water enters rapidly when the soil is dry and cracked and very slowly when the soil is moist. Slidell soils make up 60 to 90 percent of the map unit. The taxonomic subgroup of the Slidell series is Udic Pellusterts. Slidell silty clay is not designated as a hydric soil.

3.3 Hydrology

Water features that were assessed within the project area consist of wetlands and ephemeral, intermittent, and perennial drainages. Hydrology throughout the project area has been affected by development of training ranges and the movement of military vehicles resulting in localized modifications to drainage patterns. Hydrology observed included inundation, saturation in the upper 12 inches, water marks, drift lines, and sediment deposits. Plots A1, A2, A3, C, D, E, F, G, H, and O showed indications of hydrology. Plots B, I, J, K, L, M, and N showed no indications of hydrology.

3.4 Water Features Assessed

ERG biologists identified and assessed 49 water features in the project area. This includes 16 streams and 33 wetland features. Headwaters exhibited a mixture of vegetated and shallowly incised channels. Hydrophytic vegetation typically only occupied small fringe areas along watercourses when present. All of the ephemeral streams surveyed exhibited an OHWM. Through examination of topographic quadrangle maps, it was determined that all of the streams in the project area contain a connection to navigable waters of the U.S. In wetlands the change from hydrophytic to upland species generally determined the boundary of these areas.

The project area was surveyed using pedestrian surveys. Maps showing water features that were assessed are provided on Figure 6 (Insets 1 thru 8) of Appendix A. Water features assessed within the project area are described in Table 2.0.

The project area contains waters of the U.S. All of the identified water features are waters of the U.S., except for Water Features 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 23, 24, 25, 26, 28, 33, 43, 44, 45, 46, 47, 48, and 49. Water Features 5, 23, 24, 25, 26, 28, and 48 are artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and are used exclusively for stock watering. Water Features 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 33, 46, and 47 are isolated depressions incidental to construction/training activities. Water features 43, 44, 45, and 49 are caliche pits excavated in uplands for the purpose of obtaining fill, sand, or gravel. These identified features total approximately 3.78 acres. They are isolated in upland areas and have no surface tributary connection to navigable waters of the U.S.; are not adjacent to waters of the U.S.; and are not used for, never was in the past, and likely never would be used for interstate commerce; and are not an intrastate waters. Therefore, these water features are not a waters of the U.S.

All of the remaining water features are waters of the U.S. including all of the palustrine emergent (PEM), palustrine emergent/scrub-shrub (PEM/PSS), and palustrine open water (POW) wetlands and the ephemeral, intermittent, and perennial streams; therefore, **waters of the U.S. within the project area total 34,937 linear feet (288,518 ft^2) of streams and 51.35 acres of wetlands.**

Table 2.0. Water Features Assessed in the Project Area

Water Feature/Map Reference Number	Characterization	Area
1 (Insets 1, 4)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Grindelia lanceolata, Dracopis amplexicaulis, Helianthus maximiliani, Ambrosia artemisiifolia, Gaillardia pulchella* Comments: Intermittent. Flowing water present during field visit. OHWM present. Channel adjacent to shelf with steep sides in lower reaches. Flows across road into the Black Gap Complex.	2,851 linear ft Average Width 8 ft 22,808 ft^2
2 (Inset 4)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Sesbania vesicaria, Grindelia lanceolata, Lupinus texensis, Pseudognaphalium obtusifolium* Comments: Intermittent. Flowing water present during field visit. Ponded. Unvegetated bottom. OHWM present. Fish present in some pools. Flows into Water Features 1 and 4.	1,393 linear ft Average width: 8 ft. 11,144 ft^2
3 (Inset 4)	Type: Ephemeral Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Grindelia lanceolata, Helianthus maximiliani, Bothriochloa ischaemum, Sorghum halepense, Andropogon gerardii* Comments: Ephemeral. Flowing water present during field visit. OHWM present. Upper reaches of Water Feature 2.	490 linear ft Average width: 3 ft. Area 1,470 ft^2
4 (Insets 1, 4)	Type: Palustrine Emergent (PEM) Wetland, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Iva annua, Phyla nodiflora, Lythrum californicum, Juncus effusus, Malva neglecta, Helianthus maximiliani, Sesbania vesicaria, Pseudognaphalium obtusifolium, Setaria glauca, Carex amphibola, Typha latifolia* Comments: Scars and ruts with water spilling overland from Water Feature 1. Many of the old roads and scars are slowing and/or holding water. Depth of surface water averages 4 inches. Hydrophytic vegetation, saturated in the upper 12 inches, water marks, drift lines, sediment deposits, and hydric soils. Connects to Water Feature 1. Plots A1, A2, and A3.	5.61 acres
5 (Inset 1)	Type: Palustrine Open Water (POW) Pond that is not a waters of the U.S. – Stock Pond Community: Mid-grass Prairie Dominant Vegetation: *Sesbania vesicaria, Grindelia lanceolata, Helianthus maximiliani* around pond. Comments: Ponded. Bottom is unvegetated. Isolated. Artificial lake or pond created by excavating and/ or diking dry land to collect and retain water and which are used exclusively for stock watering. OHWM present. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.21 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
6 (Inset 4)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Bothriochloa ischaemum, Sesbania vesicaria, Grindelia lanceolata, Gaillardia pulchella, Pseudognaphalium obtusifolium* Comments: Ephemeral. Ponded. Bottom vegetated. Water–filled depression created in dry land incidental to construction/training activity. Depressions created by digging and scraping. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.07 acres
7 (Inset 4)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Bothriochloa ischaemum, Sesbania vesicaria, Grindelia lanceolata, Gaillardia pulchella, Pseudognaphalium obtusifolium* Comments: Ephemeral. Ponded. Bottom vegetated. Water–filled depression created in dry land incidental to construction/training activity. Depressions created by digging and scraping. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.06 acres
8 (Inset 1)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Lythrum californicum, Juncus effusus-* in pond. *Schizachyrium scoparium, Bothriochloa ischaemum, Pseudognaphalium obtusifolium, Monarda citriodora, Helianthus maximiliani, Gaillardia pulchella* Comments: Ephemeral. Ponded. Bottom is vegetated. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.05 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
9 (Inset 1)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Lythrum californicum, Juncus effusus-* in pond. *Schizachyrium scoparium, Bothriochloa ischaemum, Pseudognaphalium obtusifolium, Monarda citriodora, Helianthus maximiliani, Gaillardia pulchella* Comments: Ephemeral. Ponded. Bottom is vegetated. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.03 acres
10 (Inset 1)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Lythrum californicum,* and *Juncus effusus* in pond. *Schizachyrium scoparium, Bothriochloa ischaemum, Pseudognaphalium obtusifolium, Monarda citriodora, Helianthus maximiliani, Gaillardia pulchella* Comments: Ephemeral. Ponded. Bottom is vegetated. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.15 acres
11 (Inset 1)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Lythrum californicum, Juncus effusus-* in pond. *Schizachyrium scoparium, Bothriochloa ischaemum, Pseudognaphalium obtusifolium, Monarda citriodora, Helianthus maximiliani, Gaillardia pulchella* Comments: Ephemeral. Ponded. Bottom is vegetated. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.26 acres
12 (Inset 1)	Type: Palustrine Open Water (POW) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Sesbania vesicaria, Grindelia lanceolata, Mimosa roemeriana* around pond. Comments: Ephemeral. Ponded. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.07 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
13 (Inset 2)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Iva annua, Lythrum californicum, Dracopis amplexicaulis, Helianthus maximiliani, Rhus lanceolata, Monarda citriodora, Grindelia lanceolata* Comments: Ephemeral. Ponded. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.05 acres
14 (Inset 2)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Polygonum hydropiperoides, Juncus effusus, Sesbania vesicaria, Lythrum californicum* in depression. *Dracopis amplexicaulis, Grindelia lanceolata, Solidago canadensis* adjacent. Comments: Ephemeral. Ponded. Water-filled depression created in dry land incidental to construction/training activity. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.14 acres
15 (Insets 1,2, 5)	Type: Palustrine Emergent/ Palustrine Open Water (PEM/POW) Wetland, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Phyla nodiflora, Iva annua, Carex amphibola, Salix nigra, Diospyros virginiana, Lythrum californicum, Sesbania, vesicaria* Comments: Mid-grass prairie. Water backs up from earthen levee that creates an open water pond. Once pond is full water backs up and makes its way to the south and connects to Water Feature 17. Depth of surface water averages 6 inches in emergent area. Inundated, saturated in upper 12 inches, water marks, sediment deposits, and hydrophytic vegetation present. Low chroma colors present in soil sample. Plot C.	POW 0.73 acres PEM 2.79 acres Total 3.52 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
16 (Inset 1)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Monarda citriodora, Grindelia lanceolata, Dracopis amplexicaulis, Eleocharis montevidensis, Juncus effusus, Sesbania vesicaria* Comments: Ephemeral. Ponded. Water-filled depression created in dry land incidental to construction/training activity. Adjacent to tank trail. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.25 acres
17 (Inset 5)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Diospyros virginiana, Ulmus americana, Ilex decidua, Iva annua, Prosopis glandulosa, Juniperus ashei, Grindelia lanceolata, Dracopis amplexicaulis, Celtis laevigata* Comments: Intermittent. Flows from Water Feature 15 and roadside ditches into Water Feature 34. Fish present in some pools. Water present during field visit. OHWM.	2,977 linear ft Average Width 5 ft Area 14,885 ft^2
18 (Inset 5)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Lythrum californicum, Carex amphibola* in pond. *Grindelia lanceolata, Mimosa roemeriana, Helianthus maximiliani, Schizachyrium scoparium* Comments: Ponded. Isolated. Pits excavated in dry land for the purpose of obtaining fill, sand, or gravel. Fill material borrow area. Isolated from other water features. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.14 acres
19 (Inset 5)	Type: Palustrine Emergent (PEM) Wetland, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Helianthus maximiliani, Grindelia lanceolata, Monarda citriodora,* and *Schizachyrium scoparium* adjacent. *Salix nigra, Juncus effusus,* and *Eleocharis montevidensis* in pond. Comments: OHWM. Emergent area along water 17. Water flows from stream into this feature. Hydrophytic vegetation and inundation present. Plot O.	0.15 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
20 (Inset 5)	Type: Palustrine Open Water (POW) Pond, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Populus deltoides, Helianthus maximiliani, Ilex decidua, Solidago canadensis, Schizachyrium scoparium* around pond. Comments: Ponded. OHWM. Open water pond along water 17.	0.16 acres
21 (Inset 5)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Solidago canadensis, Baccharis neglecta, Diospyros virginiana, Mimosa roemeriana, Rubus trivialis, Helianthus maximiliani* Comments: Intermittent. Flowing water present during field visit. Bottom unvegetated. OHWM. Flows out of Hood Army Airfield and Water Feature 29 and flows into Water Features 22 and 34. No connection to Water Feature 27.	1,404 linear ft Average Width: 8 ft 11,232 ft^2
22 (Inset 5)	Type: Palustrine Emergent/Palustrine Scrub-Shrub (PEM/PSS) Wetland, waters of the U.S. Community: Palustrine Emergent/Scrub-Shrub (PEM/PSS) Dominant Vegetation: *Cephalanthus occidentalis, Baccharis neglecta, Celtis laevigata, Allium canadense, Lythrum californicum, Eleocharis montevidensis, Eleocharis palustris, Ambrosia artemisiifolia,* and *Polygonum hydropiperoides* in feature. *Helianthus maximiliani, Ulmus crassifolia, Mimosa roemeriana* adjacent. Comments: Mid-grass prairie. Emergent/scrub-shrub at headwaters of Water Feature 34. Depth of surface water averages 4 inches. Inundated, saturated in upper 12 inches, water marks, drift lines and hydrophytic vegetation, and low-chroma soils present. Wetland receives water from Water Features 21 and 17 and flows into Water Feature 34. Encompasses a few small areas of open water. Plot G.	PEM 1.31 acres PSS 1.90 acres Total 3.21 acres
23 (Inset 5)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. - Stock Pond Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis* and *Lythrum californicum* in pond. *Helianthus maximiliani, Mimosa roemeriana, Schizachyrium scoparium* adjacent to feature. Comments: Stock pond- Isolated. Bottom vegetated. Artificial pond created by excavating and/ or diking dry land to collect and retain water and which is used exclusively for stock watering. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.10 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
24 (Inset 5)	Type: Palustrine Emergent (PEM) features that are not waters of the U.S. - Stock Ponds Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Ulmus americana, Baccharis neglecta* in pond. *Solidago canadensis, Grindelia lanceolata, Mimosa roemeriana* adjacent to feature. Comments: Two, small stock ponds. Artificial ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for stock watering. They are isolated in uplands and contain no hydrologic connection to other waters of the U.S. – water features that are not a waters of the U.S.	0.06 acres 0.02 acres Total 0.08 acres
25 (Inset 5)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. - Stock pond Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis* and *Carex amphibola* in pond. *Grindelia lanceolata, Liatris mucronata, Helianthus maximiliani* adjacent to feature. Comments: Small stock pond. Bottom vegetated. Receives overland flow. Artificial pond created by excavating and/ or diking dry land to collect and retain water and which is used exclusively for stock watering. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.07 acres
26 (Inset 5)	Type: Palustrine Open Water (POW) pond that is not a waters of the U.S. – Stock Pond Community: Mid-grass Prairie Dominant Vegetation: None, open water only Comments: Ponded. Artificial pond created by excavating and/ or diking dry land to collect and retain water and which is used exclusively for stock watering. Small pond along road. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.03 acres
27 (Inset 5)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Vitex agnus-castus, Allium canadense, Cephalanthus occidentalis* in channel. *Liatris mucronata, Helianthus maximiliani, Mimosa roemeriana, Rhus lanceolata,* and *Schizachyrium scoparium* adjacent. Comments: Intermittent. OHWM present. Flows into Water Feature 38.	1,927 linear ft Average Width 8 ft 15,416 ft^2

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
28 (Inset 5)	Type: Palustrine Open Water (POW) pond that is not a waters of the U.S. – Stock Pond Community: Mid-grass Prairie Dominant Vegetation: *Salix nigra, Ulmus crassifolia, Grindelia lanceolata, Mimosa roemeriana* around pond. Comments: Ponded. Water-filled depressions created in dry land incidental to construction/training activity. Water is ponded behind small berm. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.03 acres
29 (Inset 5)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Salix nigra, Carex amphibola* in channel. *Baccharis neglecta, Schizachyrium scoparium, Bothriochloa ischaemum, Mimosa roemeriana, Iva angustifolia* adjacent to feature. Comments: Intermittent. Flowing water present during field visit. OHWM. Litter, debris, sand or clay deposits present. Continuation of Water Feature 31. Receives water from Water Features 30 and 31 from Hood Army Airfield.	1,578 linear ft Average width 5 ft 7,890 ft^2
30 (Inset 5)	Type: Ephemeral Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Baccharis neglecta, Solidago canadensis, Helianthus maximiliani* Comments: Ephemeral. Flowing water present during field visit. Unvegetated bottom. OHWM present. Flows from parking lot into Water Feature 29.	411 linear ft Average width 3ft Area 1,233 ft^2
31 (Insets 4, 5)	Type: Ephemeral Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Sorghum halepense, Solidago canadensis, Monarda citriodora, Helianthus maximiliani, Rubus trivialis, Celtis laevigata* Comments: Ephemeral. Flowing water present during field visit. Bottom unvegetated. OHWM. Ephemeral portion of Water Feature 29. Some sections of this water feature are in concrete pipe.	483 linear ft Average width 3 ft Area 1,449 ft^2
32 (Inset 4)	Type: Palustrine Open Water (POW) Pond, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Typha latifolia* on edge of pond. *Populus deltoides, Iva annua, Helianthus maximiliani, Sorghum halepense* around pond. Comments: Ponded. OHWM. Pond at headwaters of Water Feature 31.	0.22 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
33 (Inset 4)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Lythrum californicum* Comments: Emergent area that is blocked by perimeter fence. Depth of surface water averages 3 inches, inundated, saturated in upper 12 inches, and hydrophytic vegetation present. Low chroma colors observed in soil sample. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S. Plot D.	0.08 acres
34 (Inset 5)	Type: Intermittent Stream, waters of the U.S. Community: Mixed Forest Dominant Vegetation: *Ulmus americana, Celtis laevigata, Diospyros virginiana, Toxicodendron radicans, Ambrosia artemisiifolia.* In channel: *Cephalanthus occidentalis* Comments: Intermittent. Flowing water present during field visit. Bottom unvegetated. Litter, debris, sand or clay deposits present. OHWM. Forms at confluence of Water Features 17 and 21 and flows into Water Feature 38. Multiple channels in some reaches.	692 linear ft Average Width 10 ft 6,920 ft^2
35 (Inset 5)	Type: Palustrine Emergent (PEM) Wetland, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Allium canadense, Eleocharis montevidensis, Cephalanthus occidentalis* Comments: Emergent area along Water Feature 34. Depth of surface water averages 6 inches. Inundated, saturated in upper 12 inches, drift lines, and hydrophytic vegetation present. Plot F.	0.39 acres
36 (Insets 2, 5)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Celtis laevigata, Vitis mustangensis, Ilex decidua, Cephalanthus occidentalis, Prunus rivularis* Comments: Intermittent. Unvegetated bottom. Flowing water present during field visit. OHWM present. Flows into Water Feature 38.	4,903 linear ft Average Width 8 ft 39,224 ft^2
37 (Insets 5, 6)	Type: Ephemeral Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Ulmus crassifolia, Ilex decidua, Solidago canadensis, Mimosa roemeriana, Grindelia lanceolata, Gaillardia pulchella* Comments: Ephemeral. Flowing water observed during field visit. Bottom unvegetated. OHWM. Flows into Water Feature 38.	2,046 linear ft Average width: 4 ft Area 8,184 ft^2

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
38 (Insets 5, 6, 8)	Type: Perennial Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Celtis laevigata, Ilex decidua, Vitis mustangensis* adjacent. In channel: *Cephalanthus occidentalis, Carex amphibola, Salix nigra* Comments: Perennial stream. Flowing water present during field visit. Bottom unvegetated. OHWM. Natural/manipulated ditches flowing into feature. Forms at confluence of Water Features 34 and 36, then flows into Airfield Lake and south out of project area.	4,813 linear ft Average Width: 20 ft 96,260 ft^2
39 (Insets 6, 7, 8)	Type: Palustrine Emergent, Palustrine Scrub-Shrub, and Palustrine Open Water (PEM/PSS/POW) Wetland, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Cephalanthus occidentalis, Sapium sebiferum, Salix nigra, Iva annua, Eleocharis montevidensis, Polygonum hydropiperoides* Comments: Airfield Lake and surrounding wetlands. Little to no herbaceous cover from inundation in many areas. Emergent/scrub shrub vegetation along edge of Airfield Lake. Inundated, saturated in upper 12 inches, water marks, drift lines, sediment deposits, and hydrophytic vegetation present. Low-chroma colors observed in soil sample. Plot E.	POW 17.99 acres PEM/PSS 20.10 acres Total 38.09 acres
40 (Insets 7, 8)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass prairie Dominant Vegetation: *Cephalanthus occidentalis* in channel. *Iva annua, Dracopis amplexicaulis,* and *Allium canadense* adjacent. Comments: Intermittent. Flowing water present during field visit. Bottom unvegetated. OHWM. Flows from Hood Army Airfield into Airfield Lake (Water Feature 39).	1,521 linear ft Average Width 6 ft 9,126 ft^2
41 (Insets 7, 8)	Type: Ephemeral Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Salix nigra and Carex amphibola* in channel. *Baccharis neglecta, Celtis laevigata, Vitis mustangensis,* and *Rumex crispus* adjacent. Comments: Ephemeral. Flowing water present during field visit. Bottom unvegetated. OHWM. Flows from Hood Army Airfield into Airfield Lake (Water Feature 39).	1,137 linear ft Average Width 3 ft Area 3,411 ft^2
42 (Insets 6, 8)	Type: Intermittent Stream, waters of the U.S. Community: Mid-grass Prairie Dominant Vegetation: *Dracopis amplexicaulis, Rhus lanceolata, Quercus virginiana, Celtis laevigata, Juniperus ashei, Ulmus crassifolia* adjacent. *Salix nigra* in channel. Comments: Intermittent. OHWM. Flows into Airfield Lake (Water Feature 39).	6,311 linear ft Average width: 6 ft 37,866 ft^2

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
43 (Inset 6)	Type: Palustrine Open Water (POW) feature that is not a waters of the U.S. – Caliche Pit Community: Disturbed Dominant Vegetation: none, open water. Comments: Caliche pit. Pits excavated in dry land for the purpose of obtaining fill, sand, or gravel. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.23 acres
44 (Inset 6)	Type: Palustrine Open Water (POW) feature that is not a waters of the U.S. – Caliche Pit Community: Disturbed Dominant Vegetation: none, open water Comments: Caliche pit. Pits excavated in dry land for the purpose of obtaining fill, sand, or gravel. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.03 acres
45 (Inset 6)	Type: Palustrine Open Water (POW) feature that is not a waters of the U.S. – Caliche Pit Community: Disturbed Dominant Vegetation: none, open water Comments: Caliche pit. Pits excavated in dry land for the purpose of obtaining fill, sand, or gravel. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.05 acres
46 (Inset 3)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Scirpus pendulus*, *Eleocharis montevidensis, Salix nigra, Ambrosia artemisiifolia, Iva annua* Comments: Mid-grass prairie disturbed from training activity. Berm separates the two sides with one excavated connection. Depth of surface water averages 6 inches. Inundated, saturated in upper 12 inches, drift lines, low-chroma soils, and hydrophytic vegetation are present. Water –filled depression created in dry land incidental to construction/training activity. Some small areas of open water present. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S. Plot H.	1.20 acres

Table 2.0 Cont.'d

Water Feature/Map Reference Number	Characterization	Area
47 (Inset 3)	Type: Palustrine Open Water (POW) feature that is not a waters of the U.S. – Isolated Depression Community: Mid-grass Prairie Dominant Vegetation: *Grindelia lanceolata, Monarda citriodora, Mimosa roemeriana, Bothriochloa ischaemum, Gaillardia pulchella,* and *Dracopis amplexicaulis* adjacent to pond. Comments: Ponded. Pits excavated in dry land for the purpose of obtaining fill, sand, or gravel. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.14 acres
48 (Inset 2)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. - Stock Pond Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis in* pond. *Diospyros virginiana, Celtis laevigata, Prosopis glandulosa, Ilex decidua, Monarda citriodora, Gaillardia pulchella, Grindelia lanceolata, Bothriochloa ischaemum* adjacent to feature. Comments: Ponded water present during field visit. Bottom vegetated. Artificial pond created by excavating and/or diking dry land to collect and retain water and which is used exclusively for stock watering. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.13 acres
49 (Inset 2)	Type: Palustrine Emergent (PEM) feature that is not a waters of the U.S. – Caliche Pit Community: Mid-grass Prairie Dominant Vegetation: *Eleocharis montevidensis, Allium canadense, Setaria glauca, Yucca arkansana, Grindelia lanceolata, Bothriochloa ischaemum, Dracopis amplexicaulis* Comments: Ponded. Bottom vegetated. Pits excavated in dry land for the purpose of obtaining fill, sand, or gravel. Caliche and rock bottom. It is isolated in an upland and contains no hydrologic connection to other waters of the U.S. – water feature that is not a waters of the U.S.	0.13 acres
TOTAL		**Streams = 34,937 linear ft** **Streams = 288,518 ft^2** **Wetland Features = 55.13 acres**

3.5 Cowardin Classification

In 1979, a comprehensive classification system of wetlands and deepwater habitats was developed for the U.S. Fish and Wildlife Service (USFWS) by Lewis M. Cowardin. The classification is intended to describe ecological taxa and arrange them in a system useful to resource managers (Cowardin *et al.* 1979). Five major wetland systems are defined in the Cowardin classification system: marine, estuarine, riverine, lacustrine, palustrine.

All wetlands identified within the project area are palustrine systems, meaning that the water regime is not influenced by ocean tides and the vegetation consists of persistent emergents, trees, or shrubs over 30 percent or more of the area. Three classes of palustrine wetlands occur in the study area – palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine open water (POW).

3.6 Type(s), Functions, and Values

The areas surveyed include ephemeral, intermittent, and perennial streams and wetlands. The functions of these water features are flood conveyance, flood storage, pollutant and nutrient filtration of upland runoff, and habitat for fish, wildlife, and plant species. The values are primarily open space and aesthetic.

4.0 SUMMARY

Water features in the project area have been identified and delineated. A routine delineation with an on-site inspection was conducted on June 3-6, 2007. The total land area surveyed was approximately 1,283 acres and consisted of live fire training ranges and undeveloped areas. ERG biologists identified 49 water features that were assessed, including 5 ephemeral streams, 10 intermittent streams, 1 perennial stream, and 33 wetland features within the project area (See Table 2.0).

ERG biologists identified 25 wetland features that are not a waters of the U.S. within the project area (See Table 2.0). **Potential jurisdictional areas that were determined to be water features that are not a waters of the U.S. total 3.78 acres of caliche pits, isolated depressions, and stock ponds (Table 3.0).**

Table 3.0 Water Features that are not a Waters of the U.S. in the Project Area

Water Feature Type	Area
Palustrine Emergent (Water Features 6, 7, 8, 9, 10, 11, 13, 14, 16, 18, 23, 24, 25, 33, 46, 48, & 49)	2.99 acres
Palustrine Open Water (Water Feature 5, 12, 26, 28, 43, 44, 45, & 47)	0.79 acres
TOTAL	**3.78 acres**

All of the remaining water features are waters of the U.S. Based on this effort, **waters of the U.S. within the project area total 34,937 linear feet (288,518 ft^2) of streams and 51.35 acres of wetlands (Table 4.0 and Figure 7).**

Table 4.0 Waters of the U.S. in the Project Area

Water Feature Type	Linear Feet	Area
Streams		
Ephemeral	4,567	15,747 ft^2
Intermittent	25,557	176,511 ft^2
Perennial	4,813	96,260 ft^2
TOTAL	**34,937**	**288,518 ft^2**
Wetlands		
Palustrine Emergent (Water Features 4, 15, 19, 35, 2.79 acres of Water Feature 15, and 1.31 acres of Water Feature 22)	**N/A**	**10.25 acres**
Palustrine Emergent/Scrub-Shrub (1.9 acres of Water Feature 22 and 20.1 acres of Water Feature 39)	**N/A**	**22.00 acres**
Palustrine Open Water (Water Features 20, 32, 0.73 acres of Water Feature 15, and 17.99 acres of Water Feature 39)	**N/A**	**19.1 acres**
TOTAL	**N/A**	**51.35 acres**

The USACE has the authority to make the final decision regarding the jurisdiction of waters of the U.S.; therefore, the determination of waters of the U.S. investigated during this survey may require an on-site investigation by USACE personnel. The USACE should be contacted, and any

required permits obtained, prior to the disturbance of the waters of the U.S. identified during this delineation effort.

5.0 REFERENCES CITED

Cowardin, L.M., V. Carter, F.C. Golet, and E.T.LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of Interior, Fish and Wildlife Service Office of Biological Services, Washington D.C. 34 pp + append.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. + append.

Fort Hood. 2005. Preliminary Draft Integrated Natural Resource Management Plan, 2006 through 2010, III Corp and Fort Hood, TX. July 2005.

Headquarters, Department of the Army (HQDA). 1995. Natural Resources–Land, Forest, and Wildlife Management. Army Regulation 200-3. Headquarters Department of the Army, Washington, DC.

Reed, P.B., Jr. 1988. National List of Plant Species that Occur in Wetlands: National Summary. U.S. Department of Interior, Fish and Wildlife Service. Biological Report 88. 244 pp.

U.S. Army Corps of Engineers (USACE). 1999. Navigable Waters of the United States in the Fort Worth, Albuquerque, and Tulsa Districts Within the State of Texas. March 20, 1999. Internet Website: http://www.swf.usace.army.mil/pubdata/environ/regulatory/introduction/navlist.pdf.

U.S. Department of Agriculture, Soil Conservation Service. 1985. Soil Survey of Coryell County, Texas. In cooperation with Texas Agricultural Experiment Station and United States Department of the Army, Fort Hood, Texas.

U.S. Department of Agriculture, Soil Conservation Service. 1977. Soil Survey of Bell County, Texas. In cooperation with Texas Agricultural Experiment Station and United States Department of the Army, Fort Hood, Texas.

U.S. Geological Survey (USGS). 1978. Digital Post Oak Mountain, Texas. 7.5 Minute Topographic Quadrangle Map. Downloaded from Texas Natural Resource Information System Website: http://www.tnris.state.tx.us. Austin, Texas.

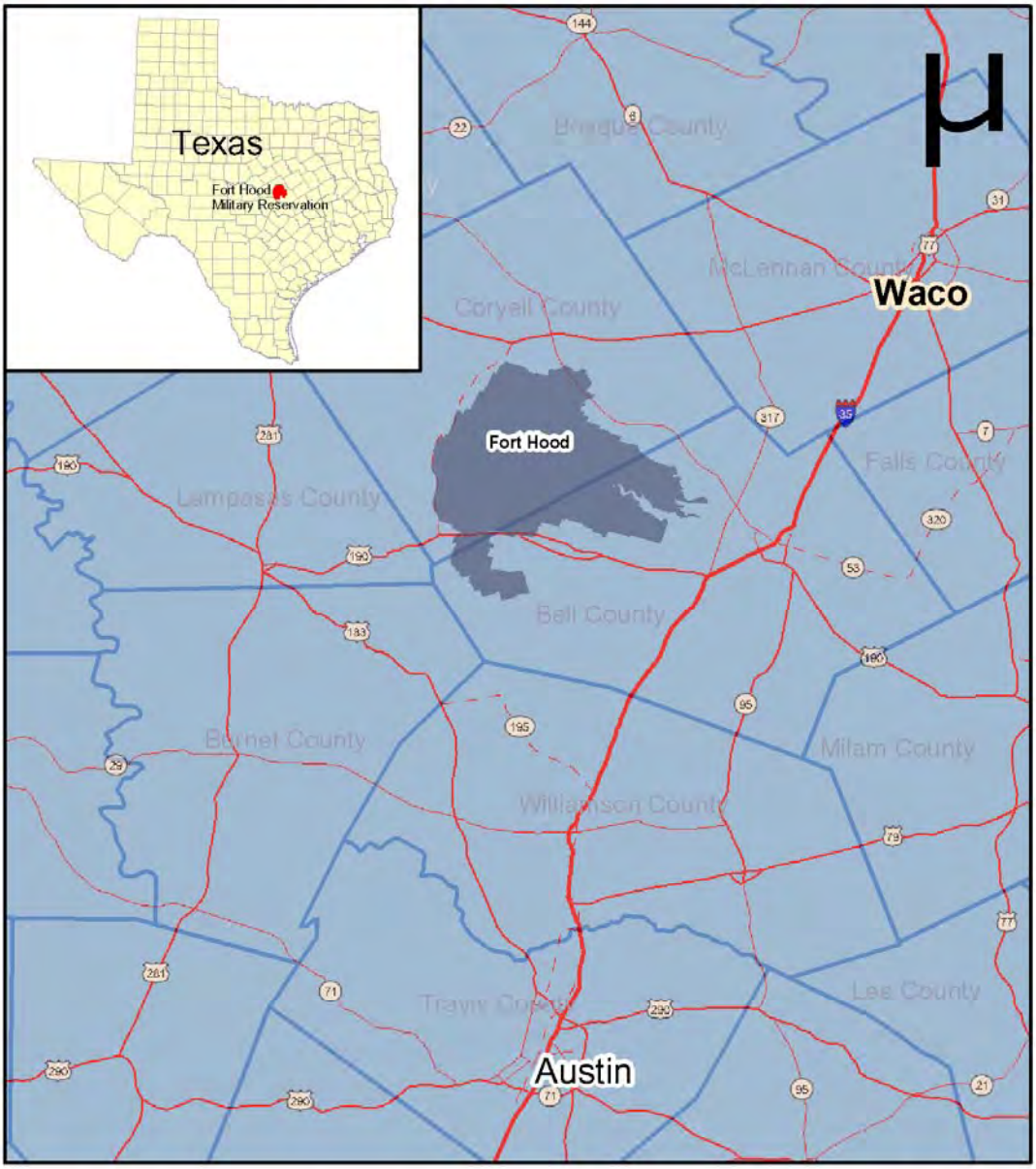
6.0 LIST OF PREPARERS

The following people were primarily responsible for preparing this proposed jurisdictional determination.

Name	Organization	Discipline/ Expertise	Experience	Role in Preparing Report
Jerry Bolton	Environmental Research Group, LLC	Biology/Ecology	20 years wetland investigations	Report review
Linda Ashe	Environmental Research Group, LLC	Biology	17 years environmental investigations and impact analysis	Report review
Stephen Smith	Environmental Research Group, LLC	Biology/Wildlife Management	13 years wetland investigations	Field reconnaissance and report review
Mike Schulze	Environmental Research Group, LLC	Environmental Science	9 years wetland investigations	Field reconnaissance, report review and preparation
Tonya Smith	Environmental Research Group, LLC	Biology/Wildlife Management	7 years wetland investigations	Report Review and preparation
Scott Guidry	Environmental Research Group, LLC	Forestry	5 years wetland investigations	Report Review and preparation

APPENDIX A
Report Figures

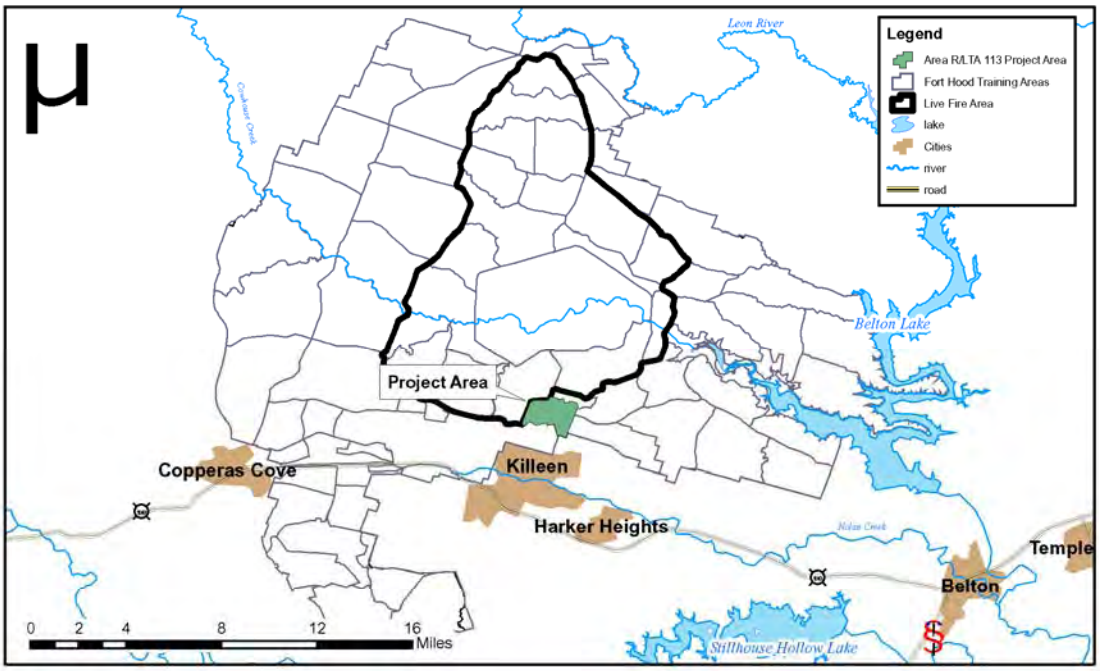
Figure 1. General Location of Fort Hood Military Reservation.



Map Author: Environmental Research Group Basemap Source: Fort Hood 2005 USACE Project No. _____	0 5 10 20 Miles	Scale: 1:1,000,000 Figure 1 of 23 October 3, 2007

A-1

Figure 2. Project Area

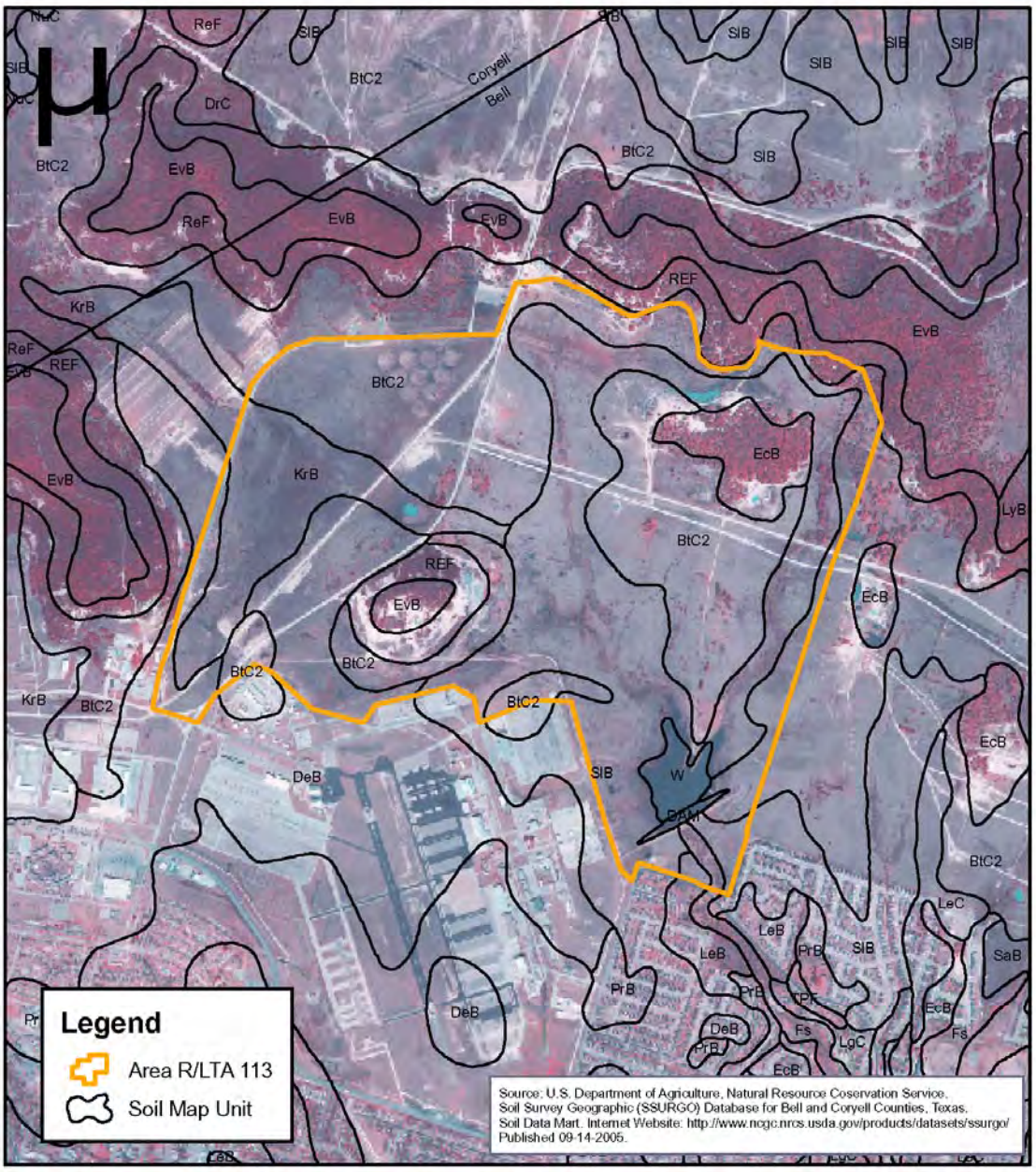


Map Author: Environmental Research Group
Basemap Source: Fort Hood 2005
USACE Project No.

Scale: 1:300,000
Figure 2 of 23
October 3, 2007

A-2

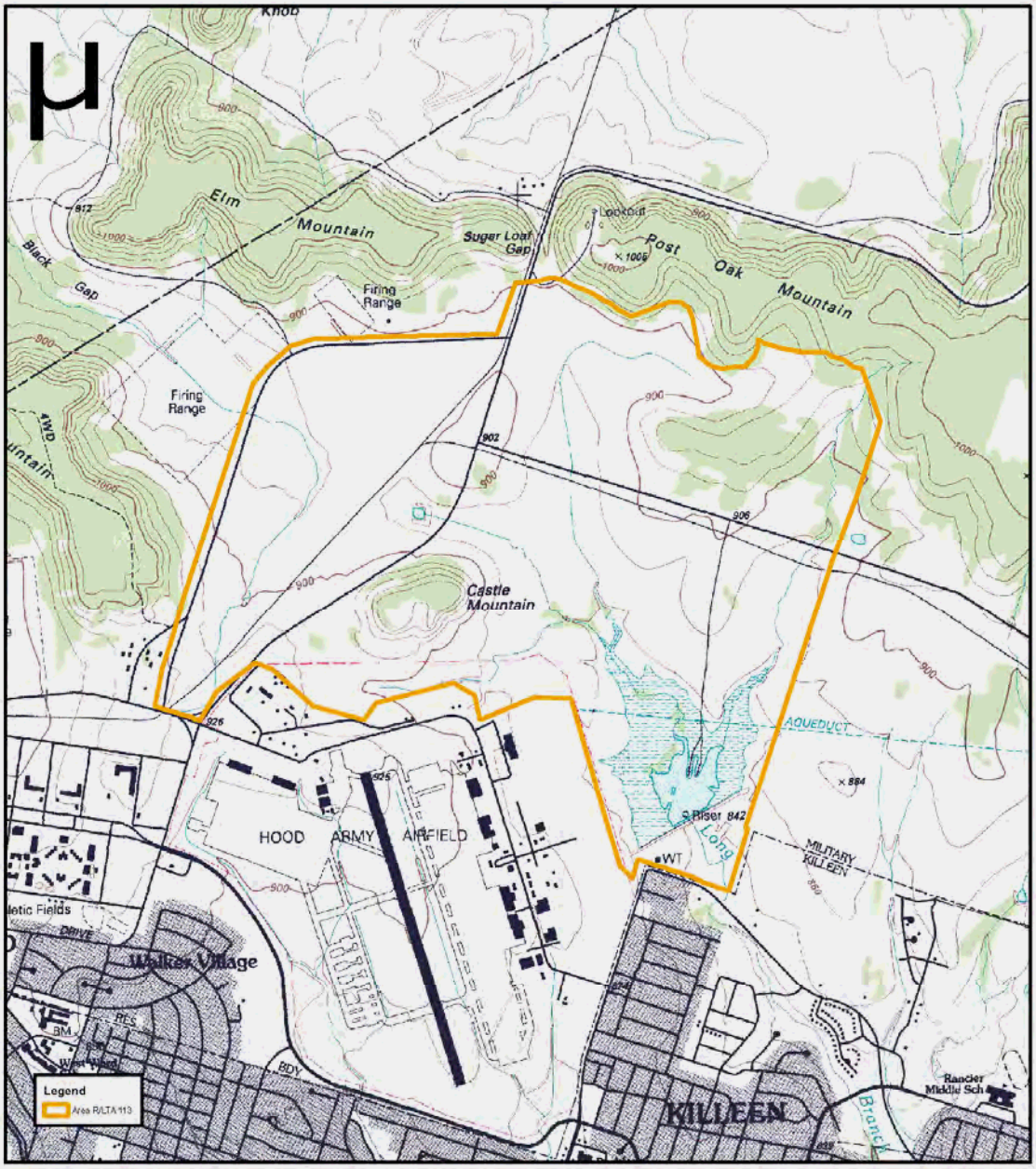
Figure 3. Project Area Soils



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 1,320 2,640 Feet	Scale: 1:24,000 Figure 3 of 23 October 3, 2007

A-3

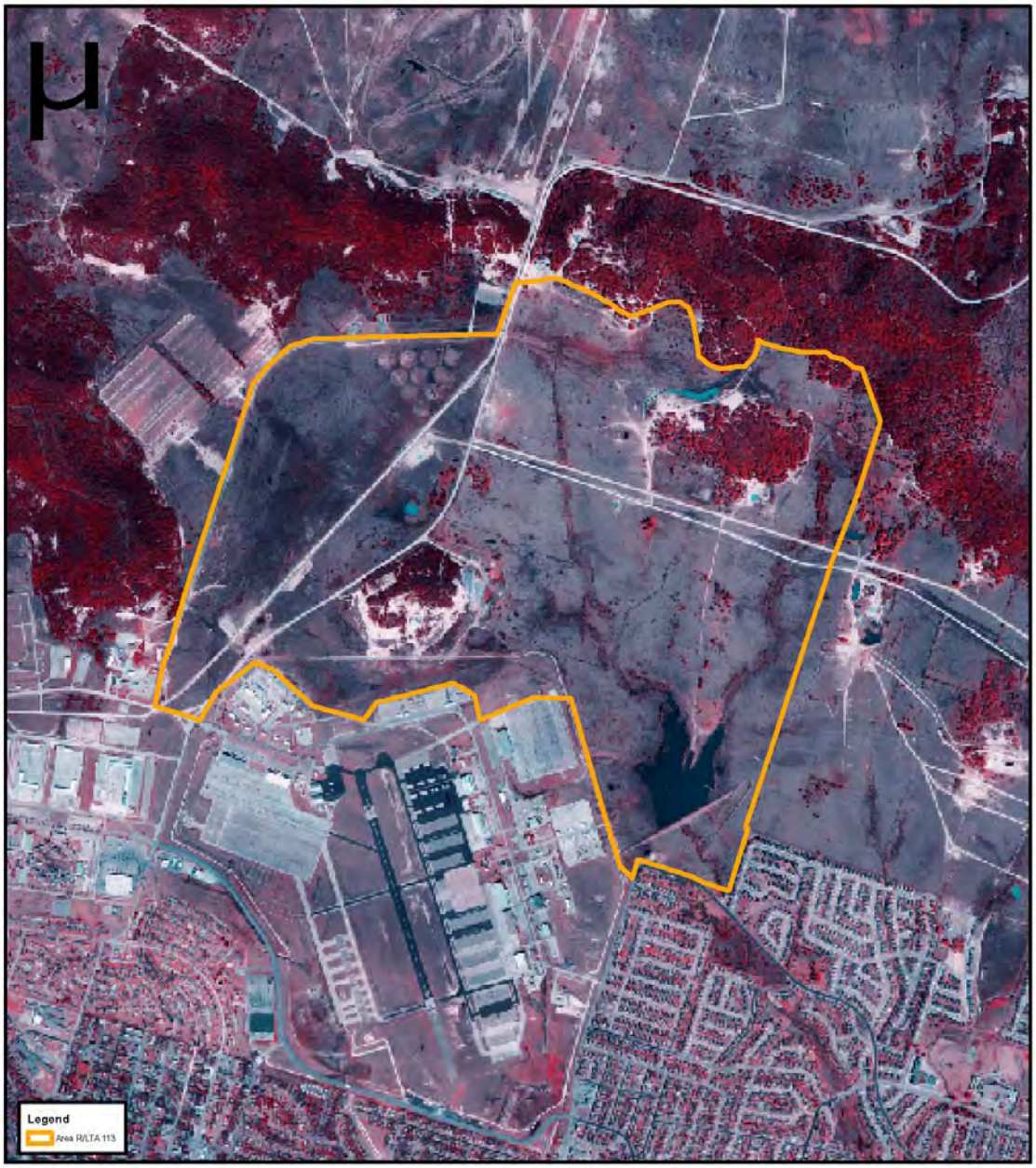
Figure 4. Project Area



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 0.25 0.5 Miles	1:24,000 Figure 4 of 23 October 3, 2007

A-4

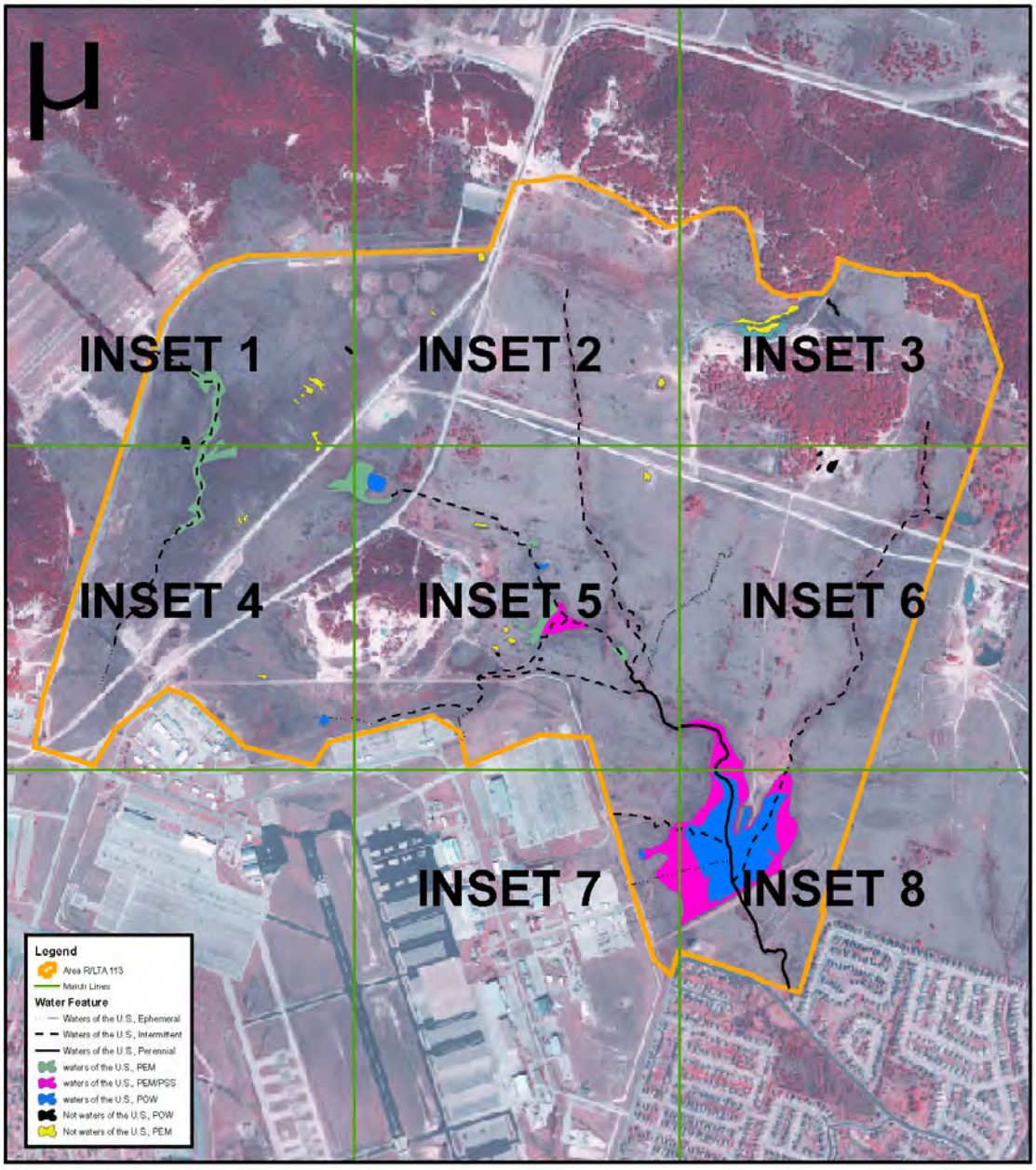
Figure 5. Project Area



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 0.25 0.5 Miles	1:24,000 Figure 5 of 23 October 3, 2007

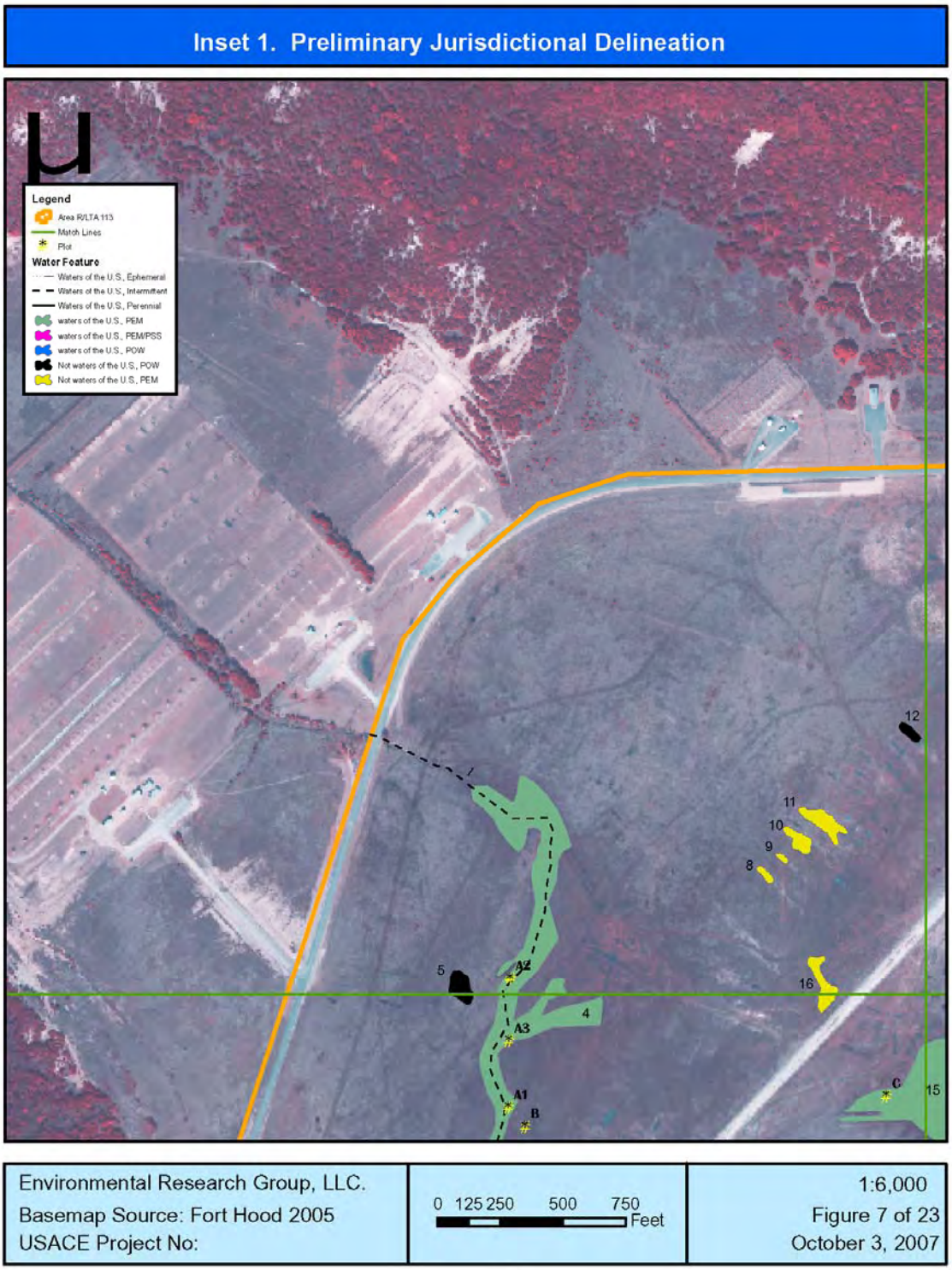
A-5

Figure 6. Preliminary Jurisdictional Delineation



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 500 1,000 2,000 Feet	1:18,000 Figure 6 of 23 October 3, 2007

A-6


Inset 1. Preliminary Jurisdictional Delineation
Legend
Area R/LTA 113
Match Lines
Plot
Water Feature
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Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
Not waters of the U.S., POW
Not waters of the U.S., PEM
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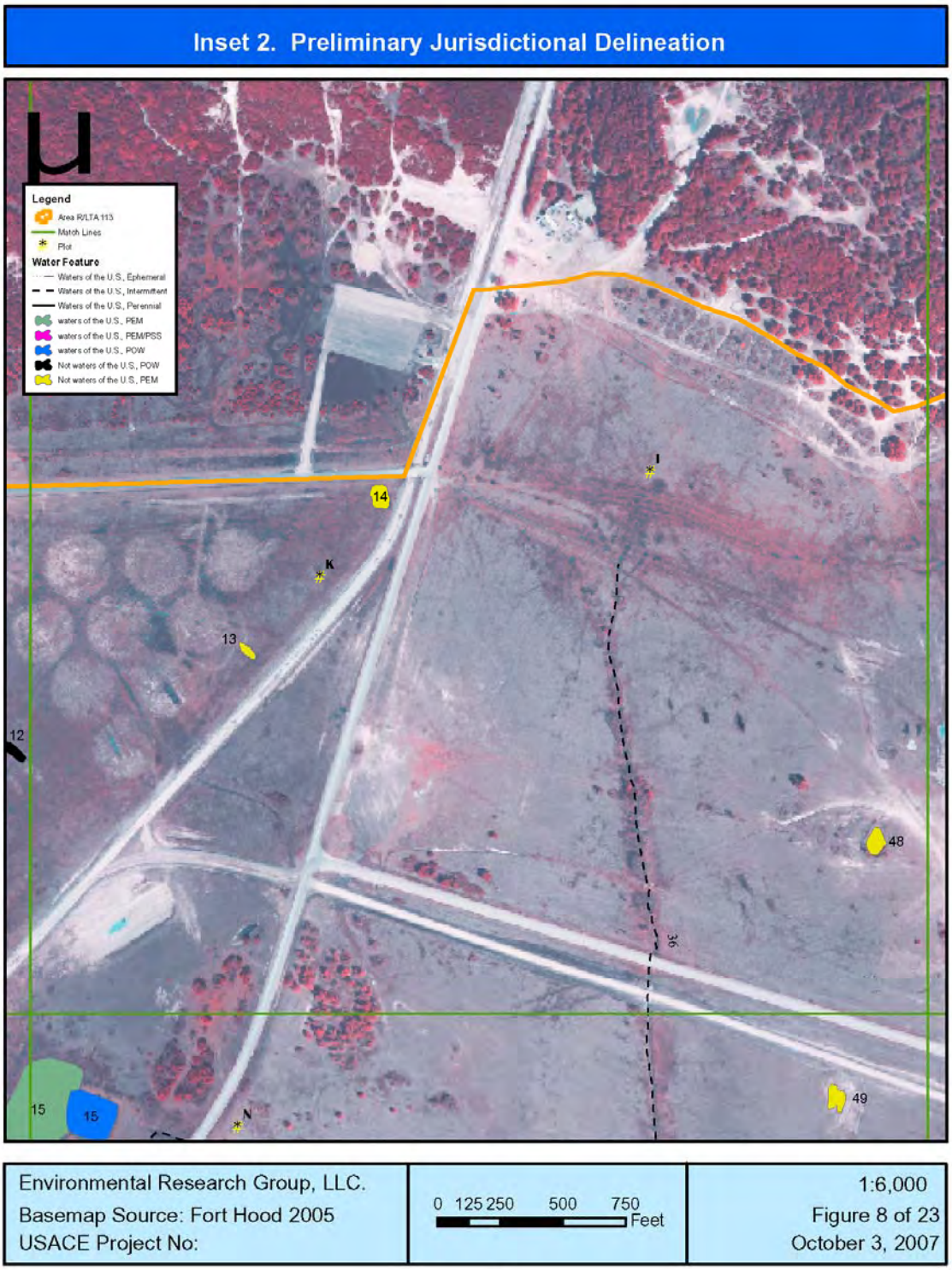
Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
0 125 250 500 750
Feet
1:6,000
Figure 7 of 23
October 3, 2007

A-7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Area R/LTA 113
Match Lines
Plot
Water Feature
Waters of the U.S., Ephemeral
Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
Not waters of the U.S., POW
Not waters of the U.S., PEM
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Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
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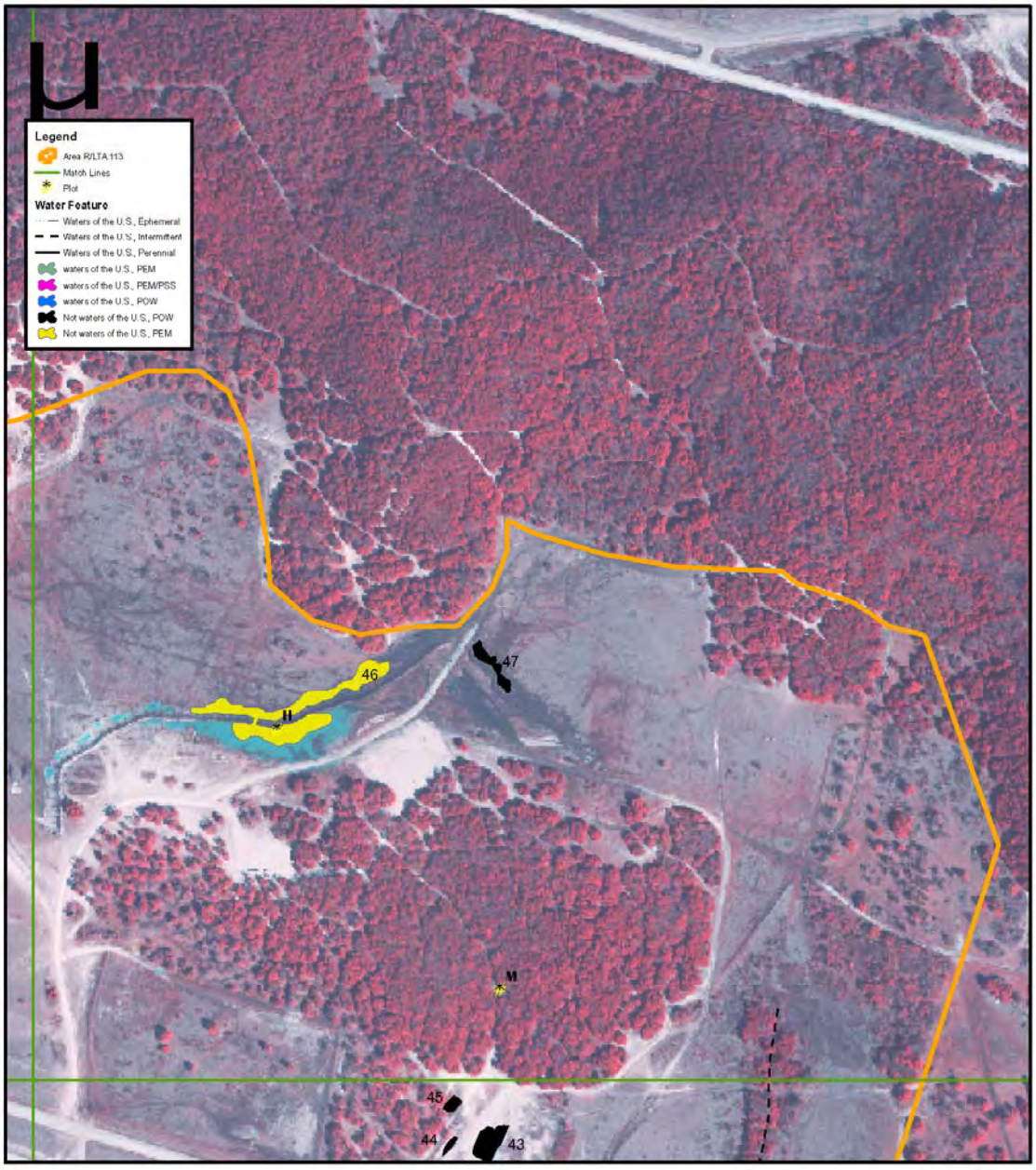
Feet
1:6,000
Figure 8 of 23
October 3, 2007

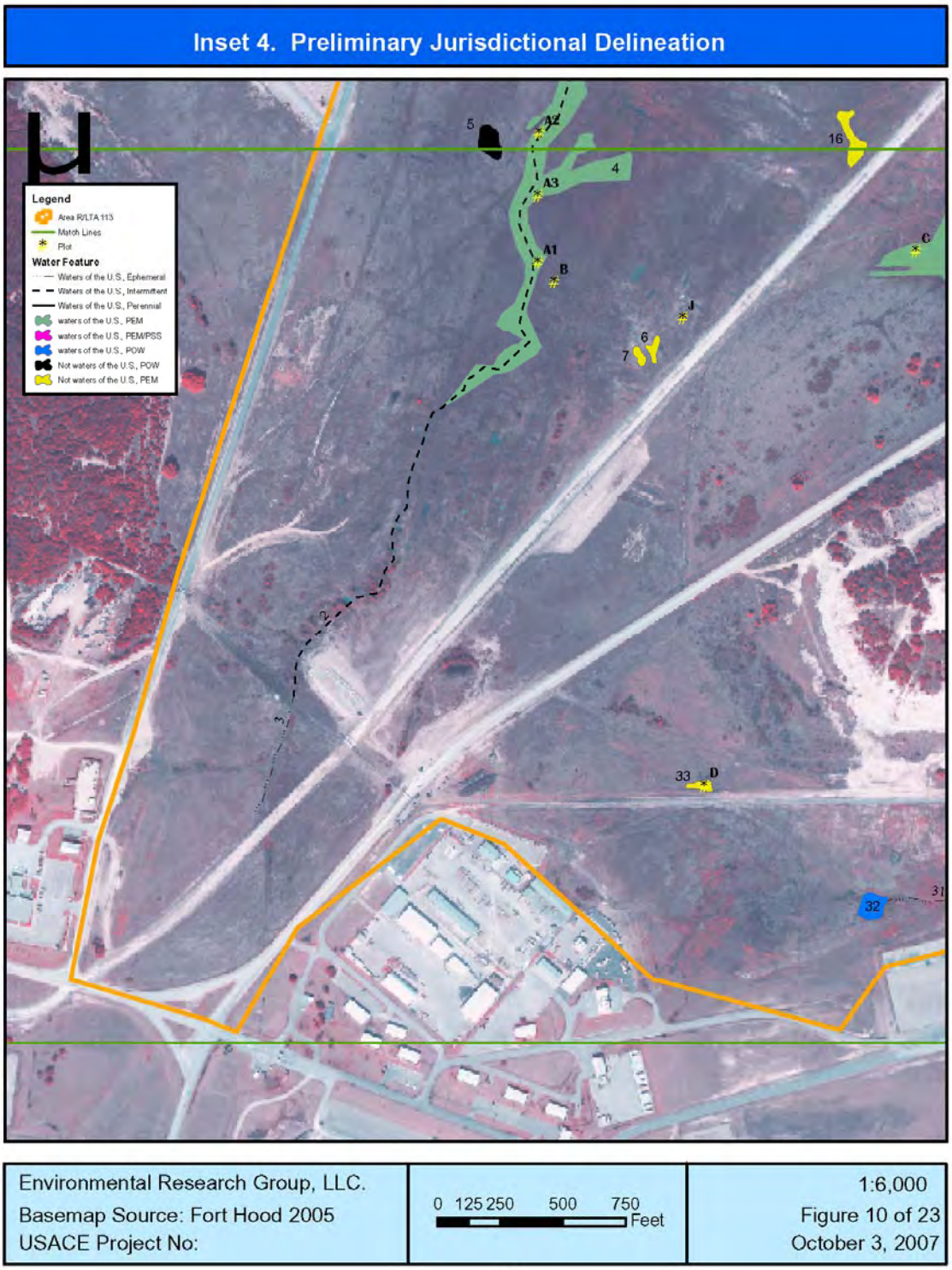
A-8

Inset 3. Preliminary Jurisdictional Delineation



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 9 of 23 October 3, 2007

A-9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Area R/LTA 113
Match Lines
Plot
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Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
Not waters of the U.S., POW
Not waters of the U.S., PEM
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Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
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Feet
1:6,000
Figure 10 of 23
October 3, 2007

A-10

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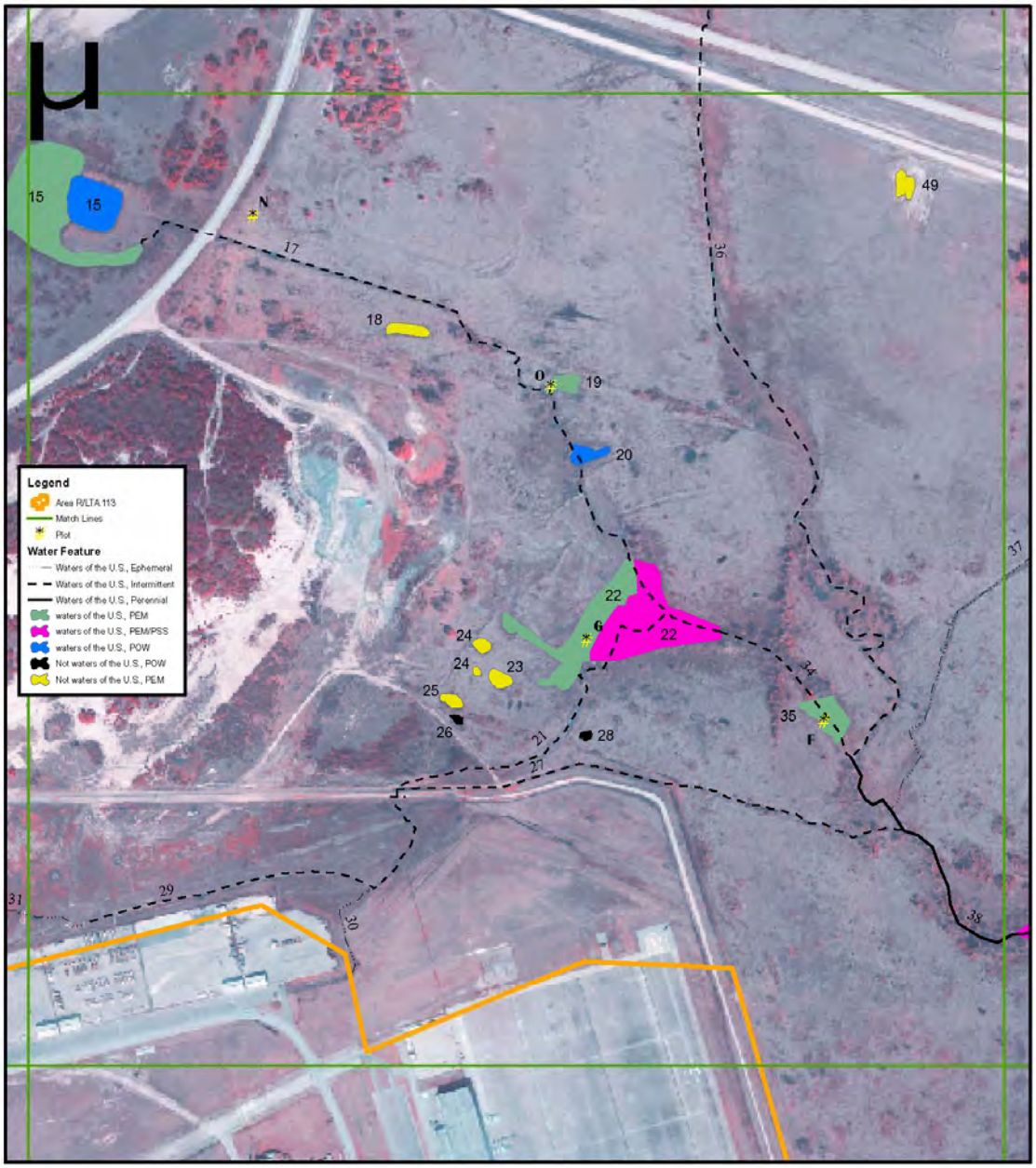

Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 11 of 14 October 3, 2007

A-11

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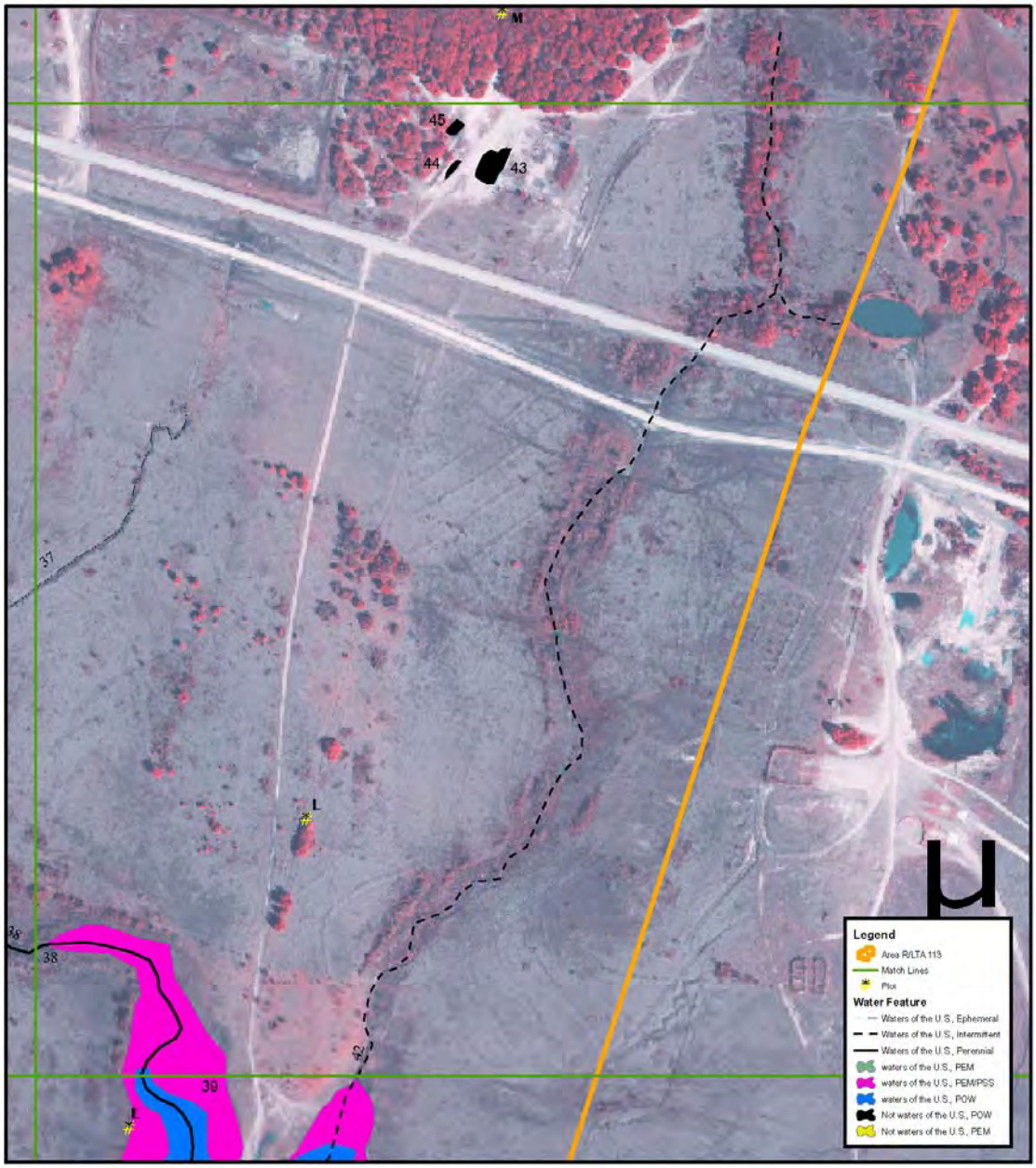

Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 12 of 23 October 3, 2007

A-12

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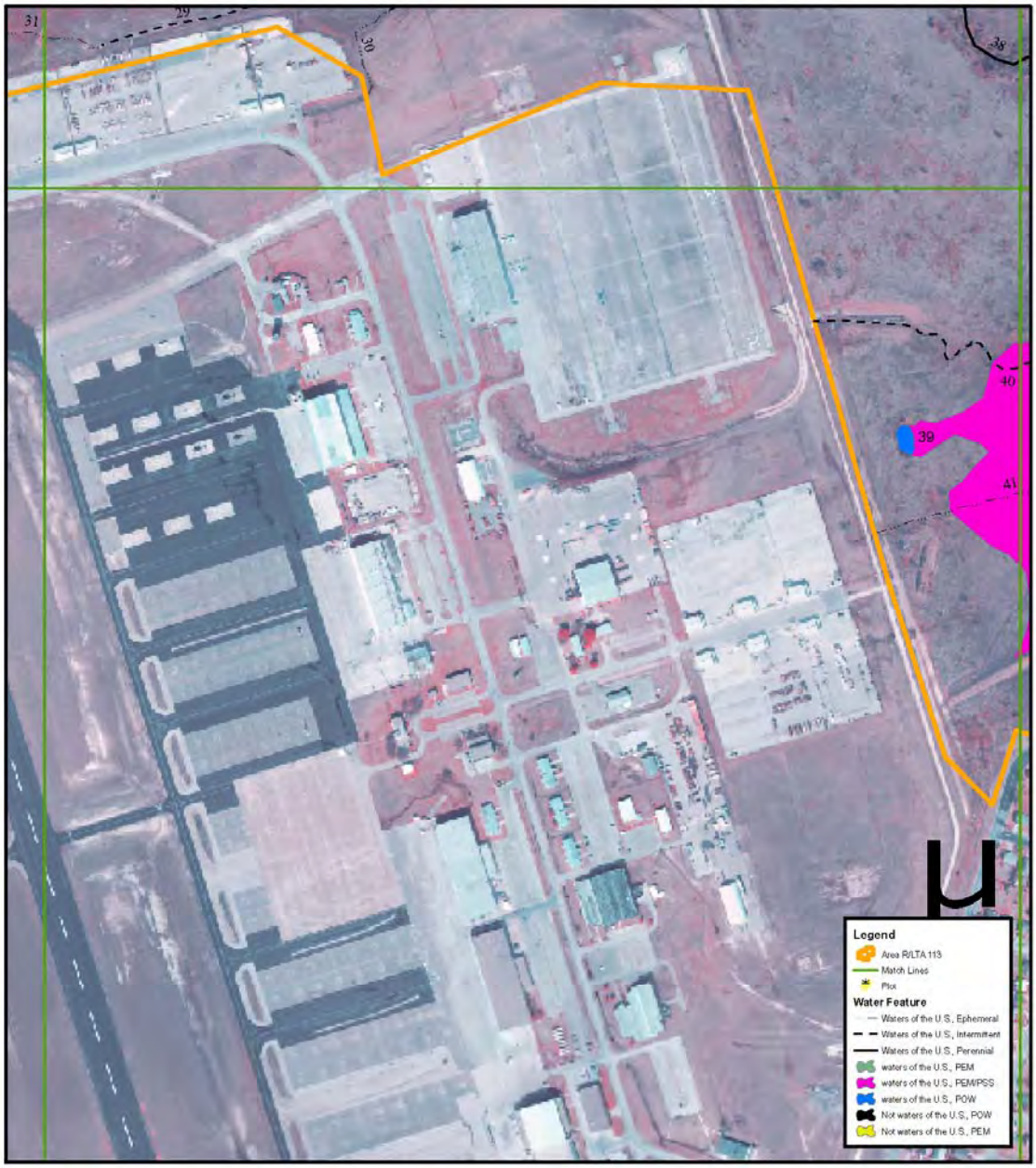
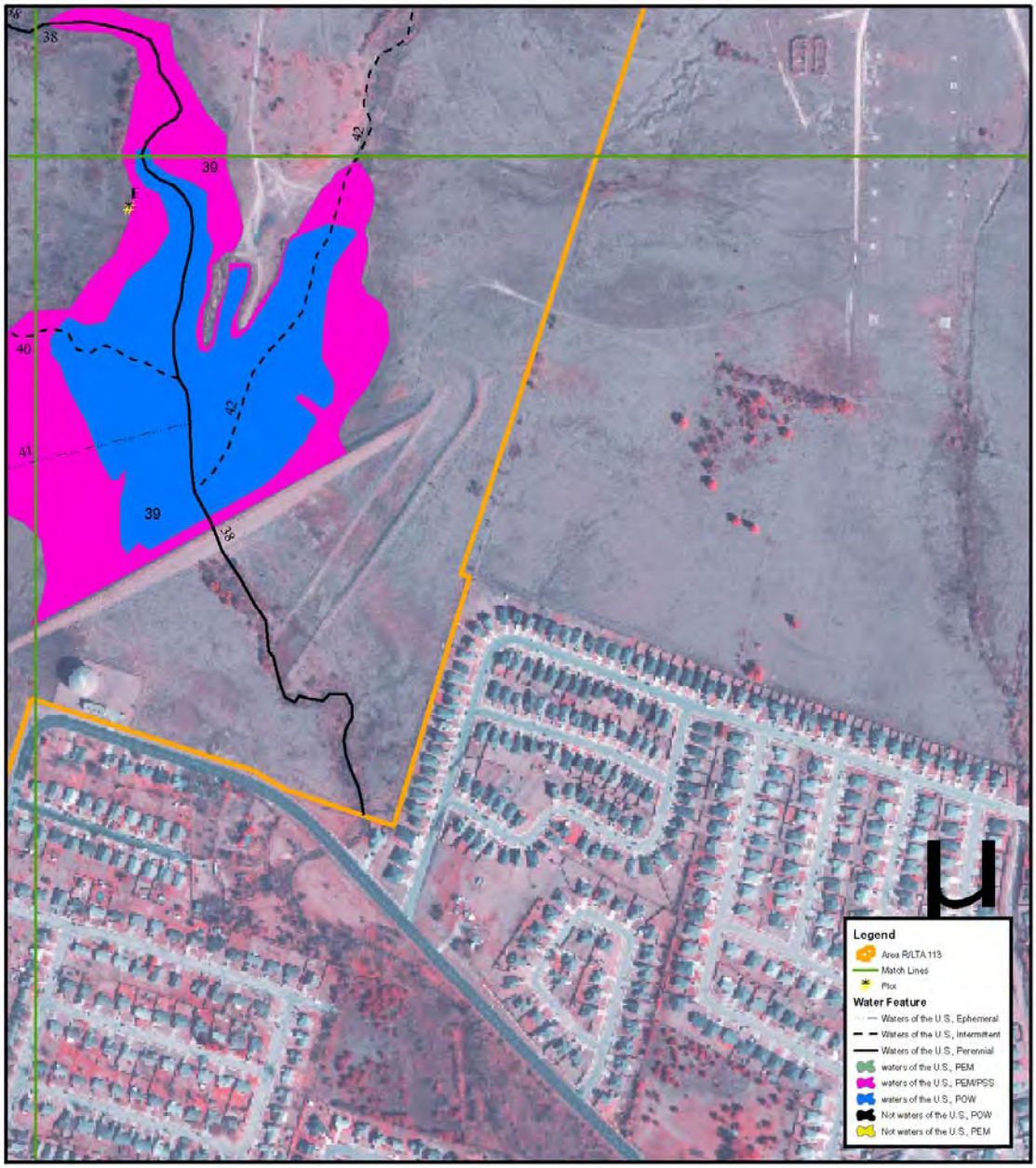


Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 13 of 23 October 3, 2007

A-13

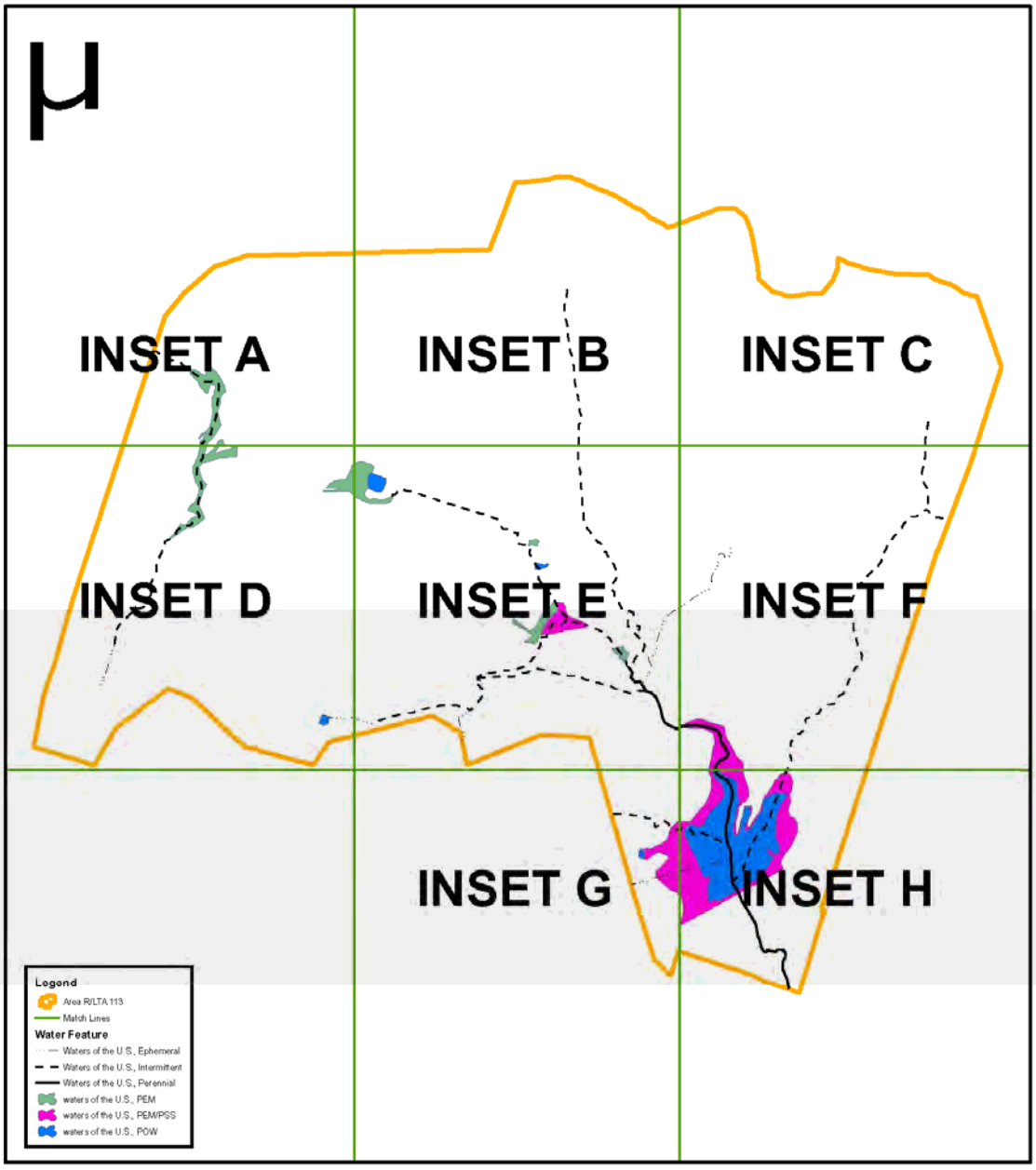
Inset 8. Preliminary Jurisdictional Delineation



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 14 of 23 October 3, 2007

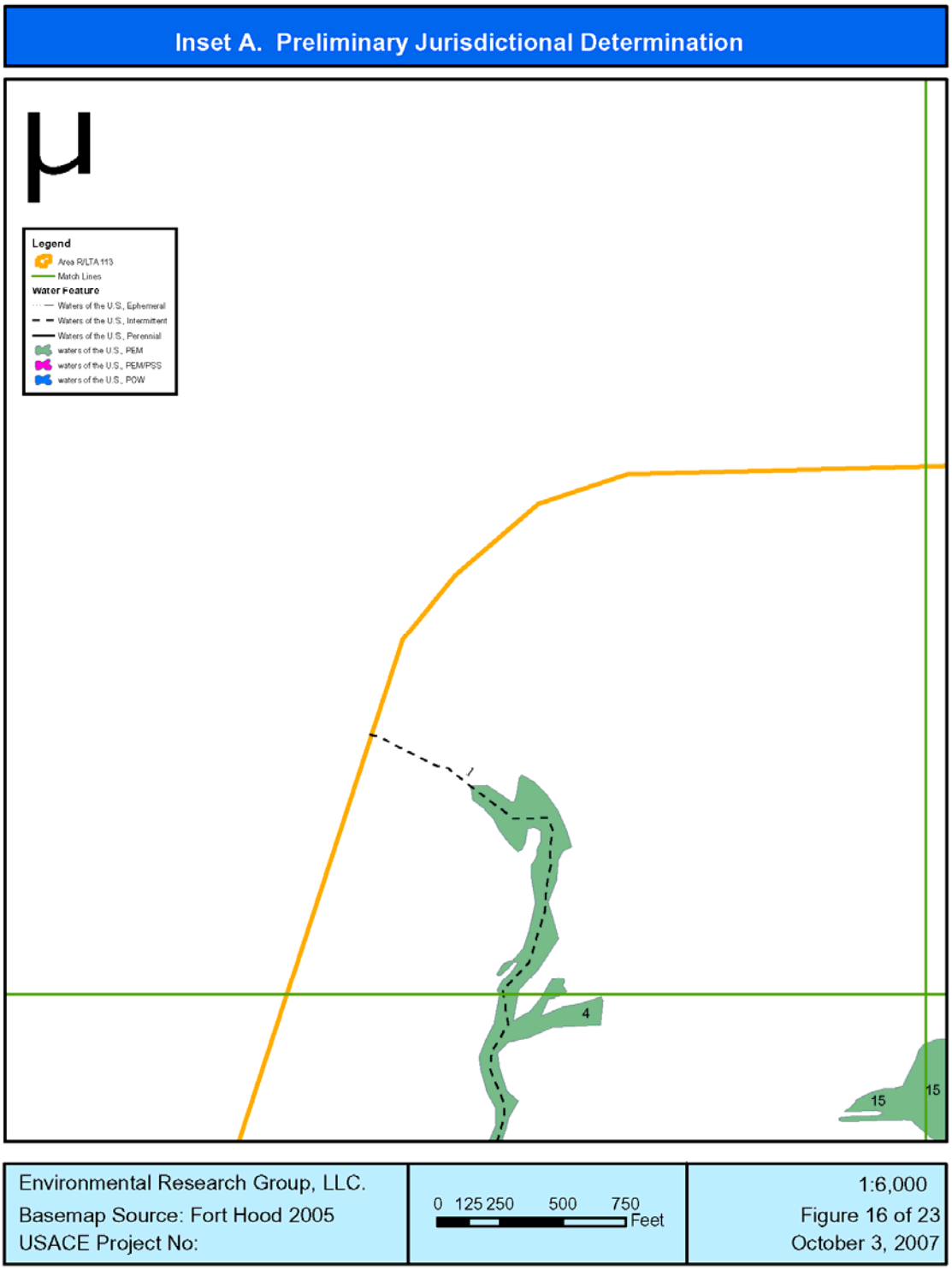
A-14

Figure 7. Preliminary Jurisdictional Determination



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 500 1,000 2,000 Feet	1:18,000 Figure 15 of 23 October 3, 2007

A-15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Match Lines
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Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
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Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
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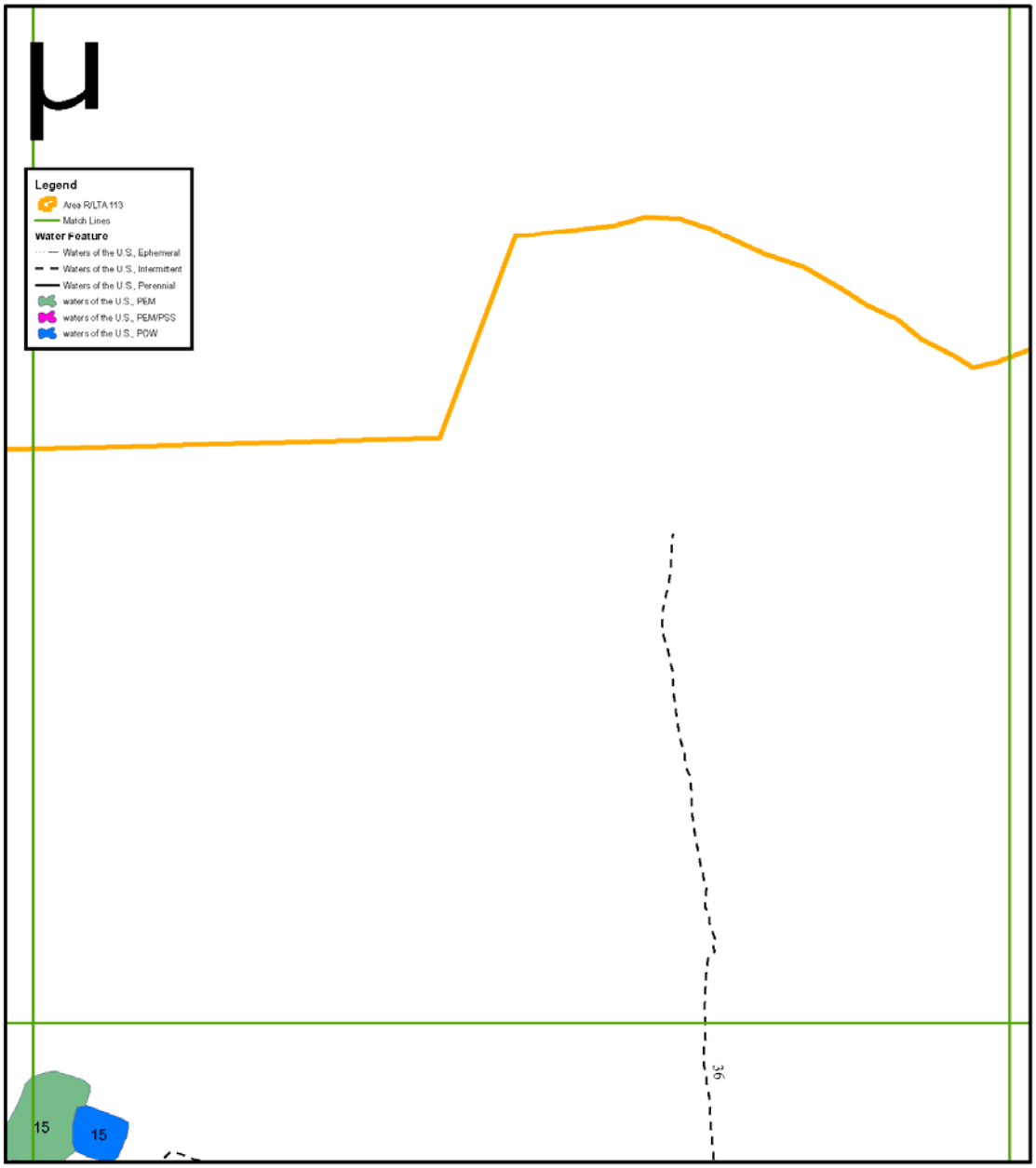
Figure 16 of 23
October 3, 2007

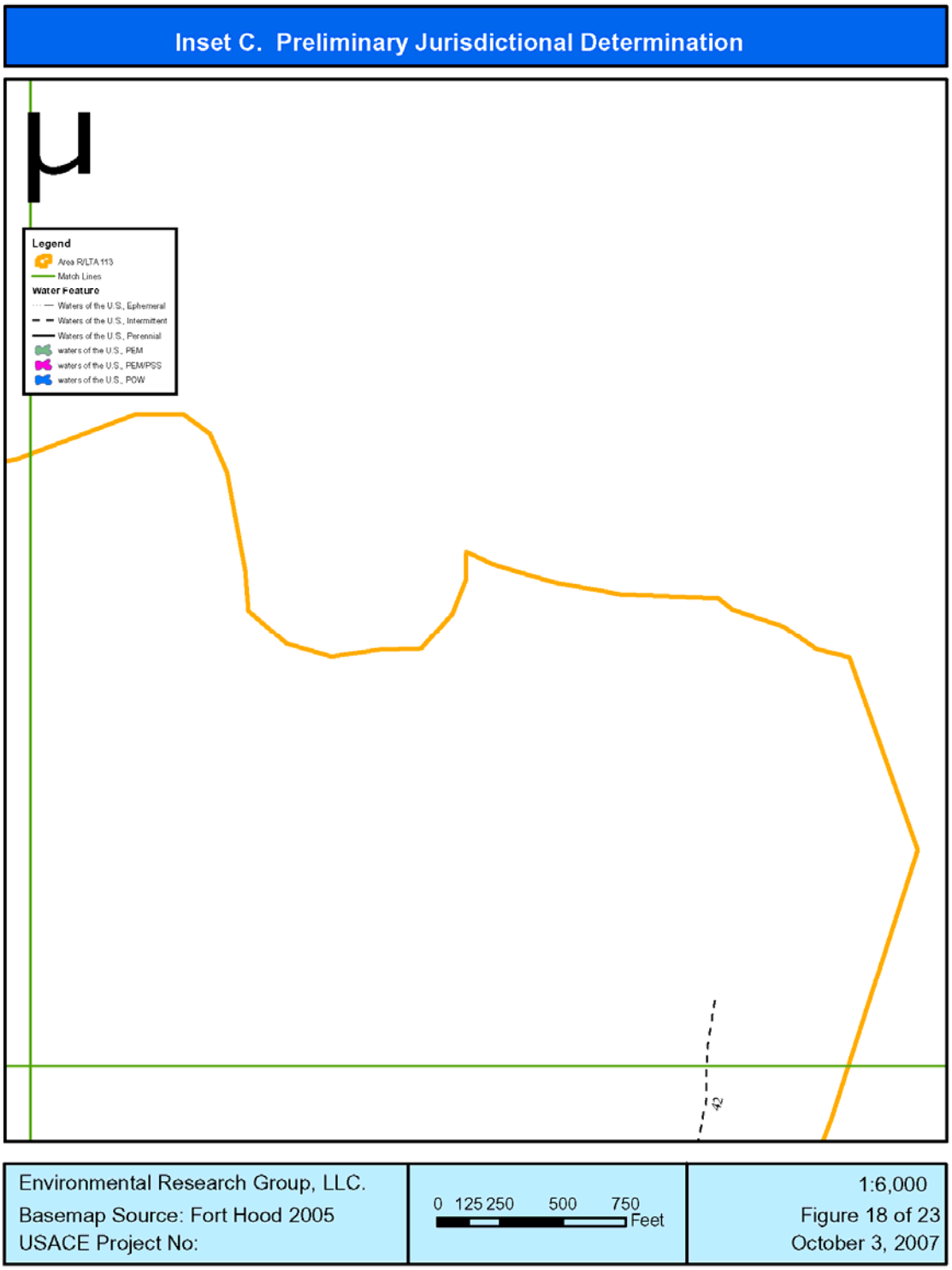
A-16

Inset B. Preliminary Jurisdictional Determination



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 17 of 23 October 3, 2007

A-17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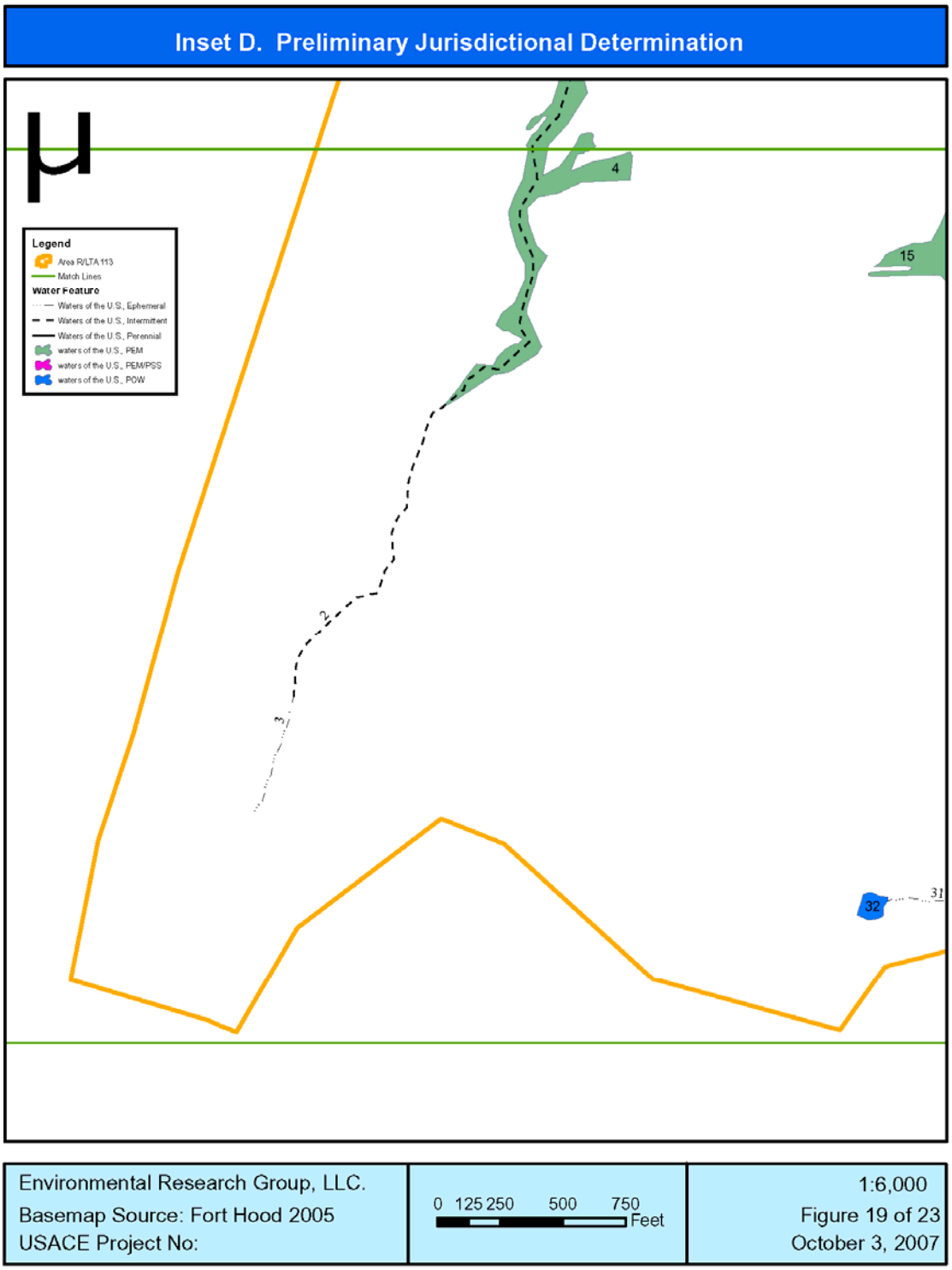
Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
42
Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
0 125 250 500 750
Feet
1:6,000
Figure 18 of 23
October 3, 2007

A-18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Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
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Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
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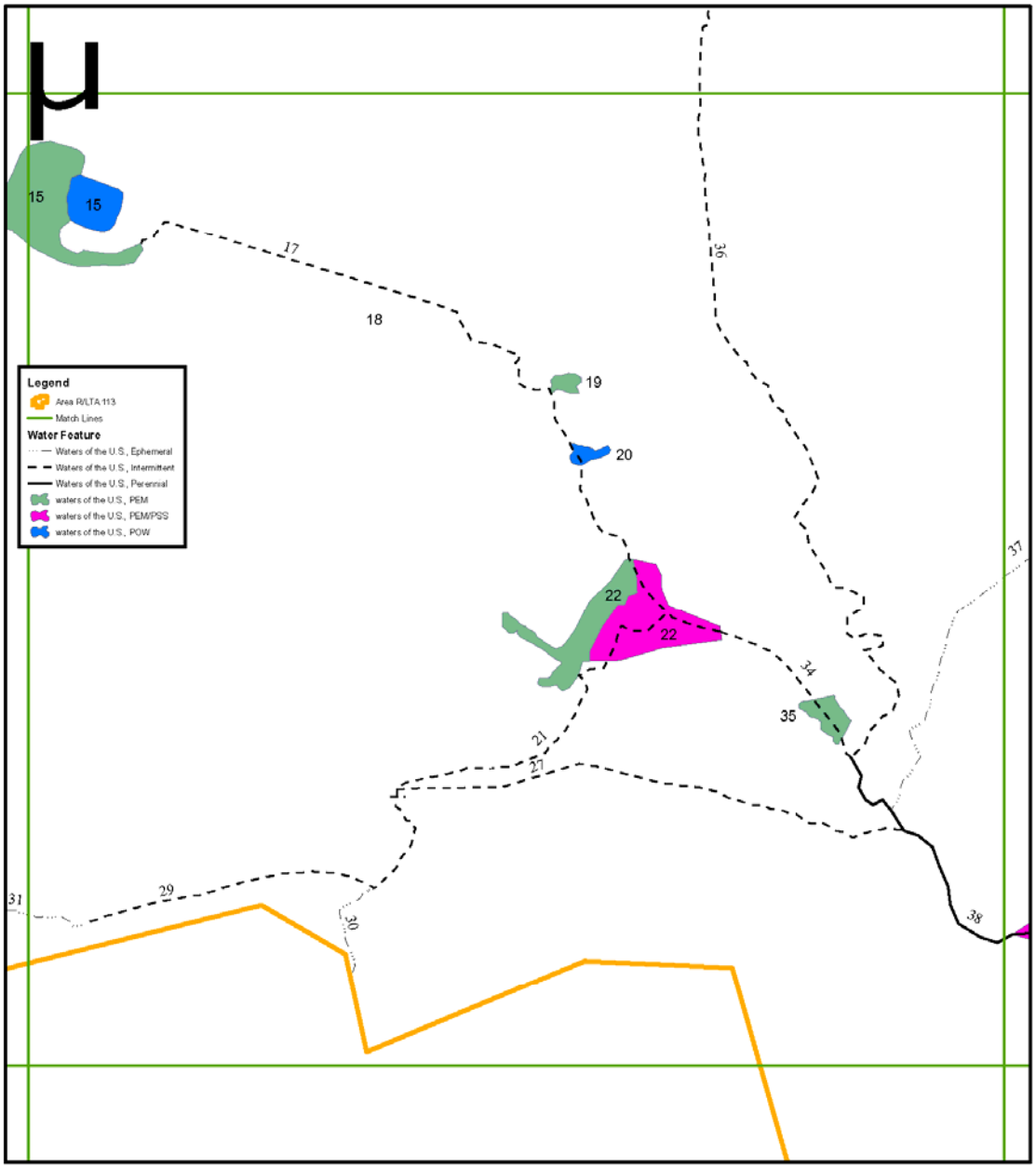
Feet
1:6,000
Figure 19 of 23
October 3, 2007

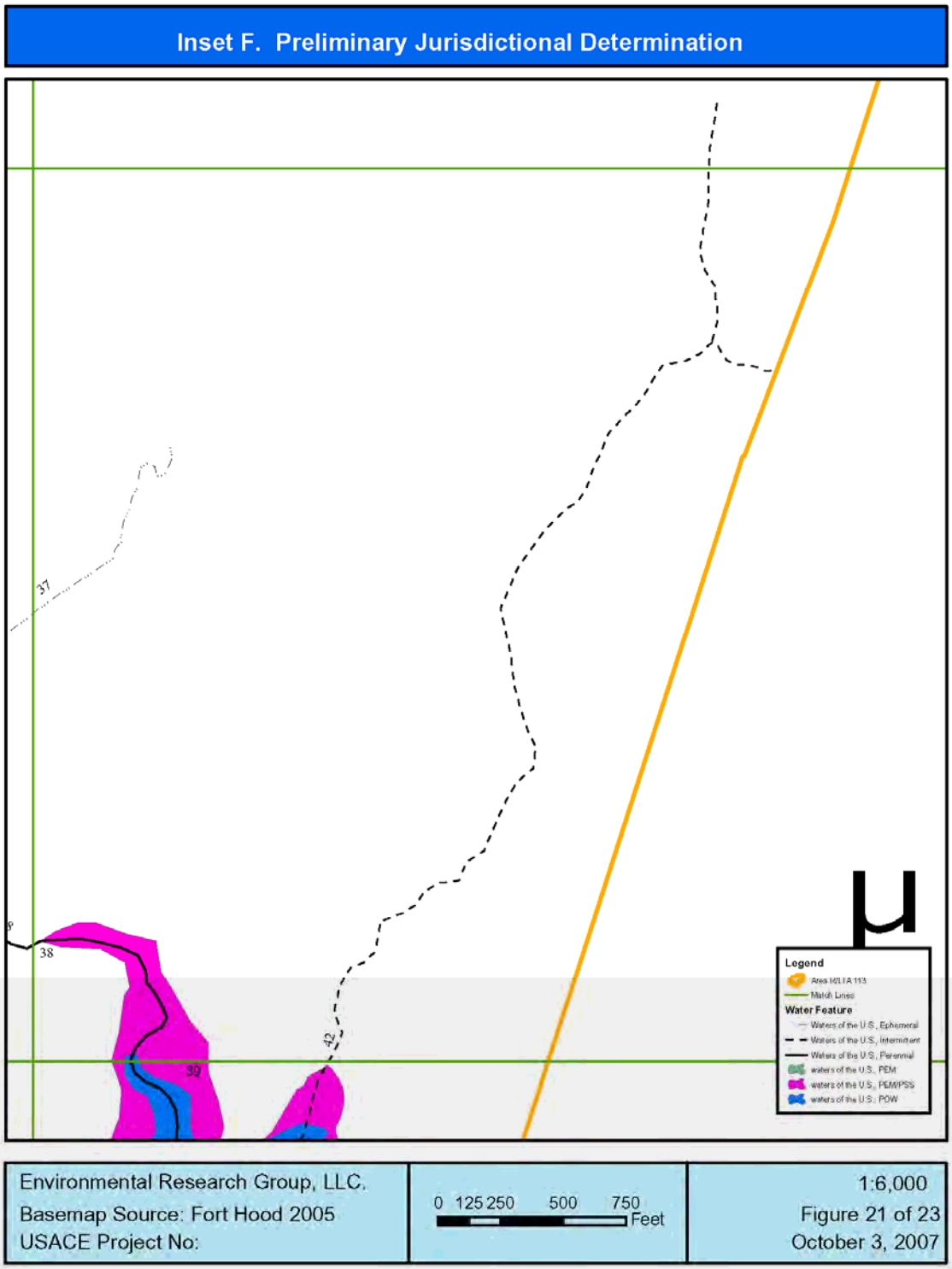
A-19

Inset E. Preliminary Jurisdictional Determination



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 20 of 23 October 3, 2007

A-20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Legend
Area MLTA 113
Match Lines
Water Feature
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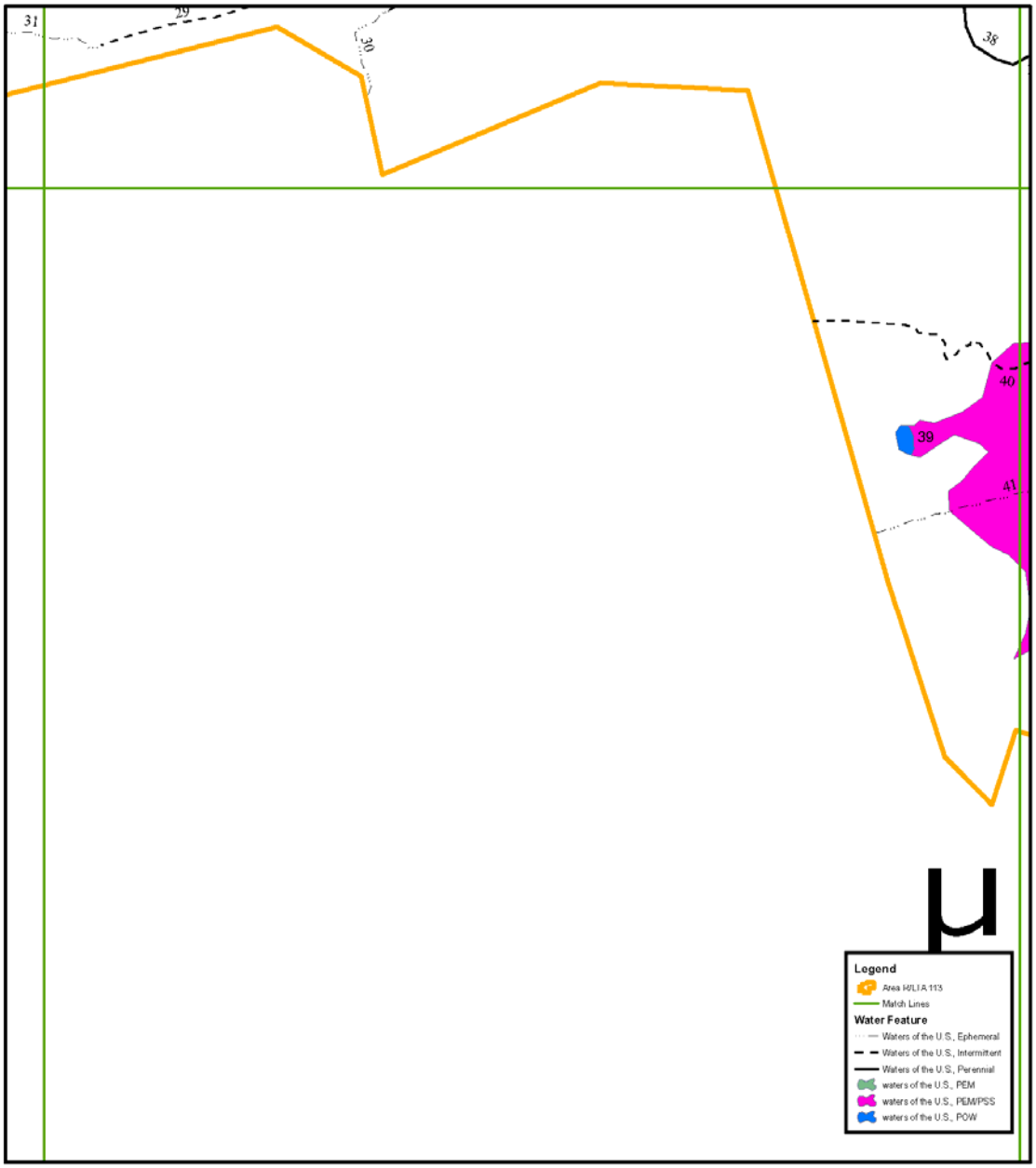
Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
0 125 250 500 750
Feet
1:6,000
Figure 21 of 23
October 3, 2007

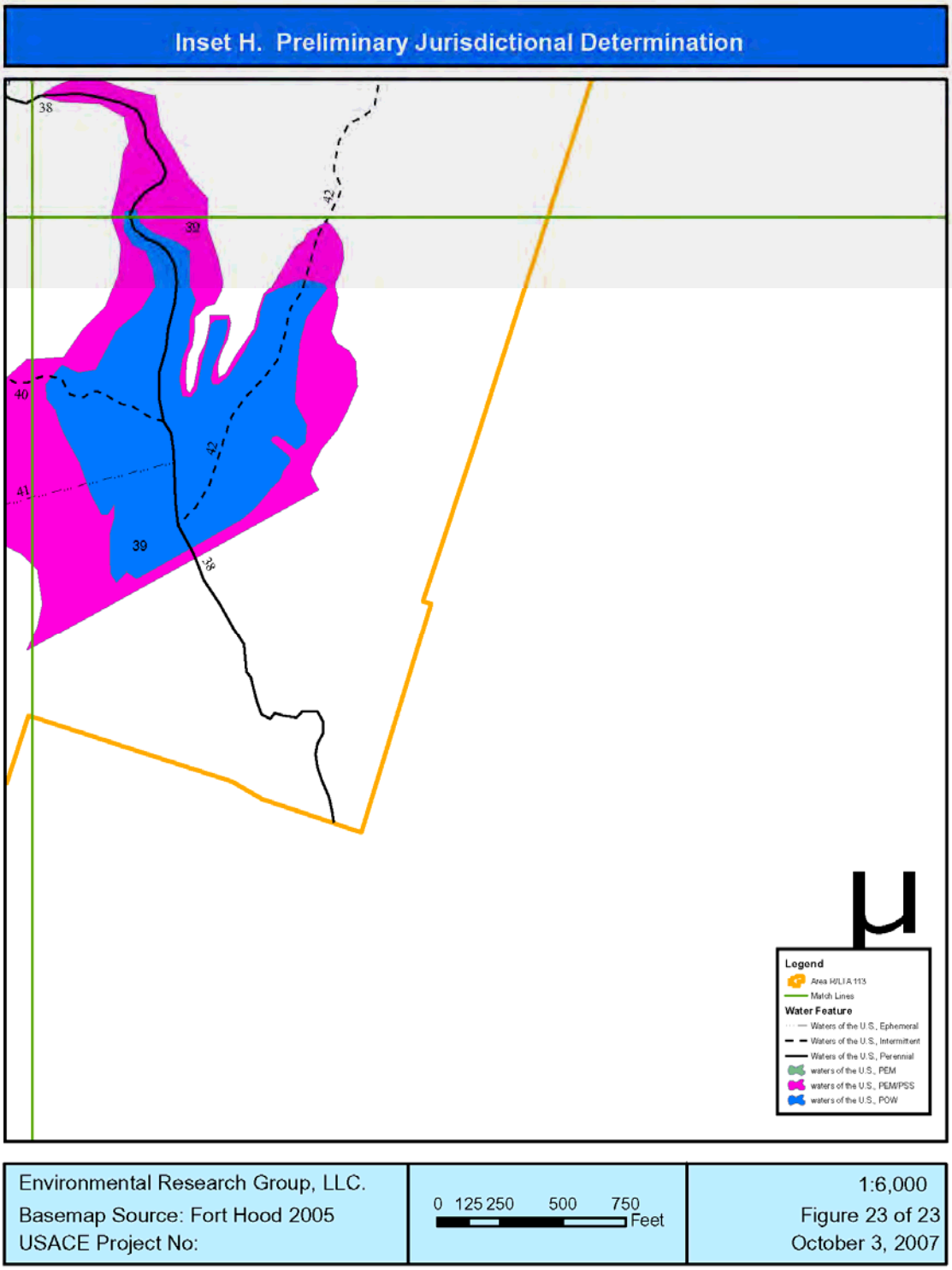
A-21

Inset G. Preliminary Jurisdictional Determination



Environmental Research Group, LLC. Basemap Source: Fort Hood 2005 USACE Project No:	0 125 250 500 750 Feet	1:6,000 Figure 22 of 23 October 3, 2007

A-22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Area HLA 113
Match Lines
Water Feature
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Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
0 125 250 500 750
Feet
1:6,000
Figure 23 of 23
October 3, 2007

A-23

APPENDIX B

Wetland Determination Forms and Plot Photographs

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 13
Applicant/Owner: Fort Hood
Investigator: Steve Smith, Mike Schulze

Date: 6-4-07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: A1

Water Feature 4

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eleocharis montevidensis	H	FACW+
2. Phyla nodiflora	H	FACW
3. Lythrum californicum	H	OBL
4. Iva annua	H	FAC
5. Sesbania vesicaria	H	FACt
6. Helianthus maximiliani	H	FACU-
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks: Large wetland complex in mid-grass prairie.

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: 4 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
___ Water Marks
X Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Primary and ~~secondary~~ indicators observed.
Intermittent stream spills overland through this feature.

SOILS PLOT A1

Map Unit Name (Series and Phase): KrB - Krum silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Vertic Haplustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	None	N/A	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Low-chroma observed. Bits of shell in soil column.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland
Large complex of intermittent stream spilling overland because of old roads/scars slowing water flow. Stream appears to regularly get out of banks.

Photo #10

Approved by HQUSACE 3/92

Plot A1. Water Feature 4 – Palustrine Emergent

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood
Investigator: Steve Smith, Mike Schulze

Date: 6/3/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: A2

Water Feature 4

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Iva annua	H	FAC
2. Eleocharis montevidensis	H	FACW+
3. Phyla nodiflora	H	FACW
4. Lythrum californicum	H	OBL
5. Juncus effusus	H	OBL
6. Malva neglecta	H	UPL
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks: Scars/old roads in mid-grass prairie

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: 4 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
X Water Marks
___ Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Primary indicators observed.
Intermittent stream spills overland because of scars/old roads.

PLOT A2

SOILS

Map Unit Name (Series and Phase): KrB-Krum silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Vertic Haplustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	none	N/A	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Low-chroma observed.
Soil pit is inundated.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No
Hydric Soils Present?	(Yes) No	

Remarks: All criteria met → wetland.
Large complex formed by intermitten stream spilling overland due to old roads/scars.

Photo #4

Approved by HQUSACE 3/92

Plot A2. Water Feature 4 – Palustrine Emergent

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113
Applicant/Owner: Fort Hood
Investigator: Steve Smith, Mike Schulze

Date: 6/3/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: A3

Water Feature 4

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eleocharis montevidensis	H	FACW+
2. Phyla nodiflora	H	FACW
3. Sesbania vesicaria	S	FAC+
4. Juncus effusus	H	OBL
5. Iva annua	H	FAC
6. Lythrum californicum	H	OBL
7. Setaria glauca	H	FAC
8. Typha latifolia	S	OBL
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 8/8 = 100%

Remarks: Mid-grass prairie

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: 4 (in.)
Depth to Free Water in Pit: Surface (in.)
Depth to Saturated Soil: Surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
X Water Marks
X Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Primary indicators observed.
Old road is slowing water.

PLOT A3

SOILS

Map Unit Name (Series and Phase): KrB- Krum silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Vertic Haplustalls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	NONE	N/A	Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Low-chroma observed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland.
Wetland complex formed by intermittent stream spilling overland due to old scar/roads.

Photo #5

Approved by HQUSACE 3/92

Plot A3. Water Feature 4 – Palustrine Emergent

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schulze, Steve Smith

Date: 6/4/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: UPL
Transect ID:
Plot ID: B

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Helianthus maximiliani	H	FACU-
2. Gaillardia pulchella	H	UPL
3. Mimosa roemeriana	H	UPL
4. Grindelia lanceolata	H	UPL
5. Dracopis amplexicaulis	H	UPL
6. Bouteloua/Dalea obtusifolium	H	UPL
7. Bothriochloa ischaemum	H	UPL
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0/7 = 0%

Remarks: Mid-grass prairie adjacent to water feature 4.

HYDROLOGY

- ✓ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ✓ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: NONE (in.)
- Depth to Free Water in Pit: >16 (in.)
- Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No indicators observed.

PLOT B

SOILS

Map Unit Name (Series and Phase): KrB - Krum silty clay, 1 to 3% slopes
Drainage Class: well drained
Field Observations Confirm Mapped Type? Yes No
Taxonomy (Subgroup): Vertic Haplustolls

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 4/1	none	N/A	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Low-chroma observed.
Small bits of shell in soil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? Yes (NO)

Remarks: Not all criteria met → upland.

Photo # 11

Approved by HQUSACE 3/92

Plot B. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schuke, Steve Smith

Date: 6/4/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM/POW
Transect ID:
Plot ID: C

WATER Feature 15

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eleocharis montevidensis	H	FACW+
2. Phyla nodiflora	H	FACW
3. Iva annua	H	FAC
4. Typha latifolia	H	OBL
5. Lythrum californicum	H	OBL
6. Diospyros virginiana	T/S	FAC
7. Salix nigra	T	OBL
8. Sesbania vesicaria	S	FAC+
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 8/8 = 100%

Remarks: Mid-grass prairie

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
__ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
__ Other
__ No Recorded Data Available

Field Observations:
Depth of Surface Water: 6 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
X Water Marks
__ Drift Lines
X Sediment Deposits
__ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
__ Oxidized Root Channels in Upper 12 Inches
__ Water-Stained Leaves
__ Local Soil Survey Data
__ FAC-Neutral Test
__ Other (Explain in Remarks)

Remarks: Primary indicators observed.
Water backs up from pond (POW) and flows around pond.

PLOTC

SOILS

Map Unit Name (Series and Phase): KrB - Krum silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Vertic Haplustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description: Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 5/1	NONE	N/A	Clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Low-chroma observed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland
Levee around stock pond backs up water which spills out and around pond. Flows into Water Feature 17, an intermittent stream.

Photo #17 Plot Photo #19 POW - POND

Approved by HQUSACE 3/92

Plot C. Water Feature 15 – Palustrine Emergent

Water Feature 15 – Palustrine Open Water

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood
Investigator: Steve Smith, Mike Schulze

Date: 6/4/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: D

Water Feature #33

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eleocharis montevidensis	H	FACW+
2. Lythrum californicum	H	OBL
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: Emergent area in mid-grass prairie

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: 3 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Isolated depression at perimeter fence where water backs up. Primary indicators observed.

SOILS PLOT D

Map Unit Name (Series and Phase): DeB - Denton silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Typic Calciustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 4/1	NONE	N/A	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Low-chroma observed.
Gravel in soil column.

WETLAND DETERMINATION

		(Circle)
Hydrophytic Vegetation Present?	(Yes) No	
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	
Is this Sampling Point Within a Wetland?	(Yes) No	

Remarks: All criteria met → wetland
Wetland is isolated by perimeter fence construction and presence of bedrock at surface below perimeter fence. No connection to other waters.
Photo #21

Approved by HQUSACE 3/92

Plot D. Water Feature 33 – Palustrine Emergent

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schulze, Steve Smith

Date: 6/4/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM/PSS/POW
Transect ID:
Plot ID: E

Water Feature 39

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Salix nigra	T/S	OBL
2. Sapium sebiferum	T/S	FACU+
3. Cephalanthus occidentalis	S	OBL
4. Iva annua	H	FAC
5. Eleocharis montevidensis	H	FACW+
6. Polygonum hydropiperoides	H	OBL
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 5/6 = 83%

Remarks: Area around Airfield Lake (POW). PEM/PSS surrounding open water of lake. Mid-grass prairie adjacent. Little to no herbaceous from inundation.

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: NONE (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
X Water Marks
X Drift Lines
X Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Primary indicators observed.

PLOT E

SOILS

Map Unit Name (Series and Phase): SIB - Slidell silty clay, 1 to 3% slopes
Drainage Class: well drained
Field Observations
Confirm Mapped Type? Yes No
Taxonomy (Subgroup): Udic Pellusterts

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/1	NONE	N/A	clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
X Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Low-chroma observed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

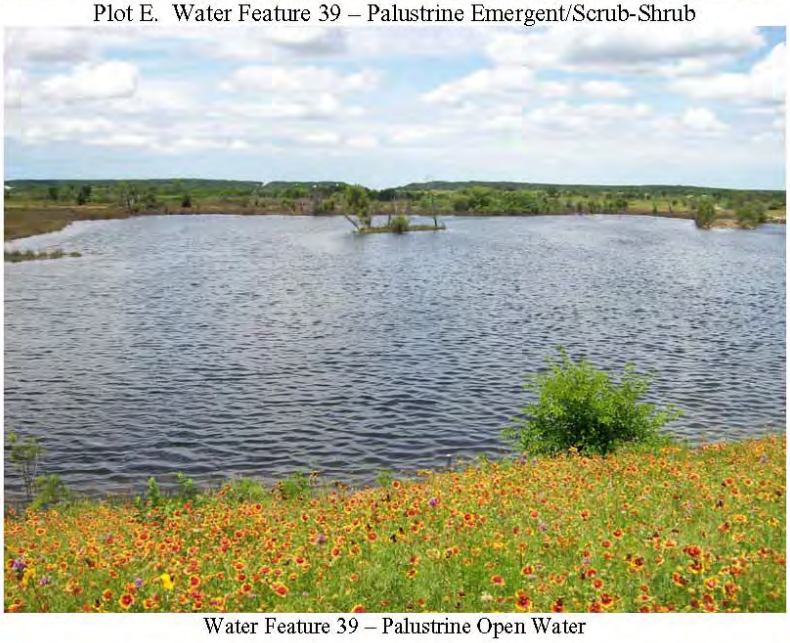
(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland.
Airfield Lake - perennial open water
PEM/PSS surrounding perimeter of open water.

Photo # 22 POW (Airfield Lake) Photo # 26 PEM/PSS - PLOT E

Approved by HQUSACE 3/92

Plot E. Water Feature 39 – Palustrine Emergent/Scrub-Shrub



Water Feature 39 – Palustrine Open Water

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood, [redacted]
Investigator: Mike Schulze, Steve Smith

Date: 6/4/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: F

Water Feature 35

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Eleocharis montevidensis	H	FACW+
2. Allium canadense	H	FACU-
3. Cephalanthus occidentalis	S	OBL
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/3 = 67%

Remarks: Emergent area along Water Feature 34 (Intermittent Stream)

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: 6 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
___ Water Marks
X Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Primary indicators observed.

PLOT F

SOILS

Map Unit Name (Series and Phase): SIB - Slidell silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Udic Pellusterts
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil pit inundated. Assumed to be hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No (Circle)	(Circle)
Wetland Hydrology Present?	(Yes) No	Is this Sampling Point Within a Wetland? (Yes) No
Hydric Soils Present?	(Yes) No	

Remarks: All criteria met → wetland
Emergent area along stream where water pools.

Photo #28

Approved by HQUSACE 3/92

Plot F. Water Feature 35 – Palustrine Emergent

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schulze, Steve Smith

Date: 6/4/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM/PSS
Transect ID:
Plot ID: G

Water Feature 22

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Celtis laevigata	T/S	FAC
2. Baccharis neglecta	S	FAC
3. Cephalanthus occidentalis	S	OBL
4. Lythrum californicum	H	OBL
5. Eleocharis montevidensis	H	FACW+
6. Eleocharis palustris	H	OBL
7. Ambrosia artemisiifolia	H	FACU-
8. Polygonum hydropiperoides	H	OBL
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 7/8 = 88 %

Remarks: Emergent / Scrub-shrub area at confluence of Water Features 21 and 17. Diospyros virginia, Salix nigra, Populus deltoides present, but not dominant.

HYDROLOGY

- ✓ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ✓ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 4 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- X Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Confluence of two streams. Primary indicators observed.

PLOT G

SOILS

Map Unit Name (Series and Phase): SIB - Slidell silty clay, 1 to 3 % slopes
Drainage Class: well drained
Taxonomy (Subgroup): Udic Pellusterts
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 5/1	N/A	N/A	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Soil sample pit is inundated.
Low-chroma observed.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland.
Area at confluence of two streams with frequent out of bank flow.

Photo #33

Approved by HQUSACE 3/92

Plot G. Water Feature 22 – Palustrine Emergent/Scrub-Shrub

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schulze, Steve Smith

Date: 6/5/09
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: H

Water Feature 46

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Scirpus pendulus	H	OBL
2. Eleocharis montevidensis	H	FACW+
3. Iva annua	H	FAC
4. Ambrosia artemisiifolia	H	FACU-
5. Salix nigra	S	OBL
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 4/5 = 80%

Remarks: Mid-grass prairie where area has been scraped with bulldozer and berm created from construction/training.

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: 6 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
X Inundated
X Saturated in Upper 12 Inches
___ Water Marks
X Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Primary indicators observed. Area is isolated and incidental to construction/training.

PLOT H1

SOILS

Map Unit Name (Series and Phase): SIB - Slidell silty clay, 1 to 3% slopes
Drainage Class: well drained
Field Observations Confirm Mapped Type? Yes No
Taxonomy (Subgroup): Udic Pellusterts

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 2/1	NONE	N/A	clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Low-chroma observed.
Gravel and shell in soil column.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland.
Isolated from other waters in an upland.

Photo #52

Approved by HQUSACE 3/92

Plot H. Water Feature 46 – Palustrine Emergent

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schulze, Steve Smith

Date: 6/5/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? Yes No
Is the site significantly disturbed (Atypical Situation)? Yes No
Is the area a potential Problem Area? Yes No
(If needed, explain on reverse.)

Community ID: UPL
Transect ID:
Plot ID: I

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Grindelia lanceolata	H	UPL
2. Helianthus maximiliani	H	FACU-
3. Gaillardia pulchella	H	UPL
4. Dracopsis amplexicaulis	H	UPL
5. Bothriochloa ischaemum	H	UPL
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 0/5 = 0%

Remarks: Mid-grass prairie

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: NONE (in.)
Depth to Free Water in Pit: 7/16 (in.)
Depth to Saturated Soil: 7/16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: No indicators observed.

PLOT 1

SOILS

Map Unit Name (Series and Phase): SIB - Slidell silty clay, 1 to 3% slopes
Drainage Class: well drained
Field Observations Confirm Mapped Type? Yes No
Taxonomy (Subgroup): Udic Pellusterts

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/2	None	N/A	clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No) (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)
Hydric Soils Present?	Yes (No)	

Remarks: No criteria met → upland.

Photo #55

Approved by HQUSACE 3/92

Plot I. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113 Applicant/Owner: Fort Hood Investigator: Mike Schulze, Steve Smith	Date: 6/5/07 County: Bell State: TX
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: UPL Transect ID: Plot ID: J

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Grindelia lanceolata	H	UPL
2. Helianthus maximiliani	H	FACU-
3. Bothriochloa ischaemum	H	UPL
4. Schizachyrium scoparium	H	FACU+
5. Pseudognaphalium obtusifolium	H	UPL
6. Dracopsis amplexicaulis	H	UPL
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0/6 = 0%

Remarks: Mid-grass prairie

HYDROLOGY

Recorded Data (Describe in Remarks):
- ✓ Stream, Lake, or Tide Gauge
- ✓ Aerial Photographs
- Other
- No Recorded Data Available

Field Observations:
- Depth of Surface Water: None (in.)
- Depth to Free Water in Pit: >16 (in.)
- Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- Inundated
- Saturated in Upper 12 Inches
- Water Marks
- Drift Lines
- Sediment Deposits
- Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- Oxidized Root Channels in Upper 12 Inches
- Water-Stained Leaves
- Local Soil Survey Data
- FAC-Neutral Test
- Other (Explain in Remarks)

Remarks: No indicators observed

PLOT J

SOILS

Map Unit Name (Series and Phase): DeB - Denton silty clay, 1 to 3% slopes
Drainage Class: well drained
Field Observations Confirm Mapped Type? Yes No
Taxonomy (Subgroup): Typic Calciustolls

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/2	NONE	N/A	clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Caliche fragments in soil column.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks: Not all criteria met → upland

Photo #56

Approved by HQUSACE 3/92

Plot J. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schuba, Steve Smith

Date: 6/5/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: UPL
Transect ID:
Plot ID: R

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Rhus lanceolata	S	UPL
2. Liatris mucronata	H	UPL
3. Grindelia lanceolata	H	UPL
4. Bothriochloa ischaemum	H	UPL
5. Monarda citriodora	H	UPL
6. Gaillardia pulchella	H	UPL
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks: Mid-grass prairie

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
✓ Aerial Photographs
___ Other
___ No Recorded Data Available

Field Observations:

Depth of Surface Water: NONE (in.)
Depth to Free Water in Pit: >16 (in.)
Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: No indicators observed

SOILS PLOT K

Map Unit Name (Series and Phase): BtC2 - Brockett - Tassey Association, 3 to 8% slopes, eroded
Drainage Class: well drained
Taxonomy (Subgroup): Typic Usbchrepts / Typic Calciustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/3	NONE	N/A	clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Gravel throughout soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: No criteria met → upland.

Photo #57

Approved by HQUSACE 3/92

Plot K. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113
Applicant/Owner: Fort Hood
Investigator: Mike Schulze, Steve Smith

Date: 6/5/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: UPL
Transect ID:
Plot ID: L

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Quercus fusiformis	T	UPL
2. Ilex decidua	S	FACW-
3. Rhus lanceolata	S	UPL
4. Crataegus crus-galli	S	FAC-
5. Liatris mucronata	H	UPL
6. Bothriochloa ischaemum	H	UDL
7. Smilax bona-nox	V	FAC
8. Toxicodendron radicans	H	FAC

Dominant Plant Species	Stratum	Indicator
9. Vitis mustangensis	V	UPL
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/9 = 33%

Remarks: Mid-grass prairie with stand of live oak.

HYDROLOGY

- ✓ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ✓ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

- Depth of Surface Water: NONE (in.)
- Depth to Free Water in Pit: >16 (in.)
- Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No indicators observed

SOILS PLOT L

Map Unit Name (Series and Phase): BtC2 - Brackett - Tarpey Association, 3 to 8% slopes, eroded
Drainage Class: well drained
Taxonomy (Subgroup): Typic Ustochrepts / Typic Calciustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/3	NONE	N/A	clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Lots of gravel / caliche fragments in soil column.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: No criteria met → upland

Photo #58

Approved by HQUSACE 3/92

Plot L. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R/LTA 113 Applicant/Owner: Fort Hood Investigator: Mike Schulze, Steve Smith	Date: 6/5/06 County: Bell State: TX
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: UPL Transect ID: Plot ID: M

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Juniperus ashei	T	UPL
2. Mimosa roemeriana	H	UPL
3. Bothriochloa ischaemum	H	UPL
4. Ilex decidua	S	FACW-
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/4 = 25%

Remarks: Coniferous forest

HYDROLOGY

Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ✓ Aerial Photographs
- ___ Other
- ___ No Recorded Data Available

Field Observations:
- Depth of Surface Water: NONE (in.)
- Depth to Free Water in Pit: >16 (in.)
- Depth to Saturated Soil: >16 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No indicators observed.

PLOT M

SOILS

Map Unit Name (Series and Phase): EcB - Eckrant cobbly silty clay, 1 to 3 % slopes
Drainage Class: Well drained
Taxonomy (Subgroup): Lithic Haplustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/2	NONE	N/A	clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Shell throughout soil column

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No) (Circle)	(Circle)
Wetland Hydrology Present?	Yes (No)	Is this Sampling Point Within a Wetland? Yes (No)
Hydric Soils Present?	Yes (No)	

Remarks: No criteria met → upland.

Photo # 59

Approved by HQUSACE 3/92

Plot M. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 13 Applicant/Owner: Fort Hood Investigator: Steve Smith, Mike Schulze	Date: 6/5/07 County: Bell State: TX
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes (No) Is the area a potential Problem Area? Yes (No) (If needed, explain on reverse.)	Community ID: UPL Transect ID: Plot ID: N

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Ulmus crassifolia	T	FAC
2. Ilex decidua	S	FACW-
3. Ambrosia artemisiifolia	H	FACU-
4. Grindelia lanceolata	H	UPL
5. Helianthus maximiliani	H	FACU-
6. Mimosa roemeriana	H	FACU-
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 2/6 = 30%

Remarks: Mid-grass prairie adjacent to Water Feature 15

HYDROLOGY

- ✓ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ✓ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water:	NONE	(in.)
Depth to Free Water in Pit:	>16	(in.)
Depth to Saturated Soil:	>16	(in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: No indicators observed

PLOT N

SOILS

Map Unit Name (Series and Phase): KrB - Krum silty clay, 1 to 3% slopes
Drainage Class: well drained
Taxonomy (Subgroup): Vertic Haplustolls
Field Observations Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	1	10YR 3/3	NONE	N/A	clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: Shell in soil column

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No) (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks: No criteria met → upland

Photo #60

Approved by HQUSACE 3/92

Plot N. Upland Plot

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Area R / LTA 113
Applicant/Owner: Fort Hood
Investigator: Steve Smith, Mike Schulze

Date: 6/5/07
County: Bell
State: TX

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse.)

Community ID: PEM
Transect ID:
Plot ID: 0

Water Feature 19

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Salix nigra	T	OBL
2. Juncus effusus	H	OBL
3. Eleocharis montevidensis	H	FACW+
4.		
5.		
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/3 = 100%

Remarks: Mid-grass prairie. Pond along stream (Water Feature 17)

HYDROLOGY

- ✓ Recorded Data (Describe in Remarks):
  - ___ Stream, Lake, or Tide Gauge
  - ✓ Aerial Photographs
  - ___ Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 10 (in.)
Depth to Free Water in Pit: surface (in.)
Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- X Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Primary indicators observed.
Area where water ponds along stream.

PLOT O

SOILS

Map Unit Name (Series and Phase): SIB - Slidell silty clay, 1 to 3% slopes
Drainage Class: well drained
Field Observations
Taxonomy (Subgroup): Udic Pellusterts
Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: No soil sample taken - inundated soil pit. Soils assumed to be hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks: All criteria met → wetland.
Pond with emergents at the bend of a stream.
Area is filled when water flows in stream.

Photo #45

Approved by HQUSACE 3/92

Plot O. Water Feature 19 – Palustrine Emergent

APPENDIX C
Site Photographs

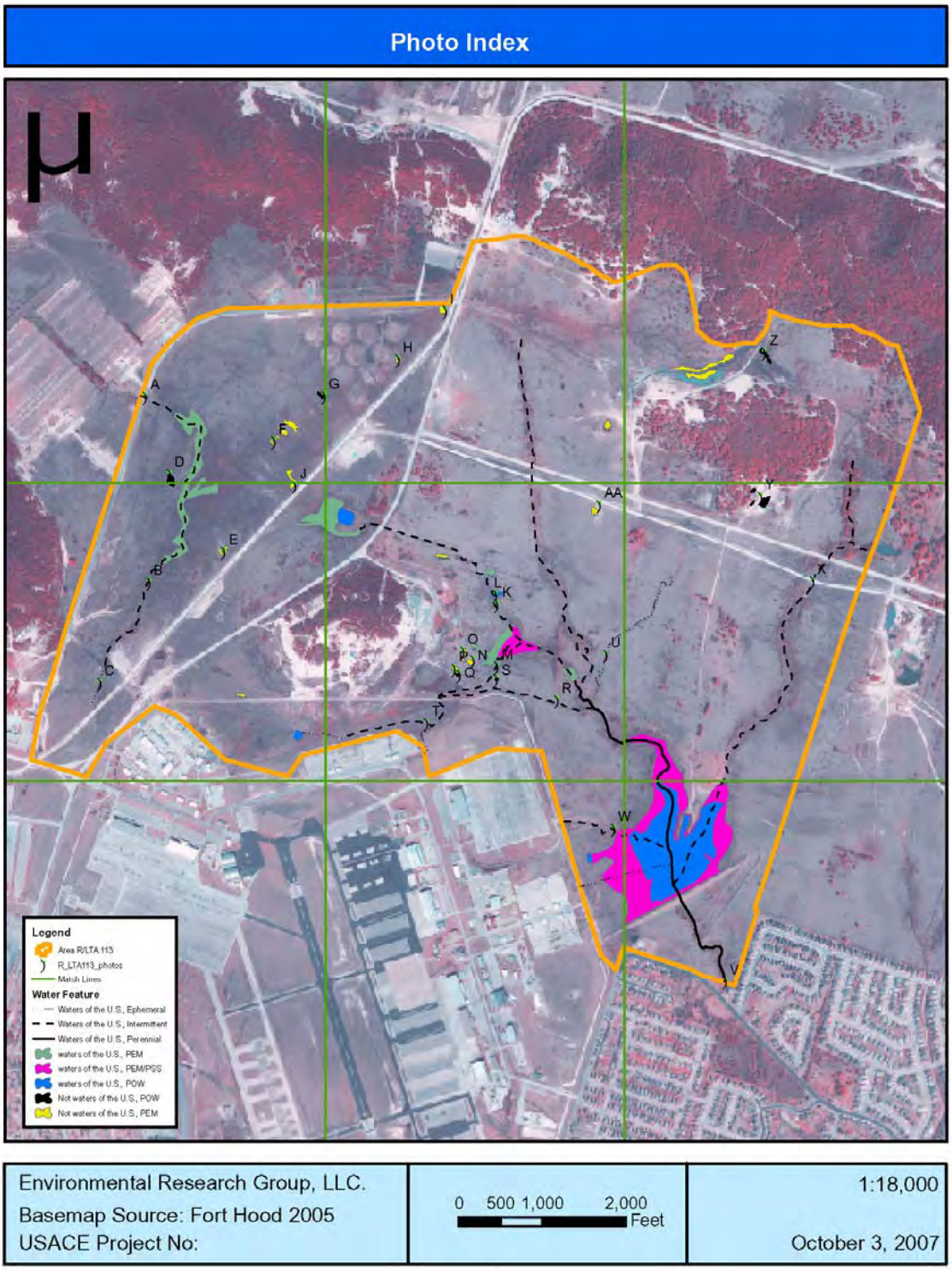


Photo Index
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Water Feature
Waters of the U.S., Ephemeral
Waters of the U.S., Intermittent
Waters of the U.S., Perennial
waters of the U.S., PEM
waters of the U.S., PEM/PSS
waters of the U.S., POW
Not waters of the U.S., POW
Not waters of the U.S., PEM
Environmental Research Group, LLC.
Basemap Source: Fort Hood 2005
USACE Project No:
0 500 1,000 2,000
Feet
1:18,000
October 3, 2007

C-1

Photo A. Overview of Water Feature 1 (intermittent stream)

Photo B. Overview of Water Feature 2 (intermittent stream)

Photo C. Overview of Water Feature 3 (ephemeral stream)

Photo D. Overview of
Water Feature 5 (stock pond)

Photo E. Overview of
Water Feature 7 (isolated depression)

Photo F. Overview of
Water Feature 8 (isolated depression)

Photo G. Overview of Water Feature 12 (isolated depression)

Photo H. Overview of Water Feature 13 (isolated depression)

Photo I. Overview of Water Feature 14 (isolated depression)

Photo J. Overview of Water Feature 16 (isolated depression)

Photo K. Overview of Water Feature 17 (intermittent stream)

Photo L. Overview of Water Feature 20 (Palustrine Open Water Pond)

Photo M. Overview of Water Feature 21 (intermittent stream)

Photo N. Overview of Water Feature 23 (stock pond)

Photo O. Overview of Water Feature 24 (stock pond)

Photo P. Overview of
Water Feature 25 (stock pond)

Photo Q. Overview of
Water Feature 26 (stock pond)

Photo R. Overview of
Water Feature 27
(intermittent stream)

Photo S. Overview of
Water Feature 28 (stock pond)

Photo T. Overview of
Water Feature 29
(intermittent stream)

Photo U. Overview of
Water Feature 37 (ephemeral stream)

Photo V. Overview of
Water Feature 38 (perennial stream)

Photo W. Overview of
Water Feature 40
(intermittent stream)

Photo X. Overview of
Water Feature 42
(intermittent stream)

Photo Y. Overview of
Water Feature 43 (caliche pit)

Photo Z. Overview of
Water Feature 47
(isolated depression)

Photo AA. Overview of
Water Feature 49 (caliche pit)

Section 401 WQC Regional General Permit Notification

State Form 51937 (10-04)
Indiana Department of Environmental Management

INSTRUCTIONS: 1. Read the instruction sheet before filling out this form.
2. All sections of this two page form must be complete.

FOR IDEM USE ONLY	Date Rec'd:	IDEM ID:

Applicant Information

Applicant: Camp Atterbury	Agent: US Army Corps of Engineers
Contact person: Bradley Schneck	Contact person: Heidi Howard h-howard@cecer.army.mil
Address: Camp Atterbury JMTC, Hospital Road, BLDG 609, PO Box 5000, Edinburgh, IN 46124	Address: USACERL: PO Box 9005: Champaign, IL 61826
Phone: 812-526-1729	Phone: 217-373-5865
E-mail: Bradley.shneck@in.ngb.army.mil	E-mail: h-howard@cecer.army.mil

Project Location

County: Bartholomew		Nearest Town: Edinburgh	
Quad Name: Nineveh	Township: T10N	Range: R5E	Section: 29

Project Address:
UTM N4352280 E585402
N/A – Contact Brad Schneck 3 days prior to visit at 812-526-1729, he will escort. Check-in at Security Gate is required, current Picture ID is necessary for access to Camp Atterbury.

Existing Conditions

Wetlands: ☐ YES x NO	Total acreage onsite: Less than 500 square feet
Wetland type: ☐ Emergent x Scrub-shrub x Forested	
Stream: x YES ☐ NO	Stream name: Nineveh Creek
Open water: ☐ YES x NO	Open water type:

Project Impacts

Activity Description:
Evaluation of 3 streambank stabilization methods (bioengineering) at the Nineveh Creek Mauxfery Bridge. This research will help determine the most cost effective stabilization technique for streams on Camp Atterbury. Approximately 225 linear feet along the North East and North West side of the creek will be stabilized. Grassed waterways and an access ramp will be placed at all 4 corners of the bridge. Streambank stabilization will consist of a combination of riprap, erosion control blankets, geotextiles, willow stakes, willow wattles, coir fiber logs, and seeding will be used to stabilize the eroded streambank. Accumulations within and around the bridge are extensive and have caused bank erosion and upstream ponding damages. Accumulations on the upstream side of the bridge will be removed and utilized in the stabilization of the streambank. Stream will be re-graded to the natural streambed elevation. Existing vegetation will be minimally impacted, and only native locally adapted species will be used in the project. Hydroseeding, with a mulch tacifier, will ensure successful germination on both the newly stabilized sides and the South streambanks which will be left alone. Standard erosion control practices will be used during and after construction including; silt fencing, seeding, and mulching. Escort needed contact information in application.

Purpose of project:
Repair and stabilize the streambank at the Mauxfery-Nineveh bridge.

Acres of wetland impact
Emergent: 0 Scrub/shrub: 0 Forested: 0

Linear feet of stream impact:	Acres of open water impact:
225	0

Riprap below the Ordinary High Water Mark
Volume *(cubic yds. per running ft.)*: 2025cy (combination of geotek, riprap toes and gabions) Area *(sq. ft.)*: 300sqft

Signature of Applicant - Statement of Affirmation

I certify that I am familiar with the information contained in this notification and, to the best of my knowledge and belief, such information is true and accurate. I certify that I have the authority to undertake and will undertake the activities as described in this notification. I am aware that there are penalties for submitting false information. I understand that any changes in project design subsequent to IDEM's granting of authorization to discharge to a water of the state are not authorized and I may be subject to civil and criminal penalties for proceeding without proper authorization. I agree to allow representatives of the IDEM to enter and inspect the project site. I understand that the granting of other permits by local, state, or federal agencies does not release me from the requirement of obtaining the authorization requested herein before commencing the project.

Applicant's Signature: _____ **Date:** 01/06/2005 (mm/dd/yyyy)

Print Name: Bradley Schneck **Title:** Camp Atterbury Forester

Enclose copies of the following documents (ALL enclosures must be on 8.5" by 11" paper:

- X Location map
- X Drawings of existing site and proposed project
- X At least three photos of site, labeled
- ☐ Copies of all correspondence from the U.S. Army Corps of Engineers
- ☐ Copy of wetland delineation report

Mail this form and attachments to:

Indiana Department of Environmental Management
Office of Water Quality
Section 401 WQC/State Isolated Wetlands Program
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Please note:

1. IDEM will review this form and all attachments for completeness and accuracy. You will be contacted within thirty (30) days of the date of receipt of this form **only** if problems are identified. IDEM may require additional information to verify that the project meets all conditions of the Regional General Permit and the Section 401 WQC. If you are not contacted by IDEM within thirty (30) days of the date of receipt of this form by IDEM, your project is thereby authorized, subject to the terms and conditions of the Section 401 Water Quality Certification and its conditions. **You will not receive a written confirmation of authorization.**
2. Read **all** the terms and conditions of this regional general permit, including all U.S. Army Corps of Engineers and Indiana Department of Environmental Management conditions. Do not submit this form or commence work on the proposed project until you understand and are familiar with the limitations and restrictions of this regional general permit.
3. Consult this webpage for more information: http://www.in.gov/idem/water/planbr/401/rgp02.html

Instructions for Completing the Regional General Permit – IDEM Notification Form

Please read these instructions carefully before completing the notification form. Sections labeled as mandatory must be completed accurately and completely in order for IDEM to process this notification. Failure to complete all mandatory sections of the form can result in the rejection of the notification by IDEM.

DO NOT use this form if your project will impact ANY isolated wetlands. Consult with IDEM staff to determine the correct application form for use with your project.

If you have any questions or are unsure if your project qualifies for or requires this authorization, contact IDEM:

Indiana Department of Environmental Management
Office of Water Quality
Section 401 Water Quality Certification/State Isolated Wetlands Program
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Telephone: (317) 233-8488

Print clearly or type.
Attach additional information on 8.5" x 11" sheets only

Block 1 – Applicant Information

1. **MANDATORY:** Provide the applicant's name, address, and telephone number. Applicants MUST provide a contact name, especially in cases where the application is on behalf of a corporation or similar entity.

2. **OPTIONAL:** Provide the agent's address and telephone information (an agent is anyone representing the applicant on the project, such as an attorney or consultant). Applicants are not required to have an agent. This information should be included if a person other than the applicant is submitting the form and that person is designated as the contact point for questions regarding the proposed project.

Block 2 – Project Location

MANDATORY: Complete all blocks within this section. Most information required in this section can be obtained from the United States Geological Survey (USGS) 7.5-Minute Series Topographic Quadrangle maps, or similar computer desktop mapping software. An address or descriptive location must be provided in order to allow for compliance inspection of the project.

Block 3 – Existing Conditions

1. **MANDATORY:** This section provides information on the types of aquatic resources present on the project site PRIOR TO any proposed impacts. Circle all of the appropriate types of waterbodies and clearly denote the size of that waterbody on the project site. If a project site has more than one wetland, add all the acres of each type wetland together to provide a grand total on the form.

2. For wetlands, acreages and types must be confirmed with a jurisdictional wetland delineation conducted in accordance with the 1987 Corps of Engineers Wetland Delineation Manual. Please attach a copy of this delineation or letter of confirmation from the Corps of Engineers for all projects that will impact wetlands. In addition, a letter from the Corps of Engineers confirming that the wetlands in question are regulated under the Clean Water Act must be provided.

Block 4 – Project Impacts

1. **MANDATORY:** Complete all blocks within this section. Attach additional sheets if needed. Activity description refers to WHAT are you doing – filling a wetland, placing riprap, constructing bridge piers, placing a culvert, for example. Project description refers to WHY are you impacting a waterbody – creating a driveway, stabilizing a streambank, developing a site for commercial use, for example.

2. When calculating stream impact, all areas that are affected by placement of fill, bank armoring, culverting, excavation, or any other activity must be counted. Any proposed project involving the creation of dams or in-channel pools CANNOT use this form.

3. When calculating open water impact, all areas within lakes, rivers, streams and the like must be counted. This includes areas under new bridge piers, beaches, and boat ramps, as examples.

4. The Ordinary High Water Mark means that line on the shore of a waterbody established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, natural destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Signature of Applicant - Statement of Affirmation

MANDATORY: The name and signature must match the name of the applicant on the first page. Notification forms signed by any agent will be returned to the applicant.

NOTE - The listed supplemental information must be provided in order to verify that your project qualifies for the terms and conditions of this regional general permit. Enclose a wetland delineation report for any project that will impact wetlands as a part of the proposed activities.

6-5 Project Site Map: (See Application Information Packet) Attached

7. DISTURBED AREA DRAWING
7.1 Drawing Requirements: (See Application Information Packet) Attached

8. PROJECT PHOTOGRAPHS
8-1 Images: (See Application Information Packet) Attached
8-2 Photo Orientation Map: (See Application Information Packet) Attached
8-3 Photo Documentation: (See Application Information Packet) Attached

9. RELATED PROJECT INFORMATION	
Department of Natural Resources	
Administrative Cause #	Related Application(s) #
Early Coordination #	Utility Exemption #
Recommendation #	Violation #
Department of Environmental Management	
Section 401 #	
Corps of Engineers	
Public Notice #	Section 10 Application #
Section 404 Application #	

10. STATEMENT OF AFFIRMATION
I hereby swear or affirm, under the penalties for perjury, that the information submitted herewith is to the best of my knowledge and belief, true, accurate and complete, and that the property owner (s), and adjoining landowners have been notified of the activity in conformance with the provisions of 312 IAC 2-3-3. I further certify that I possess the authority to undertake the proposed or completed activities. I hereby grant to the Department of Natural Resources, the right to enter the above-described location to inspect the proposed or completed work. _____ _____ **Signature of Applicant or Authorized Agent *(REQUIRED)*** **Date**

11. REGULATORY FEES
11-1 Regulatory Fees Submitted: (See Application Information Packet)
11-3 Payment Method: (See Application Information Packet)

REQUIREMENT FOR ADDITIONAL INFORMATION AND PERMITS
Application made to and approval granted by the Department of Natural Resources does not in any way relieve the applicant of the necessity of securing easements or other property rights, permits and approvals from affected property owners and other local, state, and federal agencies.

PROJECT SITE

January 03, 2004
Project Title:
Nineveh Creek Streambank Stabilization at Mauxfery Bridge on Camp Atterbury

Applicants:

US Army Corps of Engineers, ERDC-CERL
Heidi Howard
PO Box 9005
Champaign, IL 61826
(217) 373-5865

Camp Atterbury
Bradley Schneck
#1 Hospital Road; BLDG 609
Edinburgh, IN 46124
(812) 526-1729
Stream:
Nineveh Creek

Description:
Evaluation of 3 streambank stabilization methods (bioengineering) at the Nineveh Creek Mauxfery Bridge. This research will help determine the most cost effective stabilization technique for streams on Camp Atterbury. Approximately 225 linear feet along the North East and North West side of the creek will be stabilized. Grassed waterways and an access ramp will be placed at all 4 corners of the bridge. Streambank stabilization will consist of a combination of riprap, erosion control blankets, geotextiles, willow stakes, willow wattles, coir fiber logs, and seeding will be used to stabilize the eroded streambank. Accumulations within and around the bridge are extensive and have caused bank erosion and upstream ponding damages. Accumulations on the upstream side of the bridge will be removed and utilized in the stabilization of the streambank. Stream will be re-graded to the natural streambed elevation. Existing vegetation will be minimally impacted, and only native locally adapted species will be used in the project. Hydroseeding, with a mulch tacifier, will ensure successful germination on both the newly stabilized sides and the South streambanks which will be left alone. Standard erosion control practices will be used during and after construction including; silt fencing, seeding, and mulching. Escort needed contact information in application

Location:
The site is located on Nineveh Creek approximately 4 miles south of Hospital Road (downstream) in Bartholomew County. Shared boundaries are over ¼ of a

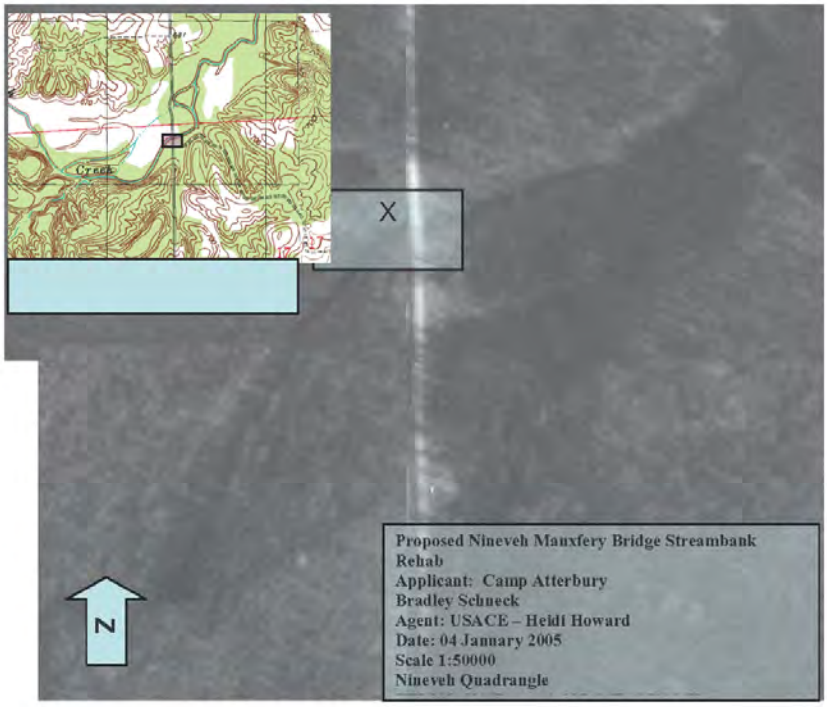
mile from the site location therefore no notification of adjacent property owners is required (page 8 Adjacent Properties).

UTM Coordinates: 585402 East 4352280 North.
NW ¼ of the NE ¼ of Section 29
Section 29, T10N, R5E
Map Name: Nineveh

Statute/Rule:

Section 401 WQC Regional General Permit Notification
Flood Control Act, IC 14-28-1.
Sand and Gravel Permits Act, IC 14-29-3.

Map:




Expedia
MapPoint
New Whiteland
Whiteland
Bargersville
Franklin
Shelbyville
MORGAN
JOHNSON
SHELBY
Camp Atterbury,
Edinburgh, IN, 461
Edinburgh
Geneva
I N D I A N A
Hope
Taylorsville
Flat Rock Park
Nashville
Columbus
BROWN
BARTHOLOMEW
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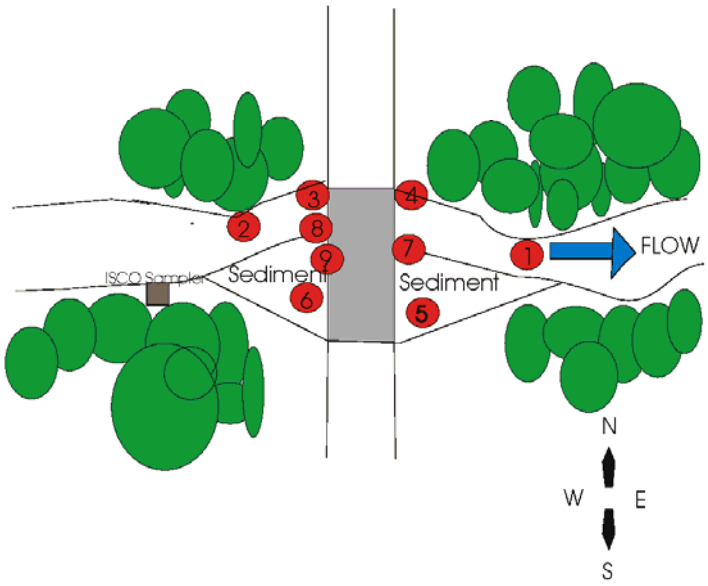
SHELBY
I N D I A N A
Edinburgh
Nineveh
Camp Atterbury
Military Reservation
BARTHOLOMEW
BROWN
Taylorsville
Flat Rock
Park
©2003 Microsoft Corp ©2003 NavTech, and/or GDT, Inc.

Photo Orientation: Camp Atterbury Nineveh/Mauxfery Bridge



1. Center of Mauxfery Bridge looking downstream at the channel
2. Center of Mauxfery Bridge looking upstream at the channel
3. Looking at North/West bank Bridge corner
4. Looking at North/East bank Bridge corner
5. Looking at South/East bank Bridge corner
6. Looking at South/West bank Bridge corner
7. Downstream looking West at bridge
8. Upstream looking East at bridge
9. Looking at the East side of bridge during high flow

#1

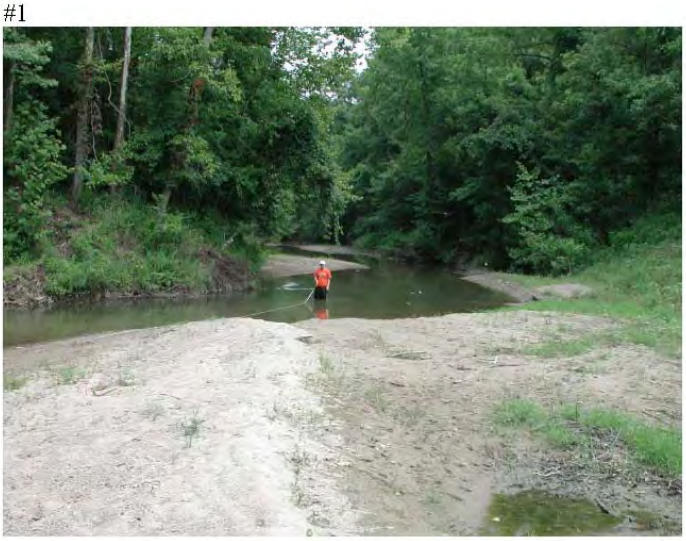


Image # : 1

Date : 2004

Direction : Taken from center of the bridge looking east (downstream)

Description : The left and right downstream floodplain land use is forest which is used for foot and wheeled vehicle maneuvers – low impact area. The downstream channel contains a few sandbars and debris snags. The downstream riparian corridor is similar to the downstream consisting of a dense stand of timber and woody shrubs. The left (North) streambank will be stabilized a bioengineering method.

#2

Image # : 2

Date : 2004

Direction : Taken from center of the bridge looking west (upstream)

Description : The left (South) upstream floodplain land use is forest with a firing range and native grasslands area. The right (North) upstream floodplain land use has a fringe of forest with a firing range. The upstream channel contains sandbars and debris snags, especially after recent storm events. The upstream riparian corridor is similar to the downstream consisting of a dense stand of timber and woody shrubs. This is a picture of the streambank that will be stabilized with bioengineering methods. 3 techniques will be used, plans attached.

#3

Image # : 3

Date : 2004 & 2005

Direction : Taken from stream bed center on west side of the bridge looking at the north west bridge corner. Second photo taken during high water Jan 5, 2005.

Description : N/A.

#4

Image # : 4

Date : 2002 &2004

Direction : Taken from stream center at base of the bridge looking north east to opposite bank/approach.

Description : The east decent into the stream is heavily shrubed, wooded and grassed. Currently inlet does little in sediment accumulation. The grassed waterway will slow down flow from the tank trail while ensuring sediment accumulations within the grass and check dams. Plan to stabilize this bank ~50' using riprap, fiber coirs, erosion control blankets and vegetation. Will remove some accumulations to rebuild bank during project.

#5

Image # : 5

Date : 2004 & 05 January 2005

Direction : Taken from stream center on east side looking at south bank at bridge corner.

Description : The south east side of the bank and floodplain is a heavily wooded, shrubed and grassed area. Only erosion control blankets and revegetation will be done on this side at end of project.

#6

Image # : 6

Date : 2004

Direction : Taken from stream center on west side looking at the south west bank corner of the bridge.

Description : The south west side of the bank is a heavily wooded and shrubed area. An access ramp will be placed for maintenance of bridge and stream, current inlet on south west bank has extensive gullies. Currently the approach is too steep but will be made into a 6:1 approach for safe passage, this approach will also be hardened with cabled concrete, riprap, and geotextile.

#7

Image # : 7

Date : 2003

Direction : Taken from west side of bridge of looking to north east side and the trailed approach.

Description : The north east side of the bank and floodplain is mostly shrubed and grassed/forbed area. The area was hardened with riprap to protect the bridge but has not performed as well as it should. When doing the restoration of the North East streambank a new grassed waterway/inlet will be graded, along with erosion control blankets and riprap.

#8

Image # : 8

Date : 2004

Direction : Taken standing on west end of sediment deposit looking east (downstream) at the bridge.

Description : Debris and sediment accumulations will be removed and sediments will be utilized to rebuild eroded streambanks on the north west and north east sides.

#9

Image # : 9

Date : January 05, 2005

Direction : Taken from north west side looking at bridge.

Description : After the last storm, logs and other debris will need to be removed.

Escort Needed for visit see application for details

Image # : 10

Date : 2003

Description : Example of bioengineering technique that will be used in one section of the streambank restabilization project.

Image # : 11

Date : 2003

Description : Example of bioengineering technique that will be used in several sections of the streambank restabilization project.

PUBLIC NOTICE

Application #:

Applicant:
US Army Corps of Engineers, ERDC-CERL
Heidi Howard
PO Box 9005
Champaign, IL 61826
(217) 373-5865

Applicant #2:
Camp Atterbury
Bradley Schneck
#1 Hospital Road; BLDG 609
Edinburgh, IN 46124
(812) 526-1729

Stream:
Nineveh Creek

Description:

Severe streambank erosion requires stabilization. We will do an evaluation of 4 streambank stabilization methods (bioengineering) at the Nineveh Creek Mauxfery Bridge. Approximately 225 linear feet along the North East and North West side of the creek will be stabilized. Grassed waterways will be placed at all 4 corners of the bridge, with the Southwest corner being turned into a cabled concrete access ramp (for maintenance). Streambank stabilization will consist of a combination of riprap, gabions, erosion control blankets, geotextiles, willow stakes, willow wattles, coir fiber logs, and seeding will be used to stabilize the eroded streambank. Stabilization will consist of a combination of riprap, erosion control blankets, geotextiles, willow stakes, willow wattles, coir fiber logs, and seeding will be used to stabilize the eroded streambank. On the North East bank, extensive erosion from recent floods will now need to be repaired with a gabion wall (method 4). Accumulations within and around the bridge are extensive and have caused bank erosion and upstream ponding damages. Accumulations on the upstream side of the bridge will be removed and utilized in the stabilization of the streambank. Stream will be re-graded to the natural streambed elevation. Existing vegetation will be minimally impacted, and only native locally adapted species will be used in the project. Hydroseeding, with a mulch tacifier, will ensure successful germination on both the newly stabilized sides and the South streambanks which will be left alone. Standard erosion control practices will be used during and after construction including; silt fencing, seeding, and mulching. Escort needed contact information in application.

Location:

The site is located on Nineveh Creek approximately 4 miles south of Hospital Road (downstream) in Bartholomew County. Shared boundaries are over ¼ of a mile from the site location therefore no notification of adjacent property owners is required (page 8 Adjacent Properties). UTM Coordinates: 585402 East 4352280 North.

Statute/Rule:

Flood Control Act, IC 14-28-1.
Sand and Gravel Permits Act, IC 14-29-3

Point of Contact for Questions:

US Army Corps of Engineers, ERDC-CERL
Heidi Howard
PO Box 9005
Champaign, IL 61826
(217) 373-5865

Camp Atterbury
Bradley Schneck
#1 Hospital Road; BLDG 609
Edinburgh, IN 46124
(812) 526-1729

JOINT APPLICATION FOR PERMIT

96-19-3 (8/00) pp

New York State
United States Army Corps of Engineers

Applicable to agencies and permit categories listed in Item 1. Please read all instructions on back. Attach additional information as needed. Please print legibly or type.

1. Check permits applied for:

NYS Dept. of Environmental Conservation
- ☐ Stream Disturbance (Bed and Banks)
- ☐ Navigable Waters (Excavation and Fill)
- ☐ Docks, Moorings or Platforms (Construct or Place)
- ☐ Dams and Impoundment Structures (Construct, Reconstruct or Repair)
- ☑ Freshwater Wetlands
- ☐ Tidal Wetlands
- ☐ Coastal Erosion Control
- ☐ Wild, Scenic and Recreational Rivers
- ☑ 401 Water Quality Certification
- ☐ Potable Water Supply
- ☐ Long Island Wells
- ☐ Aquatic Vegetation Control
- ☐ Aquatic Insect Control
- ☐ Fish Control

NYS Office of General Services (State Owned Lands Under Water)
- ☐ Lease, License, Easement or other Real Property Interest
- ☐ Utility Easement (pipelines, conduits, cables, etc.)
- ☐ Docks, Moorings or Platforms (Construct or Place)

Adirondack Park Agency
- ☐ Freshwater Wetlands Permit
- ☐ Wild, Scenic and Recreational Rivers

Lake George Park Commission
- ☐ Docks (Construct or Place)
- ☐ Moorings (Establish)

US Army Corps of Engineers
- ☑ Section 404 (Waters of the United States)
- ☐ Section 10 (Rivers and Harbors Act)
- ☐ Nationwide Permit (s) Identify Number(s)

For Agency Use Only:
DEC APPLICATION NUMBER

US ARMY CORPS OF ENGINEERS

2. Name of Applicant (Use full name): CMDR 10th Mountain Division (LI) & Fort Drum
Telephone Number (daytime): (315) 772-5501

Mailing Address: ATTN: IMNE-DRM-ZA

Post Office: FORT DRUM | **State**: NY | **Zip Code**: 13602

3. Taxpayer ID (If applicant is not an individual):

4. Applicant is a/an: (check as many as apply)
☑ Owner ☐ Operator ☐ Lessee ☑ Municipality / Governmental Agency

5. If applicant is not the owner, identify owner here - otherwise, you may provide Agent/Contact Person information.
Owner or Agent/Contact Person ☐ Owner ☑ Agent /Contact Person: JASON MURRAY, ENV DIVISION, PUBLIC WORKS
Telephone Number (daytime): (315) 772-6328

Mailing Address: 85 FIRST STREET WEST

Post Office: FORT DRUM | **State**: NY | **Zip Code**: 13602

6. Project / Facility Location (mark location on map, see instruction 1a.)
County: JEFFERSON | **Town/City/Village**: FORT DRUM | **Tax Map Section/ Block / Lot Number**:

Location (including Street or Road): (SEE ATTACHED MAP AND PROJECT DESC)
Telephone Number (daytime):

Post Office | **State** | **Zip Code**

7. Name of Stream or Waterbody (on or near project site): USACE WETLAND, Deerlick Creek

8. Name of USGS Quad Map: Natural Bridge
Location Coordinates: NYTM-E: 461039 | NYTM-N: 4885071

9. Project Description and Purpose: (Category of Activity e.g. new construction/installation, maintenance or replacement; Type of Structure or Activity e.g. bulkhead, dredging, filling, dam, dock, taking of water; Type of Materials and Quantities; Structure and Work Area Dimensions; Need or Purpose Served)

SEE ATTACHED PROJECT DESCRIPTION

10. Proposed Use: ☐ Private ☑ Public ☐ Commercial

11. Will Project Occupy State Land? ☐ Yes ☑ No

12. Proposed Start Date: 3/08

13. Estimated Completion Date: 10/09

14. Has Work Begun on Project? (If yes, attach explanation of why work was started without permit.) ☐ Yes ☑ No

15. List Previous Permit / Application Numbers and Dates: (If Any) N/A

16. Will this Project Require Additional Federal, State, or Local Permits? ☑ Yes ☐ No If Yes, Please List: Article 24, WQC

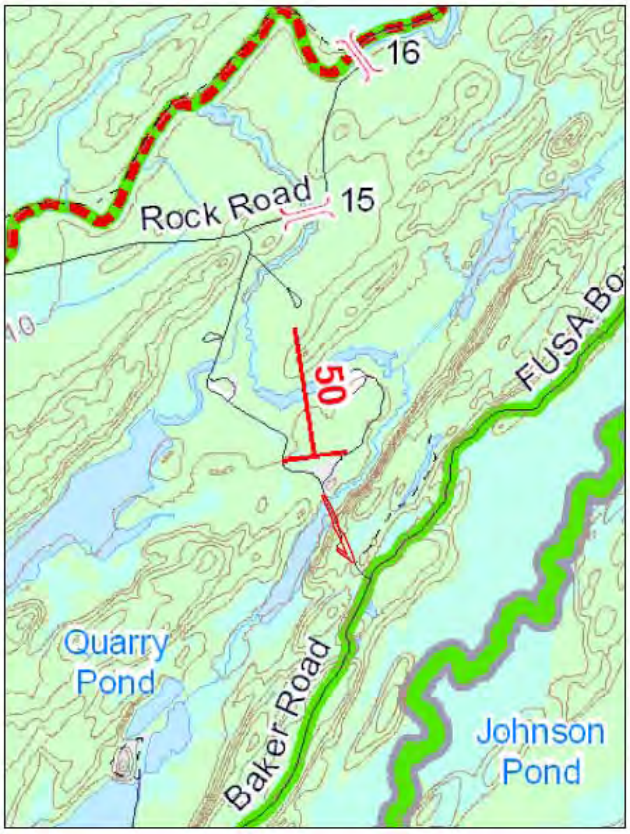
17. If applicant is not the owner, both must sign the application
I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Date _____ Signature of Applicant _____ Title _____

Date _____ Signature of Owner _____ Title _____

RESET

JOINT APPLICATION FOR PERMIT:
RANGE 50 ACCESS ROAD REHABILITATION
FORT DRUM MILITARY INSTALLATION
TOWN OF DIANA,
LEWIS COUNTY, NEW YORK
PERMIT APPLICATION # NAN-2007-493-WCO



Prepared for:
U.S. ARMY CORPS OF ENGINEERS
New York District

Prepared by:
Fort Drum Environmental Division Jason Murray
Colorado State University Eugene Nichols

Description of Proposed Action

The purpose of the proposed project is to upgrade an 880 foot section of existing tank trail that leads into Range 50. The proposed project includes typical cut and fill earthwork to re-grade the trail surface to a gentler slope and the removal of an existing sharp corner to a gentler curve by relocating a portion of the trail. A 250-ft long gabion retaining wall will be constructed to provide for a wider, more stabilized trail on the steeper slopes. Rock materials cut from the site will be reused for fill areas and to construct the gabion wall. Below is the proposed construction schedule starting at station 8+80 and working in a northerly direction as shown on sheet C-103.

1. Provide and install temporary erosion control as required under the Storm Water Pollution Prevention Plan.

2. Construct a new 20' wide trail through existing uplands and forested wetland (approximately 250 lf).
   a. Clear trees and grub stumps to an off site location.
   b. Excavate and remove organic material at proposed new trail location. Excavated wetland soils will be stockpiled at an existing borrow pit for utilization on a wetland mitigation project in the future.
   c. Material may be excavated out of existing road location at cut stations and used under new road locations as fill.
   d. Place layer of geo-fabric material prior to installing sub-base material.
   e. Place removed ledge from items #3 & 4 below.
   f. Place 6" layer of imported ROC, fine grade as required.

3. Upgrade existing trail 20' wide trail (approximately 200 lf)
   a. Blast and remove rock ledge within existing road to required sub-base elevations. Removed ledge will be used as fill in item #2 above and along the back of the Gabion wall construction in item #5 below.
   b. Place 6" layer of imported ROC, fine grade as required.

4. Upgrade existing trail (approximately 60 lf). Trail to transition from 20' wide to 30' wide.
   a. Blast and remove ledge within existing road to required sub-base elevations. Removed ledge will be used as fill in item #2 above and along the back of the Gabion wall construction in item #5 below.
   b. Place 6" layer of imported ROC, fine grade as required.
   c. Provide and install steel guard rail system at both sides of trail to match that which was used along FUSA Blvd.

5. Upgrade existing trail, width to be 30' wide (approximately 270 lf)
   a. Extend 2 (two) existing 36" dia. culverts to accommodate proposed road width.
   b. Cut existing gravel road bed as required to obtain proposed elevation.
   c. Construct single row, Gabion stone basket wall.

d. Backfill Gabion stone basket wall with blasted ledge from items #3 & 4 above.
e. Place 6" layer of imported ROC, fine grade as required.
f. Provide and install steel guard rail system at both sides of trail to match that used along FUSA Blvd.

6. Upgrade existing trail (approximately 90 lf) Trail to transition from 30' wide back to 20' wide.
a. Provide and install fill as required to obtain road width.
b. Re-grade existing road surface.
c. Provide and install steel guard rail system at both sides of trail to match that which was used along FUSA Blvd.

General:
1. Hydro-seed all disturbed areas.

Purpose and Need for Action

Range 50 is the only Range Facility that supports the Engineer Qualification Program on Fort Drum and is the primary area used for demolition training. The Range 50 Access Road also supports the FUSA live fire convoy training route and is the main entrance to this range. The increase in troop strength to the Installation includes additional use of the road from Soldiers that require this facility to maintain the required levels of training. The current condition of the Range 50 Access Road is eroding and puts vehicles at risk of rollovers and collisions from the steep gradient and the presence of the blind corner. The road rehabilitation is needed to support safe access in and out of the facility.

Impacts and Alternative Analysis

Alternative 1 – The first proposed alternative was to construct a new access road to Range 50 and abandon the existing access road in place. This alternative would have increased wetland impacts and additional costs to the project. This was determined an unfeasible approach and not the preferred option for the scope of this project.

Alternative 2 – The second proposed alternative was to stabilize the existing Range 50 access road by reinforcing the existing embankments with additional rip-rap to provide the needed support. This alternative would increase wetland impacts from fill materials with a substantial increase in the toe of slope needed to stabilize the existing side slopes of the road.

Alternative 3 – The third proposed alternative was no action. This is not a reasonable approach due to the current safety concerns that the road presents and does not meet the

mission demands of Fort Drum and the training requirements of the 10th Mountain Division.

Alternative 4 – The fourth option is the preferred option and is shown on the attached drawings. This option will create a new section of road that will eliminate the sharp turn and connect the two sections of existing road. Instead of supporting the road with rip rap embankments gabion walls will be installed to support the new road profile in the larger fill sections of the road. Utilizing a gabion wall in this steep section of road will not only add structural integrity to the road but will also result in minimizing wetland impacts by increasing the proposed side-slopes. The existing road will be cut from station 1+25 to station 6+00 to decrease the slope of the new road to just over 11%. The work plan calls for guard rails to be installed to prevent potential rollovers from large wheeled vehicles and the existing steep gradients to be leveled to a gradient that provides sufficient line of sight for safe travel. A new culvert will be installed in the crossing within the forested wetland (station 6+90). Based on the attached drawings and engineered calculations this option will result in unavoidable impacts to Waters of the U.S., including wetlands. Below is a table summarizing the impacts to Waters of the U.S. as shown on sheet C-102.

The permanent wetland impact total at 0.23 acres, of which, 0.13 acres are impacts to forested wetlands, 0.7 acres to shrub-shrub wetlands and 0.3 acres to emergent wetlands. Calculated temporary wetland impacts will be a result of clearing activities and temporary access during construction and are noted on sheet C-102. All wetland areas identified as temporary impacts will be returned to the pre-existing contours and seeded with a wetland seed mix found in Table 2. Clearing in wetlands will be accomplished either by hand or by mechanical methods working from the road itself or areas labeled as permanent and temporary wetland impact. Wetland impact W5 will be permanently lost through the proposed 19 foot cut in grade in the immediate area. Downstream from this cut, the linear wetland will be lost through diverting the flows to a proposed stone-lined channel. Based on the current design, flows will eventually reach the same receiving waters, Deerlick Creek, at station 2+00. There are also anticipated permanent impacts to approximately 15 linear feet of Deerlick Creek, a perennial stream, at station 1+50 with an extension installed on the end of the existing culvert and 20 feet of temporary impacts with clearing operations and construction access with the associated work in the immediate area. Deerlick Creek is a tributary to the Indian River and is classified as a Class D stream by the New York State Department of Environmental Conservation (NYSDEC). There also is a NYSDEC classified wetland (NB-1) that will be impacted. This wetland impact area is labeled as W1 and W2 and is shown on sheet C-102. Please see sheets C-102, C-103, Wetland Maps and photos for more details.

Table 1.

ID	TYPE OF FEATURE	IMPACT	ACTIVITY	AREA (AC)	LINEAR FEET
W1	PSS Wetland	Permanent	Fill	0.07	
W2	PSS Wetland	Temporary	Clearing/Work Area	0.03	
W3	Perennial Stream	Permanent	Fill	N/A	15
W4	Perennial Stream	Temporary	Clearing/Work Area	N/A	20
W5	PEM Wetland	Permanent	Draining/Diverting Flows	0.03	
W6	PFO Wetland	Permanent	Fill	0.13	
W7	PFO Wetland	Temporary	Clearing/Work Area	0.13	
			TOTAL PERMANENT	0.23	15
			TOTAL TEMPORARY	0.16	20

Table 2. Wetland Seed Mix

Species	Percent by Volume
Scirpus atrovirens	20
Calamagrostis canadensis	20
Carex crinita	10
Agrostis alba	10
Leersia oryzoides	10
Juncus canadensis	10
Aster puniceus	10
Bidens frondosa	5
Bidens cernua	5

Wetland Permitting and Mitigation

The project as currently proposed involves impacts to wetland resources. The unavoidable discharge of fill materials into USACE and NYSDEC regulated wetlands is proposed as part of this project and will require permits under Section 404 of the Clean Water Act and under Article 24 of the New York State Environmental Conservation Law. The total wetland impacts associated with the proposed project is 0.39 areas, of which 0.16 acres are temporary impacts. Of the 0.23 permanent wetland impacts there is 0.13 acres of impact to forested wetland. Fort Drum is of the option that this project could be authorized by a NYSDEC Article 24 permit, a Water Quality Certification under New York State Environmental Conservation Law and under an USACE Nationwide Permit #

14 for linear transportation projects. As a form of wetland mitigation to offset the proposed impacts Fort Drum is requesting that a total of 0.36 credits be debited out of the Wetland Mitigation Bank at the established ratio of 1:1 credit per acre for impacts to 0.10 acres of emergent and scrub shrub wetlands and a ratio of 2:1 for the loss of 0.13 acres of forested wetland.

NEW YORK DISTRICT Regional Conditions to Nationwide Permit #14

The New York District has placed four regional conditions to Nationwide Permit #14 that all involve stream crossings. For this project there is one already existing stream crossing located at Station 1+40. For this reason it is not practicable to replace the existing culvert pipes with a bottomless arch culverts or a bridge. This would add undue cost to the project with excavating the existing road to remove both culverts and would also increase impacts to the adjacent wetlands and surface waters. Based on the fact that these two culverts are existing it is not practicable to make the extensions a larger pipe to accommodate burying the new sections 20% of the vertical rise. The only viable option is to extend the end sections of both existing culverts in-kind to accommodate the footprint of the gabion wall.

Nationwide Permit (NWP) General Conditions for the Range 50 Access Road Rehabilitation

The following is a list of NWP Special Conditions considered for the project:

1. **Navigability.** No activities undertaken in this project will have an effect on navigation.
2. **Proper Maintenance.** Periodic grading of the road and cleaning of culverts will be perform by Fort Drum Department of Public Works personal post construction.
3. **Soil Erosion and Sediment Controls.** A Storm Water Pollution Prevention Plan has been developed for this project including a Soil Erosion and Sediment Control Plan. The SWPPP is consistent with the New York Storm Water Management Design Manual, and the Standards and Specifications for Erosion and Sediment Control.
4. **Aquatic Life Movements**. The project will maintain both aquatic life hydrological contiguity by adding extensions to the existing two culverts (Station 0+90 and 1+40) to accommodate the installation of a gabion wall. An additional culvert (Station 6+90) will be placed to maintain wetland contiguity and embedded to aid in aquatic life movement.
5. **Equipment.** Heavy equipment will operate on the existing Range 50 Access Road and the newly constructed addition to the Range 50 Access Road to the maximum extent that is practicable. Mud mats will be utilized when equipment needs to work in the wetland areas to minimize the ground disturbance.

6. **Regional and Case-by-Case Conditions.** See justification above.
7. **Wild and Scenic Rivers.** None are present on the project site.
8. **Tribal Rights.** No tribal rights are affected by this action.
9. **Water Quality.** Fort Drum is concurrently applying for a water quality certification from the NYSDEC.
10. **Coastal Zone Management (CZM).** The proposed project is not in a coastal zone and is therefore not subject to CZM.
11. **Endangered Species.** The Fort Drum Fish and Wildlife Management Program has reviewed this project and determined the Range 50 Access Road Rehabilitation may affect, but is not likely to adversely affect the federally endangered Indiana bat (*Myotis sodalis*). The United States Fish and Wildlife Service (USFWS) has reviewed and concurred with this determination pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) of 1973 regarding the Indiana bat. Please see attached Memo regarding this Determination
12. **Historic Places.** The proposed project was reviewed by Laurie W. Rush, Ph.D., RPA, Cultural Resource Programs Manager. The review concluded that no effect to cultural resources should occur as a direct result of this project. Please find attached Memorandum regarding Section 106 Consultation in the Appendix.
13. **Notification.** This document, the attached memorandum, drawings, and form 4345 serve as the Preconstruction Notice to the Corps. Wetland delineations were prepared in accordance with the 1987 Wetland Delineation Manual including current approved methods and were provided in an earlier Jurisdictional Determination submittal to the New York District COE.
14. **Compliance Certification.** This will be provided upon completion of the project.
15. **Use of Multiple Nationwide Permits.** This is a PCN for NWP 14. No other activities associated with this project require additional NWPs.
16. **Water Supply Intakes.** These activities are not in the vicinity of a public water intake.
17. **Shellfish Beds.** No shellfish beds are in the vicinity of this project.
18. **Suitable Material.** No unsuitable material will be used as fill for the construction of this project.
19. **Mitigation.** Wetland Mitigation would be provided through Fort Drum's existing wetland mitigation bank. Fort Drum requests using the compensation ratio of 1:1, as designated in the Mitigation Banking Instrument for the loss of aerial extent of emergent and scrub-shrub wetland and the compensation ratio of 2:1, as designated in the Mitigation Banking Instrument for the loss of aerial extent of forested wetland. Fort Drum requests to debit 0.36 credits from the Wetland Mitigation Bank as shown in the attached Appendix F.
20. **Spawning Areas.** No spawning areas are present in the wetlands affected by this project.
21. **Management of Water Flows.** Water levels will be maintained through the extensions of the two existing cross flow culverts (Station 0+90 and 1+40) and the installation of a cross flow culvert under the newly constructed road (Station 6+90).

22. **Adverse Effects from Impoundments.** There will be no significant adverse effects to the biota related to the impounding of water.
23. **Waterfowl Breeding Areas.** No waterfowl breeding areas have been identified on the project site.
24. **Removal of Temporary Fills.** There are no proposed temporary fill in waters of the U.S.
25. **Designated Critical Resource Waters.** The site has not been designated as critical resource water.

Figure 1. The entrance to Range 50 from FUSA Bouleward.

Figure 2. Photo taken at sharp corner looking north at the beginning on the steep hill.

Figure 3. Photo taken from the west side of the existing road showing the steep slope as it crosses Deerlick Creek/ NYSDEC wetland NB-1.

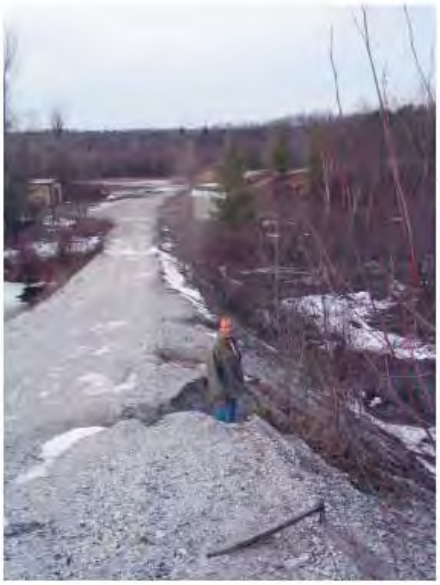


Figure 4. Photo showing the rilling and eroded banks of the access road.

Figure 5. Photo showing Deerlick Creek taken at Station 1+50 and looking northeast.

Figure 6. Photo showing forested wetland proposed to be impacted.

Appendix G

Acronym List

BMP	best management practice
CWA	Clean Water Act
DEM	Department of Environmental Management
DEP	Department of/for Environmental Protection
DEQ	Department of Environmental Quality
DHE	Department of Health and Environment
DNR	Department of Natural Resources
EPA	Environmental Protection Agency
FSA	Farm Service Agency
FWS	United States Fish and Wildlife Service
JD	jurisdictional determination
NMFS	National Marine Fisheries Service
NOS	National Ocean Service
NRCS	Natural Resources Conservation Service
NWP	nationwide permit
OSM	Office of Surface Mining
PCN	pre-construction notification
PWTB	Public Works Technical Bulletin
RWQCB	Regional Water Quality Control Board
SMCRA	Surface Mining Control and Reclamation Act
USACE	United State Army Corp of Engineers
USDA	United States Department of Agriculture
WQC	water quality certification

PWTB 200-1-71
22 January 2010