



Community Development

2025 NE Kiesky Avenue
Chehalis WA 98532

September 11, 2017

Mark Mastin
USGS
934 Broadway St. Ste 300
Tacoma, WA 98402

RE: JFA for Chehalis Datam Agreement #17WNWA30059

Dear Mr. Mastin:

Attached is one signed copies of JFA for Chehalis Datam Agreement #17WNWA30059, between Lewis County and the USGS. The agreement was reviewed and accepted by Lewis County Board of County Commissioners on Monday, September 11, 2017- Resolution 17-269.

If you have any questions, please contact me at 360.740.2606 or email lee.napier@lewiscountywa.gov.

Sincerely,

Lee Napier, Director
Lewis County Community Development



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Washington Water Science Center
934 Broadway, Suite 300
Tacoma, Washington 98402

September 5, 2017

Ms. Lee Napier
Lewis County Community Development
2025 Northeast Kresky Avenue
Chehalis, Washington 98532-2626

Dear Ms. Boettcher:

Enclosed for your review and signature is a fixed-cost Joint Funding Agreement (JFA) for changing the datums of the streamgaging network in Chehalis between the USGS and Lewis County Public Works Department (County) for federal fiscal year 2017 (September 1, 2017 – September 30, 2018). A detailed description of the program is provided in the enclosed table. The total fixed cost of this program is \$27,100, of which the County's share is \$17,100.

If this agreement is acceptable to the County, please sign both copies of the enclosed JFA and return one copy to the address above. Also, please complete the customer contact information on page two of the JFA. PLEASE NOTE: In order to continue operation of these gages, the USGS will need a signed agreement no later than September 15, 2017.

The USGS will bill you quarterly, in four equal amounts. For billing purposes, the USGS uses Department of the Interior, Down Payment (Bill) Request, form number DI-1040. If you have questions regarding billing, please contact Sharbra Gordon-Scott, Budget Analyst, at (253) 552-1698 or sgordon-scott@usgs.gov. The USGS has TIN number 916001351 on file for Lewis County. If this number is incorrect, please contact Sharbra with the correct number.

For your information, the USGS DUNS number is 093640092.

It is understood that the results of this work will be available to the USGS for publication and use in connection with related work. In addition, the USGS may provide unpublished USGS data or information to your office for scientific peer and (or) courtesy review during the course of this jointly planned activity and partnership. Guidance concerning USGS's non-disclosure policy will be provided with any review material and is further explained in USGS Circular 1367, *Fundamental Science Practices*, available at <http://pubs.usgs.gov/circ/1367/pdf/C1367.pdf>.

If you have any questions, please contact Ken Frasl, Western Washington Field Office Chief, at (253) 552-1670 or kefrasl@usgs.gov; or Mark Mastin, Assistant Center Director, at (253) 552-1609 or mcmastin@usgs.gov.

Sincerely,

A handwritten signature in cursive script that reads "Cynthia Barton".

Cynthia Barton, Ph.D., L.G., L.H.G.
Center Director

Enclosures

cc:

Ken Frasl, Western Washington Field Office Chief, USGS WAWSC, Tacoma, WA
Mark Mastin, Assistant Director, USGS WAWSC, Tacoma, WA

Form 9-1366
(April 2015)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: 6000000714 FY17
Agreement #: 17WNWA30059
Project #: 97229EU
TIN #: 91-6001351
Fixed Cost Agreement Yes No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the **1st** day of **SEPTEMBER, 2017** by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the **County of Lewis**, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation a **fixed-cost for changing the datums of the streamgaging network in the Chehalls River basin to a common datum**, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of **\$N/A**.

by the party of the first part during the period

(a) **\$10,000** **September 1, 2017 to September 30, 2018**

by the party of the second part during the period

(b) **\$17,100** **September 1, 2017 to September 30, 2018**

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of :
\$

Description of the USGS regional/nations program:

- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties..

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **QUARTERLY**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

**U.S. Geological Survey
United States
Department of the Interior**

Name of Customer

Lewis County Community Development

USGS Point of Contact

Customer Point of Contact

Name: Mark Mastin
Address: 934 Broadway St, STE 300
Tacoma, WA 98402

Name: Lee Napier
Address: 2025 NE Kresky Ave
Chehalis, WA 98532

Telephone: (253) 552-1609
Email: mcmastin@usgs.gov

Telephone: 360-740-2606
Email: Lee.Napier@lewiscountywa.gov

Signatures

Signatures

By Cynthia Barton Date 9-5-17

By Lee Napier Date 9/11/17

Name: Cynthia Barton, Ph.D., L.G., L.H.G.
Title: Center Director, USGS Washington Water Science Center

Name: Lee Napier
Title: Director

By _____ Date _____

By _____ Date _____

Name:
Title:

Name:
Title:

By _____ Date _____

By _____ Date _____

Name:
Title:

Name:
Title:

Form 9-1366
(April 2015)

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U.S. Geological Survey
Joint Funding Agreement

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U.S. Geological Survey United States Department of the Interior	Name of Customer Lewis County Community Development
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USGS Point of Contact	Customer Point of Contact
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Name: Mark Mastin
 Address: 934 Broadway St, STE 300
 Tacoma, WA 98402

Telephone: (253) 552-1609
 Email: mcmastin@usgs.gov

Name: Lee Napier
 Address: 2025 NE Kresky Ave
 Chehalis, WA 98532

Telephone: 360-740-2606
 Email: Lee.Napier@lewiscountywa.gov

Signatures

By *Cynthia Barton* Date 9-5-17

Name: Cynthia Barton, Ph.D., L.G., L.H.G.
 Title: Center Director, USGS Washington Water Science Center

Signatures

By *Lee Napier* Date 9/11/17

Name: Lee Napier
 Title: Director

By _____ Date _____

Name:
 Title:

Budget and Funding Sources:

Agency	FFY17	FFY18	Total
USGS	\$10,000	\$0	\$10,000
Chehalis River Basin Flood Authority	\$700	16,400	17,100
Total	\$10,700	\$16,400	\$27,100

Table 1. List of 16 streamgages in the Chehalis River basin for which the datum would be changed to the North American Vertical Datum of 1988, their current datum, and probable conversion method.

USGS Station No.	Station Name	Current Datum	Probable Conversion Method
12020000	Chehalis River near Doty	Arbitrary	GPS
12020525	Elk Creek below Deer Creek near Doty	NGVD 29	GPS
12020800	South Fork Chehalis River near Wildwood	NGVD 29	Levels
12021800	Chehalis River near Adna	NGVD 29	Levels
12024000	South Fork Newaukum River near Onalaska	NGVD 29	GPS
12024400	North Fork Newaukum River above Bear Creek near Forest	NGVD 29	GPS
12025000	Newaukum River near Chehalis	NGVD 29	VERTCON
12025100	Chehalis River at Wastewater Treatment Plant at Chehalis	NGVD 29	Levels
12025500	Chehalis River at Centralia	NGVD 29	VERTCON
12025700	Skookumchuck River near Vail	NGVD 29	GPS
12026150	Skookumchuck River below Bloody Run Creek near Centralia	NGVD 29	Levels
12026400	Skookumchuck River near Bucoda	NGVD 29	VERTCON
12026600	Skookumchuck River at Centralia	NGVD 29	Levels
12027500	Chehalis River near Grand Mound	NGVD 29	VERTCON
12031000	Chehalis River at Porter	NGVD 29	Levels
12035000	Satsop River near Satsop	NGVD 29	Levels

Proposal to Upgrade the Streamgage Datum at Sixteen USGS Monitoring Sites in the Chehalis River basin

Prepared by the USGS for the Chehalis River Basin Flood Authority Updated August 16, 2017

The Chehalis River Basin Flood Authority requested a proposal from the USGS for changing the datums of the streamgaging network in the Chehalis River basin to a common datum. There are 16 USGS-operated streamgages in the network that need to update their datum to North American Vertical Datum of 1988 (NAVD 88).

Note that the NWS requests that the Chehalis River Basin Flood Authority coordinate any gage or datum changes with the NWS because making changes has implications for the flood warning system, river modeling, official flood stages, historical crest records, and the hydrograph and flood inundation mapping information displayed on the webpages generated by the Advanced Hydrologic Prediction Service (AHPS). The USGS requires a 90-day notification period prior to gage datum changes at streamgages to alert stakeholders, including the NWS, of the changes (<http://water.usgs.gov/admin/memo/SW/sw13.02.html>).

Elevations of 16 streamgages (table 1) in the Chehalis River basin that currently use either an arbitrary datum or the National Geodetic Vertical Datum of 1929 (NGVD 29) will be surveyed and tied to the NAVD 88 datum. Station no. 12026600 (Skookumchuck River at Centralia) and 12025500 (Chehalis River at Centralia) that are currently operated by the National Weather Service (NWS) will be included in the survey. These sites will be provided with a nearby benchmark, but the installation of staff plates and nearby reference marks will be done by West Consultants who are taking over the operation of the gages.

NAVD 88 datums will be determined by running levels from an NAVD 88 benchmark with a vertical accuracy of 5 cm or better. If no benchmark exists within about 1/2 mile of the gage, either real-time kinematic (RTK) GPS system will be used to determine the gage elevation or the datum will be converted from an existing NGVD 29 datum using the National Geodetic Survey (NGS) program, VERTCON. A test of the accuracy of the VERTCON conversion method showed that comparing the VERTCON-derived elevations to surveyed NAVD 88 first and second order elevations in the NGS database, VERTCON was within a two hundredths of a foot when the comparison was near Centralia-Chehalis corridor that has many surrounding benchmarks and less accurate (>0.1 ft) away from the Centralia-Chehalis corridor. Those streamgages farthest away from the Centralia-Chehalis corridor will be determined by RTK GPS if no nearby benchmark exists.

Changing the datum of a gage is a complex process that involves multiple steps. For example, for each surveyed gage, approximately eight points will be surveyed, each tied back to a benchmark. These eight points include gage reference marks, multiple new staff plates for some of the gages, wire-weight gages, etc. Once the gages have been surveyed, USGS gage documentation and databases will be updated to reflect the new datum. In addition, historical measurements that are used for the most recent stage-discharge rating curve will be reentered into the database to create a new rating curve that is consistent with the new datum. The latter will need to be done for 14 of the 16 gages.

Once a Joint Funding Agreement has been signed for the proposed work, the USGS can complete the task in two month or less. The datum changes would be activated after the required public notification period described above. There are some available cooperative matching funds for federal fiscal year 2017 (FFY17) that can contribute \$10,000 for this project, but only if the agreement is signed by Sept. 15, 2017. Total cost of the project is \$27,100.