Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD – COVER SHEET

If tide staff(s) are set on NGVD 1929 or local tidal datum; place a check mark in the appropriate box(es) below and proceed to page 2

☐ Control Tide Station ☐ Subordinate Tide Station

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for determination of Staff Conversion Factor)

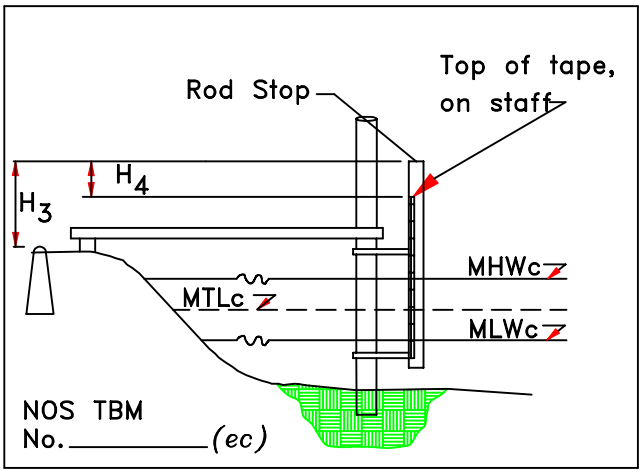
Control Tide Station Data:

(ac) No. 872 _ _ _ _, _____

(bc) Top of tape, on staff _____

(cc) H_3 = _____

(dc) H_4 = _____



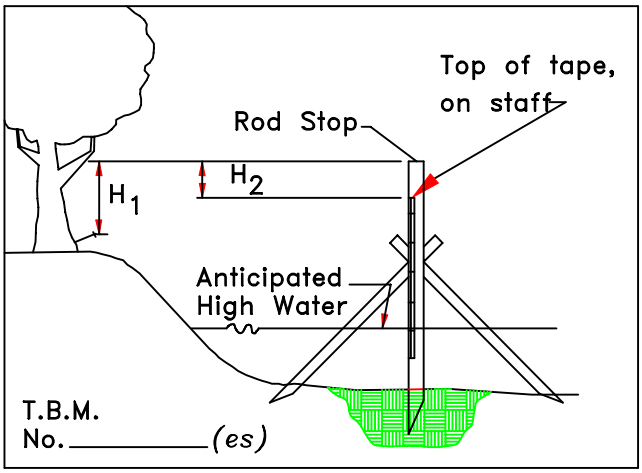
Subordinate Tide Station Data:

(as) No. _____

(bs) Top of tape, on staff _____

(cs) H_1 = _____

(ds) H_2 = _____



If NGVD is available at project site:

Description	Elevation (ft. NGVD)	on staff (feet)	source
NOS–TBM *(ec)*	*(fc)* _____ [1]	_ _ _	1
	+*(gc)* _____	_ _ _	H_3
Rod Stop	*(hc)* _____	_ _ _	
	–*(ic)* _____	_ _ _	H_4
Top of Tape on Staff	*(jc)* _____	*(bc)* _____	

Description	Elevation (ft. NGVD)	on staff (feet)	source
BM *(es)*	*(fs)* _____	_ _ _	
	+*(gs)* _____	_ _ _	H_1
Rod Stop	*(hs)* _____	_ _ _	
	–*(is)* _____	_ _ _	H_2
Top of Tape on Staff	*(js)* _____	*(bs)* _____	

To convert the published tidal datum to an "on staff" reading subtract *(jc)* from *(bc)* This is the staff conversion factor. *(kc)* _____

To convert the computed MHWs on staff reading to NGVD subtract *(js)* from *(bs)*. This is the staff conversion factor. *(ks)* _____

To determine "on staff" values of published tidal datums:

MHWc = *((kc)* _____ + (lc) _____ [1]*)* = *(mc)* _____ [3] feet, on staff

MTLc = *((kc)* _____ + (nc) _____ [1]*)* = *(oc)* _____ [3] feet, on staff

MLWc = *((kc)* _____ + (pc) _____ [1]*)* = *(qc)* _____ feet, on staff

Note: MRc = *(mc)* _____ (–) *(qc)* _____ = *(rc)* _____ (Does this value agree with MRc)?

yes ____ or no ____

To determine NGVD values of computed tidal datums:

MHWs = *((ms)* _____ [2] – (ks) _____ *)*

MHWs = *(ls)* _____ feet, NGVD

Notes:

1 NOS Published Sheets

2 from (r) Page 2, Summary Sheet

3 use in Amplitude Ratio formulae

FIGURE 16

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD – SUMMARY SHEET

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

(a) Mean High Water Computations for Subordinate Tide Station _____

(b) Based on Control Tide Station 872 _ _ _ _, _____

Given: on staff values, (see page 1)

(c) MHWc mean high water, on staff _____

(d) MRc mean range of tide _____

(e) MTLc mean tide level, on staff _____

Computations made by _____

OBSERVATION SESSION 1 DATE __/__/__

At Control Tide Station (see page 3)

(f1) HWc high water observed on staff _____

(g1) LWc low water observed on staff _____

(h1) Ac amplitude _____

At Subordinate Tide Station (see page 4)

(i1) HWs high water observed on staff _____

(j1) As amplitude _____

MHWs mean high water on staff(computed):

Box 1 MHWs _____ O_1

Development of formulae:

(1) Rc = HWc – LWc _____ (k1)

(2) Rs = Rc (As/Ac) _____ (l1)

(3) MRs = MRc (As/Ac) _____ (m1)

(4) TLc = HWc – Rc/2 _____ (n1)

(5) MHWs = (HWs – Rs/2)–(TLc – MTLc)+(MRs/2)

= ( )–( )+( )

= _____ (01) on staff (insert in box 1)

OBSERVATION SESSION 2 DATE __/__/__

At Control Tide Station (see page 5)

(f2) HWc high water observed on staff _____

(g2) LWc low water observed on staff _____

(h2) Ac amplitude _____

At Subordinate Tide Station (see page 6)

(i2) HWs high water observed on staff _____

(j2) As amplitude _____

MHWs mean high water on staff(computed):

Box 2 MHWs _____ O_2

Development of formulae:

(1) Rc = HWc – LWc _____ (k2)

(2) Rs = Rc (As/Ac) _____ (l2)

(3) MRs = MRc (As/Ac) _____ (m2)

(4) TLc = HWc – Rc/2 _____ (n2)

(5) MHWs = (HWs – Rs/2)–(TLc – MTLc)+(MRs/2)

= ( )–( )+( )

= _____ (02) on staff (insert in box 2)

OBSERVATION SESSION 3 DATE __/__/__

At Control Tide Station (see page 7)

(f3) HWc high water observed on staff _____

(g3) LWc low water observed on staff _____

(h3) Ac amplitude _____

At Subordinate Tide Station (see page 8)

(i3) HWs high water observed on staff _____

(j3) As amplitude _____

MHWs mean high water on staff(computed):

Box 3 MHWs _____ O_3

Development of formulae:

(1) Rc = HWc – LWc _____ (k3)

(2) Rs = Rc (As/Ac) _____ (l3)

(3) MRs = MRc (As/Ac) _____ (m3)

(4) TLc = HWc – Rc/2 _____ (n3)

(5) MHWs = (HWs – Rs/2)–(TLc – MTLc)+(MRs/2)

= ( )–( )+( )

= _____ (03) on staff (insert in box 3)

TIDE STUDY EVALUATION

Sum of boxes 1,2 and 3 _____ /3 = _____ (p) feet (average MHWs)

Box No	MHWs feet	Average MHWs	Deviation* feet	SURVEYORS COMMENTS
1	_____ (O_1)	_____ (p)	_____	_____
2	_____ (O_2)	_____ (p)	_____	_____
3	_____ (O_3)	_____ (p)	_____	_____

*disregard sign

Total _____ /3 = _____ (q) mean deviation

Adjusted MHWs: _____ (r) feet on staff

insert at line (ms) on page 1 of 8

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

OBSERVATION SESSION 1 at CONTROL TIDE STATION 872_____

date __/__/__ Subordinate Tide Station being observed _____

Weather conditions during high water observations:	Begin Session	End Session
Wind Speed/Direction (out of)	___mph/___	___mph/___
Temperature	___°F	___°F
Barometric Pressure	___in/Hg	___in/Hg

STAFF OBSERVATIONS by _____

Date __/__/__ Date __/__/__

CLOCK TIME (minutes)	HIGH WATER __00	__00	__00	__00	__00	LOW WATER __00	CLOCK TIME (minutes)
:00							:00
:06							:06
:12							:12
:18							:18
:24							:24
:30							:30
:36							:36
:42							:42
:48							:48
:54							:54

CLOCK TIME (24 hour format)

FIELD CURVE PLOT (HIGH WATER ONLY)

STAFF OBSERVATIONS (0.1' intervals)

(12 minute increments)

__00 __00 __00 __00 __00 __00

CLOCK TIME (24 hour format)

STAFF OBSERVATIONS

SUMMARY

HWc=_____Staff; LWc_____Staff; tc=___hr___min(_____Staff) A*c=0.___

(a) (must be equal to ts) (b) (c)

Note: (a)–(b)=(c) *(must exceed 0.2')

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

OBSERVATION SESSION 1 at SUBORDINATE TIDE STATION_____

date __/__/__ Control Tide Station 872_____, _____

Weather conditions during high water observations:	Begin Session	End Session
Wind Speed/Direction (out of)	___mph/___	___mph/___
Temperature	___°F	___°F
Barometric Pressure	___in/Hg	___in/Hg

STAFF OBSERVATIONS by _____

Date __/__/__

HIGH WATER

CLOCK TIME (minutes)	__00	__00	__00	__00	__00	__00	CLOCK TIME (minutes)
:00							:00
:06							:06
:12							:12
:18							:18
:24							:24
:30							:30
:36							:36
:42							:42
:48							:48
:54							:54

CLOCK TIME (24 hour format)

FIELD CURVE PLOT

HIGH WATER

STAFF OBSERVATIONS (0.1' intervals)

(12 minute increments)

__00 __00 __00 __00 __00 __00

CLOCK TIME (24 hour format)

SUMMARY

HWs=_____Staff; tc=____hr____min(_____Staff) As=0.____*

(a) (must be equal to †s) (b) (c)

Note: (a)–(b)=(c)

*(must exceed 0.2')

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

OBSERVATION SESSION 2 at CONTROL TIDE STATION 872_____

date __/__/__ Subordinate Tide Station being observed _____

Weather conditions during high water observations:	Begin Session	End Session
Wind Speed/Direction (out of)	___mph/___	___mph/___
Temperature	___°F	___°F
Barometric Pressure	___in/Hg	___in/Hg

STAFF OBSERVATIONS by _____

Date __/__/__ Date __/__/__

HIGH WATER LOW WATER

CLOCK TIME (minutes)	__00	__00	__00	__00	__00	__00	CLOCK TIME (minutes)
:00							:00
:06							:06
:12							:12
:18							:18
:24							:24
:30							:30
:36							:36
:42							:42
:48							:48
:54							:54

CLOCK TIME (24 hour format)

FIELD CURVE PLOT
(HIGH WATER ONLY)

STAFF OBSERVATIONS (0.1' intervals)

(12 minute increments)

__00 __00 __00 __00 __00 __00

CLOCK TIME (24 hour format)

SUMMARY

HWc=_____Staff; LWc_____Staff; tc=___hr___min(_____Staff) Ac*=0.___

(a) (must be equal to ts) (b) (c)

Note: (a)–(b)=(c) *(must exceed 0.2')

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

OBSERVATION SESSION 2 at SUBORDINATE TIDE STATION_____

date __/__/__ Control Tide Station 872_____, _____

Weather conditions during high water observations:	Begin Session	End Session
Wind Speed/Direction (out of)	___mph/___	___mph/___
Temperature	___°F	___°F
Barometric Pressure	___in/Hg	___in/Hg

STAFF OBSERVATIONS by _____

Date __/__/__

HIGH WATER

CLOCK TIME (minutes)	__00	__00	__00	__00	__00	__00	CLOCK TIME (minutes)
:00							:00
:06							:06
:12							:12
:18							:18
:24							:24
:30							:30
:36							:36
:42							:42
:48							:48
:54							:54

CLOCK TIME (24 hour format)

FIELD CURVE PLOT

HIGH WATER

STAFF OBSERVATIONS (0.1' intervals)

(12 minute increments)

__00 __00 __00 __00 __00 __00

CLOCK TIME (24 hour format)

SUMMARY

HWs=_____Staff; tc=___hr___min(_____Staff) As=0.___*

(a) (must be equal to t_s) (b) (c)

Note: (a)–(b)=(c)

*(must exceed 0.2')

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveing & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

OBSERVATION SESSION 3 at CONTROL TIDE STATION 872_____

date __/__/__ Subordinate Tide Station being observed _____

Weather conditions during high water observations:	Begin Session	End Session
Wind Speed/Direction (out of)	___mph/___	___mph/___
Temperature	___°F	___°F
Barometric Pressure	___in/Hg	___in/Hg

STAFF OBSERVATIONS by _____

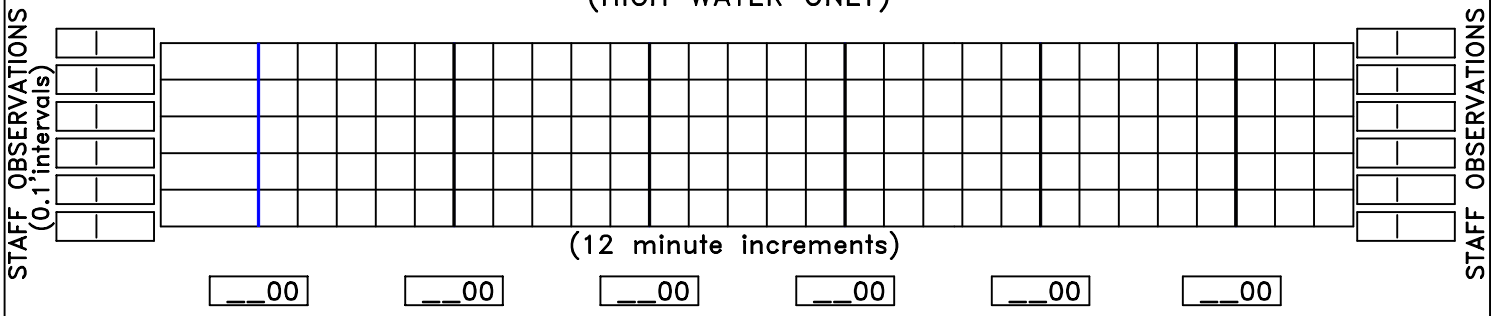
Date __/__/__ Date __/__/__

HIGH WATER LOW WATER

CLOCK TIME (minutes)	__00	__00	__00	__00	__00	__00	CLOCK TIME (minutes)
:00							:00
:06							:06
:12							:12
:18							:18
:24							:24
:30							:30
:36							:36
:42							:42
:48							:48
:54							:54

CLOCK TIME (24 hour format)

FIELD CURVE PLOT (HIGH WATER ONLY)



SUMMARY

HWc=_____Staff; LWc_____Staff; tc=___hr___min(_____Staff) Ac*=0.___

(a) (must be equal to ts) (b) (c)

Note: (a)–(b)=(c) *(must exceed 0.2')

Project _____

Observer _____ Surveyor _____ Firm _____

County _____ Section _____ Township _____ Range _____

Bureau of Surveying & Mapping

Mean High Water Data Collection Package

AMPLITUDE RATIO METHOD

(this form to be filled out by observer – copy to be submitted to FDEP; use this form for:)

OBSERVATION SESSION 3 at SUBORDINATE TIDE STATION _____

date __/__/__ Control Tide Station 872_____, _____

Weather conditions during high water observations:	Begin Session	End Session
Wind Speed/Direction (out of)	___mph/___	___mph/___
Temperature	___°F	___°F
Barometric Pressure	___in/Hg	___in/Hg

STAFF OBSERVATIONS by _____

Date __/__/__

HIGH WATER

CLOCK TIME (minutes)	__00	__00	__00	__00	__00	__00	CLOCK TIME (minutes)
:00							:00
:06							:06
:12							:12
:18							:18
:24							:24
:30							:30
:36							:36
:42							:42
:48							:48
:54							:54

CLOCK TIME (24 hour format)

FIELD CURVE PLOT

HIGH WATER

STAFF OBSERVATIONS (0.1' intervals)

(12 minute increments)

__00 __00 __00 __00 __00 __00

CLOCK TIME (24 hour format)

SUMMARY

HWs=_____Staff; tc=___hr___min(_____Staff) As=0.___*

(a) (must be equal to ts) (b) (c)

Note: (a)–(b)=(c)

*(must exceed 0.2')