



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1229
GALVESTON TX 77553-1229

CESWG-PE-R

MEMORANDUM FOR All Regulatory Personnel

SUBJECT: Level 1 SWG Stream Condition Assessment Standard Operating Procedure

1. General: The purpose of this document is to provide a set of Standard Operating Procedures (SOP) and requirements for addressing stream mitigation and restoration in the Galveston District (District). This SOP will only be applicable when direct impacts occur within the stream bed of a water of the United States. While the intent of the SOP is to assess the current functional condition of a stream and determine the appropriate functional credits to offset for any unavoidable loss, the SOP may also be used to assess proposed stream restoration projects. However, the SOP is not intended to take the place of project specific review which may result in adjustments to compensation or restoration requirements. Aquatic resources evaluated under this SOP shall be delineated in accordance with Regulatory Guidance Letter 05-05 - Ordinary High Water Mark Identification and wetlands present in the stream and/or riparian buffer shall be delineated in accordance with 1987 Corps of Engineers Wetland Delineation Manual and any appropriate Regional supplement. Applicants should defer to 33 CFR 332, Compensatory Mitigation for Losses of Aquatic Resources, for guidance on mitigation requirements not specifically addressed in this SOP. This SOP should only be used after a permit applicant has first avoided and minimized project impacts and the district engineer determines compensatory mitigation is necessary to offset unavoidable impacts to aquatic resources. The amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions associated with the stream.

2. Interim Assessment: The purpose of the SOP is to provide predictable and repeatable assessment of stream condition for restoration and mitigation requirements associated with the District's Regulatory program. The District established an interagency-team comprised of state and federal agency partners to develop the SOP. Once developed, the District conducted an 18-month trial implementation of Level 1 in its permitting process. Comments submitted during the entire 18-month implementation trial were incorporated into the administrative record. Substantive comments and lessons learned were included in the District's finalization of the SOP.

3. Resources: In development of this stream condition assessment tool; information from existing documents has been copied, sometimes in its entirety, without appropriate citation. The following are the Corps Regulatory documents and peer reviewed literature sources used in the development of the tool:

- 33 CFR Part 332 - Compensatory Mitigation for Losses of Aquatic Resources.
- Regulatory Guidance Letter (RGL) 05-05 - Ordinary High Water Mark Identification.
- Regulatory Guidance Letter (RGL) 08-03 - Minimum Monitoring Requirements for Compensatory Mitigation Projects.
- Compensatory Stream Mitigation Standard Operation Procedures and Guidelines. March 2009. Mobile District Corps of Engineers.
- Unified Stream Methodology. January 2007. Norfolk District Corps of Engineers.
- National Water and Climate Center Technical Note 99-1-Stream Visual Assessment Protocol, December 1998 Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling.
- Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish-Second Edition, 1999. Environmental Protection Agency; Office of Water; Washington, D.C.
- Regionalization of the Index of Biotic Integrity for Texas Stream. 2002. Linam, Gordon W.; Kleinsasser, Leroy J.; and Mayes, Kevin B.
- Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data.2007. Texas Commission on Environmental Quality.
- Rosgen, D. 1996. *Applied river morphology*. Pagosa Springs, CO: Wildland Hydrology.
- Rosgen, D.L. 2001. A Practical Method of Computing Streambank Erosion Rate. Proceedings of the Seventh Federal Interagency Sedimentation Conference, Vol. 2, pp. II - 9-15, March 25-29, 2001, Reno, NV.
- Harman, W., R. Starr. 2011. Natural Channel Design Review Checklist. US Fish and Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD and US Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Wetlands Division. Washington, D.C. EPA 843-B-12-005.

4. Reevaluation: The District will conduct reoccurring reevaluation of the SOP with State and Federal agencies every two years from the date of this SOP.

5. Organization of SOP: The SOP is divided into four sections: 1) Stream Assessment Tool; 2) Evaluating Avoidance, Minimization, Stream Restoration Projects and Compensatory Mitigation Plans; 3) Impact Assessment; 4) Determination of Compensation. Important stream functions measured include the ability to transport water, transport sediment, support and maintain a community of organisms and provide a safe water supply.

- Stream Assessment Tool This section describes a tiered process for establishing the current condition of the stream function. For the purpose of this tool, the stream types include:
 - Level 1: All Ephemeral & Intermittent Streams, all Intermittent Streams with Perennial Pools will be evaluated using Level 1. In addition, all Perennial Streams and Wadeable Rivers where the proposed impacts are less than 500 linear feet will be evaluated using Level 1. The parameters sampled under Level 1 include; 1) Visual Channel Assessment; 2) Riparian Buffer Assessment; 3) Visual In-Stream Habitat Assessment; and 4) Visual Channel Alteration Assessment.
 - Level 2: Perennial Streams and/or Wadeable Rivers where the proposed impacts are equal to or greater than 500 linear feet. The parameters sampled under Level 2 include: 1) Bank Erosion Hazard Index (BEHI); 2) Riparian Buffer Assessment; 3) In-Stream Macroinvertebrate Observation 4) Regionalized Index of Biotic Integrity (Fish); and 5) Visual Channel Alteration Assessment.
- Evaluating Avoidance, Minimization, Stream Restoration Projects and Compensatory Mitigation Plans This section provides guidance on meeting the requirements of 40 CFR 230 in regards to avoidance and minimization of impacts to streams. In addition, it provided guidance on evaluating the purpose and need for stream restoration projects not associated with mitigation.
- Procedure for Impact Assessment (debits) This section describes an impact classification system and debit calculations based on the extent to which the proposed impact is expected to impair the stream. Five Impact Classifications are outlined based on the severity of their affect on the stream by altering bankfull depth, slope, velocity, flow resistance, sediment size, sediment load, and bankfull discharge.
- Determination of Compensation (credits) This section describes the methods and alternatives for fulfilling the Compensation Requirement for both onsite and offsite compensation, and explains the process. Compensation may be achieved through re-establishment, rehabilitation & enhancement and through a limited amount of preservation.


6. Reporting Requirements

- Stream Assessment Report The investigator shall provide a detailed report of the stream assessment, with justification for all conclusions. Justifications should include photographic evidence, drawings and species lists. The stream shall be delineated in accordance with Regulatory Guidance Letter 05-05 - Ordinary High Water Mark Identification and wetlands present in the stream and/or riparian buffer shall be delineated in accordance with 1987 Corps of Engineers Wetland Delineation Manual and any appropriate Regional supplement. Submitted surveys shall be in accordance with the Galveston District Standard Operating Procedure for Recording Jurisdictional Delineations using Global Position Systems.
- Mitigation Plan The applicant shall provide a compensatory mitigation plan in accordance with the 33 CFR 332.4(c). In order to realize a final, stable stream design, the mitigation plan must address land use changes, as well as a history of the streams drainage basin, both at the local and watershed level, since these changes often cause disequilibrium of upstream delivery of water flow and sediment that result in stream deficiencies. The extent and cause of the deficiencies need to be discussed. Performance measures shall be ecologically based and that are objective and verifiable.
- Monitoring Plan The applicant shall provide compensatory mitigation monitoring plan reports in accordance with Regulatory Guidance Letter 08-03 - Minimum Monitoring Requirements for Compensatory Mitigation Projects. Monitoring shall include at a minimum an annual assessment of the compensatory mitigation site utilizing the Tiered Stream Assessment Tool until such time as the applicant has received written concurrence from the District Commander that the compensatory mitigation project has met its objectives and no additional monitoring reports are required.

7. Conclusion: The District goal is a no net loss of aquatic resource function. Branch personnel shall use the Stream Condition Assessment to assess jurisdictional stream impacts and are responsible for verifying results when submitted by applicants. Complex and/or controversial stream impacts may require additional information to complete an appropriate evaluation of the proposed impacts. The District reserves the right to request additional assessment of stream on a case-by-case basis. Aquatic resources impacted by the project located outside of the stream bed shall be evaluated with the appropriate assessment protocols. Additional agency coordination that would delay further permit processing is not required. There may be unique circumstances where a mitigation ratio greater than one-to-one is required to account for: the likelihood of success; differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project; temporal losses of

aquatic resource functions; the difficulty of restoring or establishing the desired aquatic resource type and functions; and/or the distance between the affected aquatic resource and the compensation site. The rationale for the required replacement ratio and the functional assessment must be documented in the administrative record for the permit action.

5/31/14
DATE


for Dolan Dunn
Chief, Regulatory Branch