# comprehensive Data delivery README FILE

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| **Study Section** | Study 6.6: Fluvial Geomorphology (FGM) |
| **Study Component** | (1) Bed Evolution Model Development, Coordination, and Calibration  |
| **Prepared By** | Tetra Tech, Inc. |
| **Data Collection and Processing By** | Tetra Tech, Inc.  |
| **Field Date Range** | July 9, 2013 through September 17, 2014 |

**Introduction:** The overall goal of the Fluvial Geomorphology Modeling below Watana Dam Study is to model the effects of the proposed Susitna-Watana Hydroelectric Project (the Project) on the fluvial geomorphology of the Susitna River and to assist in predicting the trend and magnitude of geomorphic response. More specifically, the purpose of the modeling study, along with the Geomorphology Study (Study 6.5), is to assess the potential impact of the Project on the behavior of the river downstream of the proposed dam, with particular focus on potential changes in instream and riparian habitat.

The goal of the study component “Bed Evolution Model Development, Coordination, and Calibration” is to develop calibrated models to predict the magnitude and trend of geomorphic response to the Project and apply the developed models to estimate the potential for channel change for with-Project operations compared to existing conditions.

Tributary cross-sections are collected as one aspect in developing tributary sediment supply rates to the Susitna River Bed Evolution Models.

Longitudinal profiles were surveyed at most Middle River tributary mouths. The profiles began at the confluence of the tributary with the Susitna River and progressed upstream through the reach of interest. All profiles were referenced to a benchmark if a benchmark was present.

**Data Summary:** Channel cross-section surveys were performed for each selected tributary. The tributary survey reaches were selected to provide a representative characterization of the hydraulic conditions over a range of flows. The tributary reaches were typically located upstream of the backwater influence of the Susitna River and upstream of fan heads. In general, the cross-sections extended across the channel onto the floodplains/terraces and the cross-section spacing was on the order of 1 to 2 channel widths. Typically 4 to 10 cross-sections were surveyed at each site depending on the site complexity. The surveys were conducted using standard engineering survey techniques using a survey level, survey rod and tape measure with closed level loops.

The channel cross-section surveys are summarized within excel spreadsheets. The cross-section elevations are referenced to an arbitrary benchmark of 100.00 ft.

Longitudinal profiles were often conducted in conjunction with tributary surveys. The profiles are summarized within excel spreadsheets specific to each tributary. Profiles are referenced to a benchmark in with a geographic coordinate reference of *GCS North American 1983* and project of *NAD 1983 Stateplane Alaska 4 FIPS 5004 Feet.*

**Data Organization:** Cross-section surveys are organized by tributary whereby each tributary has one excel spreadsheet and each respective channel cross-section is organized on its own tab.

Longitudinal profiles are compiled by tributary whereby each tributary has one excel spreadsheet.

Tributary folders include:

* 4th of July Creek
* 5th of July Creek
* Caswell Creek
* Chinook Creek
* Deadhorse Creek
* Fog Creek
* Gash Creek
* Gold Creek
* Indian River
* Lane Creek
* Sheep Creek
* Sherman Creek
* Skull Creek
* Slash Creek
* Trappers Creek
* Tsusena Creek
* UNT 113.7
* UNT 144.6
* UNT 173.6
* UNT 174.3
* UNT 184.0 - Little Tsusena Creek
* Whiskers Creek

**Software or Hardware Considerations:** None.

**Online Data Link:** Folder “Tributaries” at <http://gis.suhydro.org/suwareports/SuWa/06-GEO/6.06-GEOMOD/Cross-Sections>

**Online Report Link:** Tributary cross-sections and longitudinal profiles are summarized in the following documents:

Cross-sections

**“**6.6 Fluvial Geomorphology Modeling below Watana Dam Study” under June 3, 2014; Initial Study Report – Part A, B, and C at <http://www.susitna-watanahydro.org/type/documents/> . *There are a total of 3 links associated with this report. There is one link for the following: (1) Main body text and tables [Part A 1 of 3], (2) Figures [Part A 2 of 3], and (3) Appendices and Attachment [Part A 3 of 3].*

“06.06 Fluvial Geomorphology Modeling below Watana Dam – 2014-2015 Study Implementation Report (Part 1 of 4)” under November 2015; Study Completion and 2014/2015 Implementation Reports at <http://www.susitna-watanahydro.org/type/documents/> . *There are multiple links associated with this report filing, however the link noted as “Part 1 of 4” is the most relevant to the tributary surveys of cross-section geometry.*

Cross-sections and Longitudinal Profiles

“Middle Susitna River Tributary Sediment Supply Technical Memorandum” under “2017; Study Completion and Implementation Reports” at <http://www.susitna-watanahydro.org/type/documents/>.

**[[1]](#endnote-1)**

1. **Data Distributor Contact Information:**

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