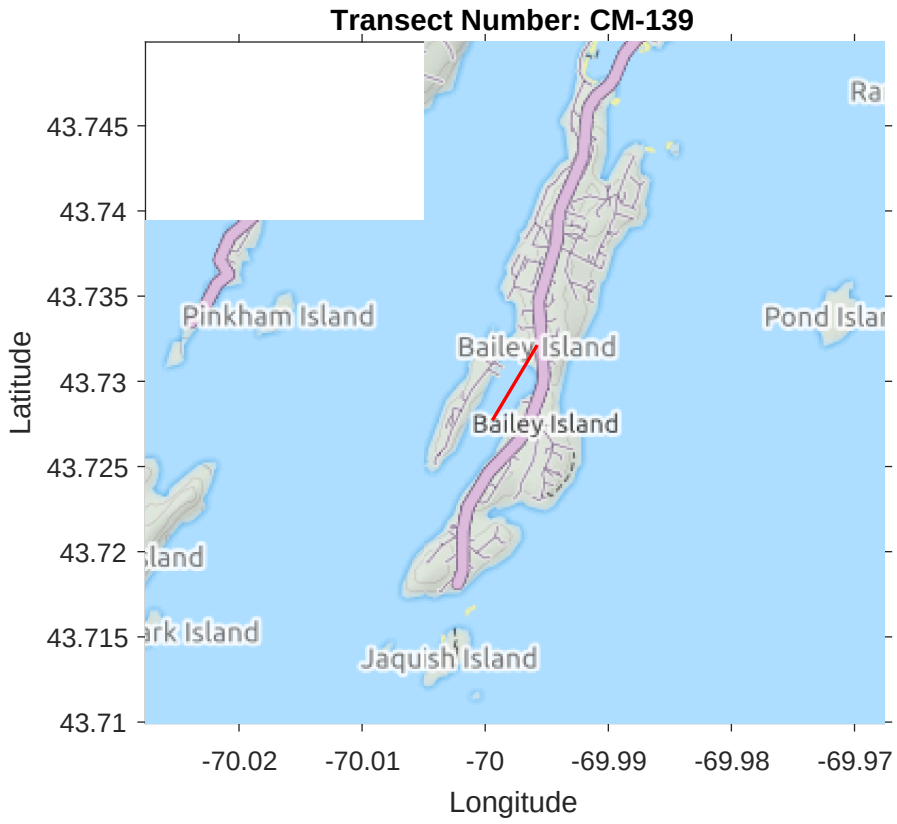
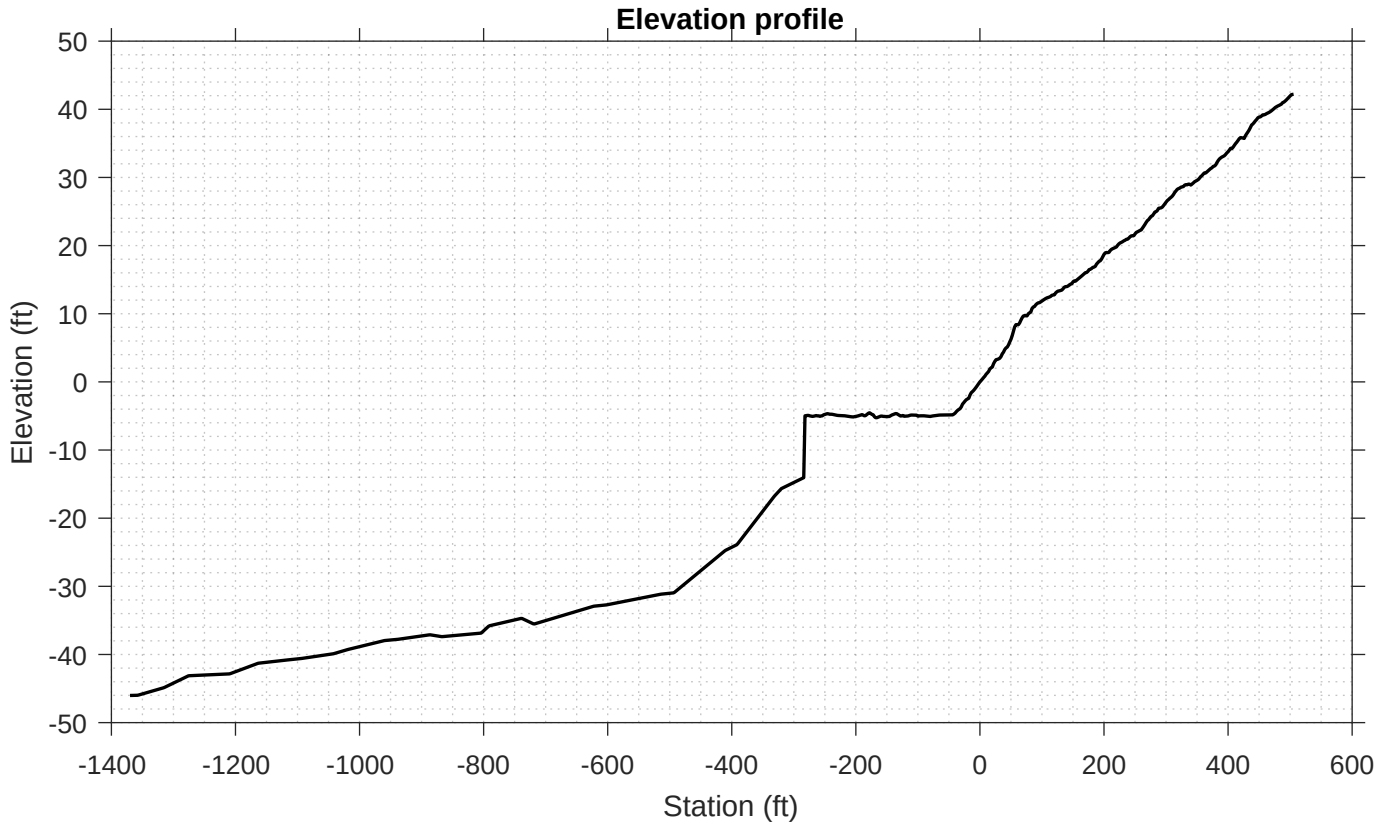

Transect Number: CM-139
Latitude
Longitude
43.745
43.74
43.735
43.73
43.725
43.72
43.715
43.71
-70.02
-70.01
-70
-69.99
-69.98
-69.97
Pinkham Island
Bailey Island
Bailey Island
Jaquish Island


Elevation profile
Elevation (ft)
Station (ft)
50
40
30
20
10
0
-10
-20
-30
-40
-50
-1400
-1200
-1000
-800
-600
-400
-200
0
200
400
600

DATA LOG FOR TRANSECT ID: CM-139

PART 1: USER INPUT

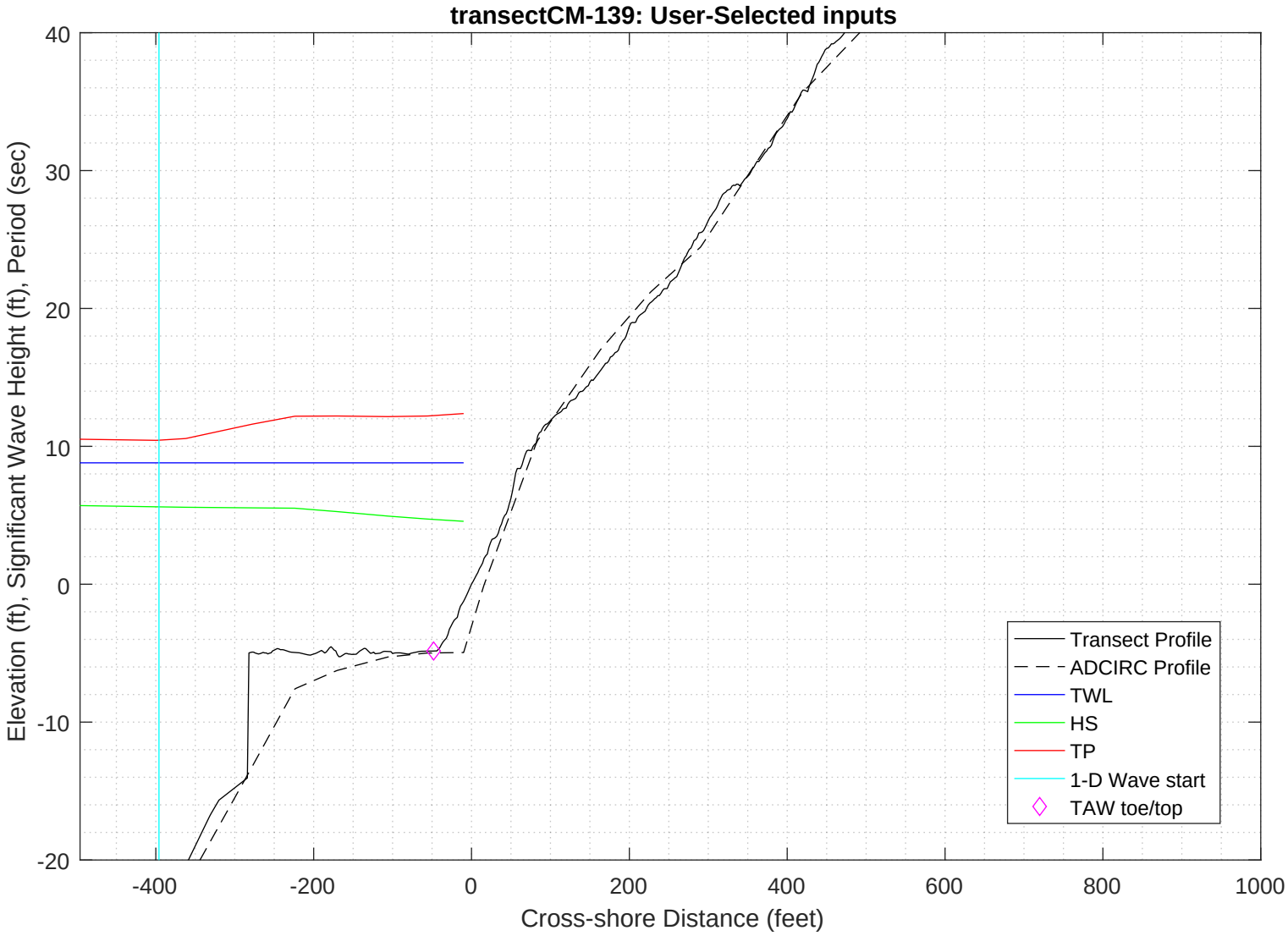
SWAN 1-D / WHAFIS input

station: -396 ft
LON: -69.9975 deg E
LAT: 43.73 deg N
Bottom ELEV: -24.08 ft-NAVD88
TWL: 8.804 ft-NAVD88
HS: 5.611 ft
TP: 10.4458 sec
Wave Direction bin: 45 deg CCW from East (90 deg sector)
Transect Direction: 50.4934 deg CCW from East

TAW/RUNUP input

toe sta: -48 ft
toe elev: -4.8444 ft-NAVD88
top sta: 500 ft
top elev: 41.9542 ft-NAVD88
Wave and water level conditions at toe to be calculated in SWAN 1-D

PART 1 COMPLETE


transectCM-139: User-Selected inputs
Elevation (ft), Significant Wave Height (ft), Period (sec)
Cross-shore Distance (feet)
40
30
20
10
0
-10
-20
-400
-200
0
200
400
600
800
1000
Transect Profile
ADCIRC Profile
TWL
HS
TP
1-D Wave start
TAW toe/top

PART 2: SWAN 1-D

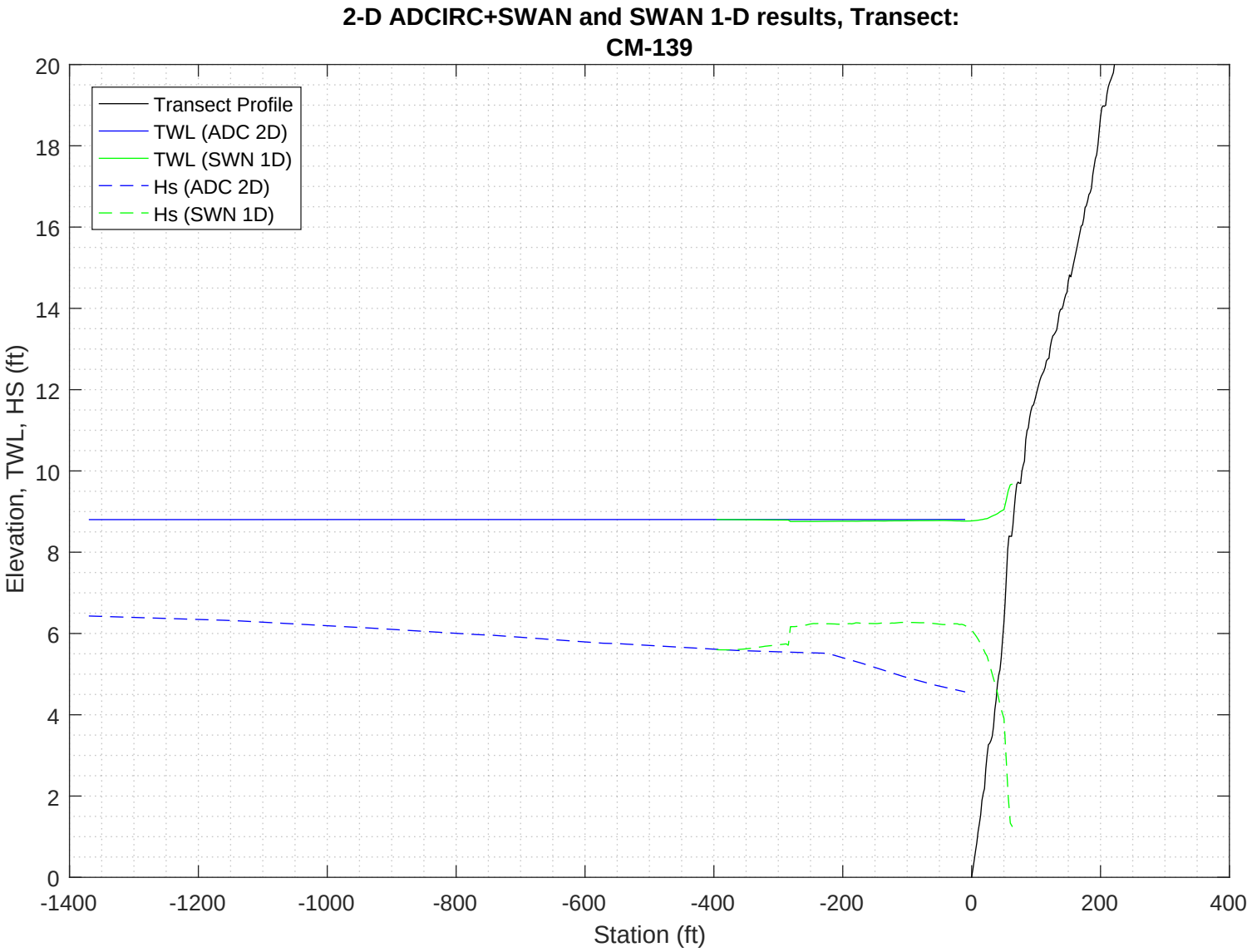
swan input grid name: 2_swan/gridfiles/CM-139zmeters_xmeters.grd
swan file name: 2_swan/swanfiles/CM-139.swn
swan output name: 2_swan/swanfiles/CM-139.dat

Boundary Conditions:
    TWL- 2.6835 meters
    HS- 1.7103 meters
    PER- 10.4458 seconds

Batch File: 2_swan/swanfiles/runswan.dat

SWAN maximum additional wave setup: 0.87295 feet
SWAN output at toe:
    SETUP- -0.023839 feet
    HS-   6.2267 feet
    PER-   10.2103 seconds

PART 2 COMPLETE


2-D ADCIRC+SWAN and SWAN 1-D results, Transect:
CM-139
Transect Profile
TWL (ADC 2D)
TWL (SWN 1D)
Hs (ADC 2D)
Hs (SWN 1D)
Elevation, TWL, HS (ft)
Station (ft)
20
18
16
14
12
10
8
6
4
2
0
-1400
-1200
-1000
-800
-600
-400
-200
0
200
400

1

```
                    Execution started at 20200220.141938


                    ---------------------------------------
                                    SWAN
                    SIMULATION OF WAVES IN NEAR SHORE AREAS
                             VERSION NUMBER 41.20A
                    ---------------------------------------


 PROJECT '2018FemaAppeal' '1'
    '100-year Wind and Wave conditions'
 ! -- SET commands ------------------------------------------------------
  SET DEPMIN=0.01 MAXMES=999 MAXERR=3 PWTAIL=4
  SET LEVEL 0
  SET CARTESIAN
 ! -- MODE commands -----------------------------------------------------
  MODE STATIONARY ONED
 !-- COORDINATES commands-----------------------------------------------
 COORDINATES CART
 !
 !  --  computational (CGRID) grid commands -------------------------------------
 !                                   xlenc=length of grid in meters
 !  mxc = number of mesh cells (one less than number of grid points)
 !CGRID REGular [xpc]  [ypc]  [alpc]  [xlenc]   [ylenc]  [mxc]  [myc] &
 !      [ CIRcle|SECtor[dir1] [dir2] ] [mdc] [flow] [fhigh] [msc]
  CGRID REGULAR   0      0       0      140       0.   140     0    &
        CIRCLE                          36    0.03    0.8     30
 Resolution in sigma-space: df/f =  0.1157
 ! -- READgrid ---- not used in 1-D mode ----------------------------------
 ! -- INPgrid commands  -------------------------------------------------------
 !INPgrid BOTtom REGular [xpinp] [ypinp] [alpinp] [mxinp] [myinp] [dxinp] [dyinp]
 !
  INPGRID BOTTOM REGULAR    0       0        0      140   0      1       1
 !READinp BOTtom [fac]  'fname1'  [idla]  [nhedf]  [FREe|FORmat[form]|UNFormatted]
  READ    BOTTOM   -1. '../gridfiles/CM-139zmeters_xmeters.grd'    1      0       FREE
 !------------------------------------------------------------------------
 ! -- WIND [vel] [dir]
 WIND      25.1  0
 ! -- BOUnd SHAPespec
 BOUND SHAPE JONSWAP 3.3  PEAK DSPR POWER
 ! -- BOUndspec
 ! BOU SIDE W CCW CON FILE 'swanspec.txt' 1
 BOUN SIDE W CCW CONSTANT PAR   1.7103     10.4458     0  2
 !-- BOUndnest1  - optional for boundary from parent run
 !-- BOUndnest2
 !-- BOUndnest3
 !-- INITial -- usest to specify initial values
 !
```

```
!---------------- P H Y S I C S ------------------------
!-- GEN1 [cf10] [cf20] [cf30] [cf40] [edm1pm] [cdrag] [umin] [cfpm]
!-- GEN2 [cf10] [cf20] [cf30] [cf40] [cf50] [cf60] [edm1pm] [cdrag] [umin] [cfpm]
    GEN3 KOMEN
!   whitecapping ( on by default)
!-- WCAPping KOMen [cds2] [stpm] [powst] [delta] [powk]
    WCAP KOM
!   quadruplet wave interactions
!-- QUADrupl [iquad] [lambda] [Cn14] [Csh1] [Csh2]
! -- BREaking CONstant [alpha] [gamma]
     BREAK    CON       1.      0.73
!-- FRICtion JONswap CONstant [cfjon]
    FRIC     JONSWAP CON       0.038
!-- TRIad [itriad] [trfac] [cutfr]   [a]  [b]  [urcrit] [urslim]
! TRIAD        1      0.65    2.5    0.95 -0.75  0.2       0.01
  TRIAD
!-- VEGEtation [height] [diamtr] [nstems] [drag]
!-- MUD [layer] [rhom] [viscm]
!- LIMiter [ursell] [qb] deactivates quadruplets with Ursell number exceeds ursell
!-- OBSTacle -- not in 1-D
!-- SETUP [supcor]
   SETUP    0
!
! ----------------- N U M E R I C S -----------------------------
!
!-- PROP  can use BBST or GSE instead of default
! -- NUMeric -- lots of options
!     NUM ACCUR npnts=100. stat 30
     NUMeric STOPC
!
! -------------------O U T P U T ------------------------------
!
!OUTPut OPTIons "comment' (TABLE [field]) (BLOck [ndec] [len]) (SPEC [ndec])
 OUTPUT OPTIONS '%' TABLE 16
 $BLOCK 9 1000 SPEC 8
!CURve 'sname' [xp1] [yp1] <[int]   [xp]   [yp] >
 CURVE 'curve' 0     0      140  140    0
!TABLe 'sname' < HEADer|NOHEADer|INDexed > 'fname' <output parameters> (output time)
 Table 'curve'   HEADER 'CM-139.dat' XP YP HSIGN TPS RTP TMM10 DIR &
 DSPR DEPTH SETUP
!QUANTITY XP hexp=99999
!
!-----------------------------------------------
 COMPUTE STATIONARY
------------------------------------------------------------------
                 COMPUTATIONAL PART OF SWAN
------------------------------------------------------------------
```

```
One-dimensional mode of SWAN is activated
Gridresolution       : MXC             141 MYC              1
                     : MCGRD           142
                     : MSC              31 MDC             36
                     : MTC               1
                     : NSTATC            0 ITERMX          50
Propagation flags    : ITFRE             1 IREFR            1
Source term flags    : IBOT              1 ISURF            1
                     : IWCAP             1 IWIND            3
                     : ITRIAD            1 IQUAD            2
                     : IVEG              0 ITURBV           0
                     : IMUD              0
Spatial step         : DX       0.1000E+01 DY      0.1000E+01
Spectral bin         : df/f     0.1157E+00 DDIR    0.1000E+02
Physical constants   : GRAV     0.9810E+01 RHO     0.1025E+04
Wind input           : WSPEED   0.2510E+02 DIR     0.0000E+00
Tail parameters      : E(f)     0.4000E+01 E(k)    0.2500E+01
                     : A(f)     0.5000E+01 A(k)    0.3000E+01
Accuracy parameters  : DREL     0.1000E-01 NPNTS   0.9950E+02
                     : DHABS    0.0000E+00 CURVAT  0.5000E-02
                     : GRWMX    0.1000E+00
Drying/flooding      : LEVEL    0.0000E+00 DEPMIN  0.1000E-01
The Cartesian convention for wind and wave directions is used
Scheme for geographic propagation is SORDUP
Scheme geogr. space  : PROPSC            2 ICMAX            7
Scheme spectral space: CSS      0.5000E+00 CDD     0.5000E+00
Current is off
Quadruplets          : IQUAD             2
                     : LAMBDA   0.2500E+00 CNL4    0.3000E+08
                     : CSH1     0.5500E+01 CSH2    0.8330E+00
                     : CSH3    -0.1250E+01
Maximum Ursell nr for Snl4 :    0.1000E+02
Triads               : ITRIAD            1 TRFAC   0.8000E+00
                     : CUTFR    0.2500E+01 URCRI   0.2000E+00
Minimum Ursell nr for Snl3 :    0.1000E-01
JONSWAP (‘73)        : GAMMA    0.3800E-01
Vegetation is off
Turbulence is off
Fluid mud is off
W-cap Komen (‘84)    : EMPCOF (CDS2):   0.2360E-04
W-cap Komen (‘84)    : APM (STPM)   :   0.3020E-02
W-cap Komen (‘84)    : POWST        :   0.2000E+01
W-cap Komen (‘84)    : DELTA        :   0.1000E+01
W-cap Komen (‘84)    : POWK         :   0.1000E+01
Wind drag is fit
Snyder/Komen wind input
Battjes&Janssen (‘78): ALPHA    0.1000E+01 GAMMA   0.7300E+00
Set-up               : SUPCOR   0.0000E+00
Diffraction is off
Janssen (‘89,‘90)    : ALPHA    0.1000E-01 KAPPA   0.4100E+00
Janssen (‘89,‘90)    : RHOA     0.1280E+01 RHOW    0.1025E+04

1st and 2nd gen. wind: CF10     0.1880E+03 CF20    0.5900E+00
                     : CF30     0.1200E+00 CF40    0.2500E+03
                     : CF50     0.2300E-02 CF60   -0.2230E+00
                     : CF70     0.0000E+00 CF80   -0.5600E+00
                     : RHOAW    0.1249E-02 EDMLPM  0.3600E-02
                     : CDRAG    0.1230E-02 UMIN    0.1000E+01
                     : LIM_PM   0.1300E+00

 ---------------------------------------------------------------
 First guess by 2nd generation model flags for first iteration:
 ITER       1 GRWMX      0.1000E+23 ALFA       0.0000E+00
 IWIND      2 IWCAP      0 IQUAD      0
 ITRIAD     1 IBOT       1 ISURF      1
 IVEG       0 ITURBV     0 IMUD       0
 ---------------------------------------------------------------
iteration    1; sweep 1
iteration    1; sweep 2
iteration    1; sweep 3
iteration    1; sweep 4
not possible to compute, first iteration

 ---------------------------------------------------------------
 Options given by user are activated for proceeding calculation:
 ITER       2 GRWMX      0.1000E+00 ALFA       0.0000E+00
 IWIND      3 IWCAP      1 IQUAD      2
 ITRIAD     1 IBOT       1 ISURF      1
 IVEG       0 ITURBV     0 IMUD       0
 ---------------------------------------------------------------
iteration    2; sweep 1
iteration    2; sweep 2
iteration    2; sweep 3
iteration    2; sweep 4
accuracy OK in  33.34 % of wet grid points ( 99.50 % required)

iteration    3; sweep 1
iteration    3; sweep 2
iteration    3; sweep 3
```

```
iteration    3; sweep 4
accuracy OK in   0.71 % of wet grid points ( 99.50 % required)

iteration    4; sweep 1
iteration    4; sweep 2
iteration    4; sweep 3
iteration    4; sweep 4
accuracy OK in  29.79 % of wet grid points ( 99.50 % required)

iteration    5; sweep 1
iteration    5; sweep 2
iteration    5; sweep 3
iteration    5; sweep 4
accuracy OK in  90.79 % of wet grid points ( 99.50 % required)

iteration    6; sweep 1
iteration    6; sweep 2
iteration    6; sweep 3
iteration    6; sweep 4
accuracy OK in  97.88 % of wet grid points ( 99.50 % required)

iteration    7; sweep 1
iteration    7; sweep 2
iteration    7; sweep 3
iteration    7; sweep 4
accuracy OK in  99.30 % of wet grid points ( 99.50 % required)

iteration    8; sweep 1
iteration    8; sweep 2
iteration    8; sweep 3
iteration    8; sweep 4
accuracy OK in  99.30 % of wet grid points ( 99.50 % required)

iteration    9; sweep 1
iteration    9; sweep 2
iteration    9; sweep 3
iteration    9; sweep 4
accuracy OK in  99.30 % of wet grid points ( 99.50 % required)

iteration   10; sweep 1
iteration   10; sweep 2
iteration   10; sweep 3
iteration   10; sweep 4
accuracy OK in  99.30 % of wet grid points ( 99.50 % required)

iteration   11; sweep 1
iteration   11; sweep 2
iteration   11; sweep 3
iteration   11; sweep 4
accuracy OK in  98.59 % of wet grid points ( 99.50 % required)

iteration   12; sweep 1
iteration   12; sweep 2
iteration   12; sweep 3
iteration   12; sweep 4
accuracy OK in  98.59 % of wet grid points ( 99.50 % required)

iteration   13; sweep 1
iteration   13; sweep 2
iteration   13; sweep 3
iteration   13; sweep 4
accuracy OK in  98.59 % of wet grid points ( 99.50 % required)

iteration   14; sweep 1
iteration   14; sweep 2
iteration   14; sweep 3
iteration   14; sweep 4
accuracy OK in  99.30 % of wet grid points ( 99.50 % required)

iteration   15; sweep 1
iteration   15; sweep 2
iteration   15; sweep 3
iteration   15; sweep 4
accuracy OK in  98.59 % of wet grid points ( 99.50 % required)

iteration   16; sweep 1
iteration   16; sweep 2
iteration   16; sweep 3
iteration   16; sweep 4
accuracy OK in 100.00 % of wet grid points ( 99.50 % required)


STOP
```

```
%
%
% Run:1     Table:curve             SWAN version:41.20A
%
%       Xp            Yp            Hsig          TPsmoo        RTpeak        Tm_10         Dir           Dspr          Depth         Setup
%      [m]           [m]            [m]           [sec]         [sec]         [sec]        [degr]        [degr]         [m]           [m]
%
          0.            0.       1.70739       10.1810       10.0005        9.4246         0.000       31.5063       10.0200      0.000000
          1.            0.       1.70663       10.1811       10.0005        9.4233         0.000       31.3287        9.9800     -0.000032
          2.            0.       1.70626       10.1814       10.0005        9.4232         0.000       31.0840        9.8899     -0.000107
          3.            0.       1.70619       10.1817       10.0005        9.4236         0.000       30.8480        9.7698     -0.000203
          4.            0.       1.70612       10.1821       10.0005        9.4240         0.000       30.6108        9.6497     -0.000302
          5.            0.       1.70616       10.1825       10.0005        9.4242         0.000       30.3693        9.5296     -0.000406
          6.            0.       1.70643       10.1828       10.0005        9.4244         0.000       30.1331        9.4095     -0.000515
          7.            0.       1.70664       10.1832       10.0005        9.4241         0.000       29.8985        9.2994     -0.000619
          8.            0.       1.70718       10.1836       10.0005        9.4239         0.000       29.6576        9.1793     -0.000738
          9.            0.       1.70787       10.1841       10.0005        9.4236         0.000       29.4147        9.0591     -0.000863
         10.            0.       1.70872       10.1845       10.0005        9.4230         0.000       29.1711        8.9390     -0.000994
         11.            0.       1.70981       10.1849       10.0005        9.4221         0.000       28.9342        8.8189     -0.001130
         12.            0.       1.71082       10.1854       10.0005        9.4207         0.000       28.6997        8.7087     -0.001261
         13.            0.       1.71220       10.1859       10.0005        9.4192         0.000       28.4602        8.5886     -0.001410
         14.            0.       1.71374       10.1863       10.0005        9.4173         0.000       28.2359        8.4684     -0.001562
         15.            0.       1.71543       10.1868       10.0005        9.4149         0.000       28.0242        8.3483     -0.001718
         16.            0.       1.71733       10.1873       10.0005        9.4120         0.000       27.8191        8.2281     -0.001880
         17.            0.       1.71909       10.1878       10.0005        9.4082         0.000       27.6154        8.1180     -0.002035
         18.            0.       1.72124       10.1884       10.0005        9.4041         0.000       27.4053        7.9978     -0.002210
         19.            0.       1.72359       10.1889       10.0005        9.3993         0.000       27.1972        7.8776     -0.002392
         20.            0.       1.72589       10.1895       10.0005        9.3936         0.000       27.0013        7.7674     -0.002566
         21.            0.       1.72810       10.1900       10.0005        9.3867       360.000       26.8133        7.6673     -0.002730
         22.            0.       1.73048       10.1905       10.0005        9.3792       360.000       26.6287        7.5671     -0.002901
         23.            0.       1.73326       10.1911       10.0005        9.3711       360.000       26.4748        7.4669     -0.003077
         24.            0.       1.73480       10.1915       10.0005        9.3606         0.000       26.3615        7.4168     -0.003169
         25.            0.       1.73655       10.1919       10.0005        9.3499         0.000       26.2686        7.3667     -0.003262
         26.            0.       1.73806       10.1923       10.0005        9.3385         0.000       26.1823        7.3267     -0.003338
         27.            0.       1.73996       10.1927       10.0005        9.3272         0.000       26.0978        7.2766     -0.003434
         28.            0.       1.74161       10.1931       10.0005        9.3153         0.000       26.0202        7.2365     -0.003513
         29.            0.       1.74324       10.1935       10.0005        9.3033         0.000       25.9385        7.1964     -0.003593
         30.            0.       1.74526       10.1940       10.0005        9.2913         0.000       25.8551        7.1463     -0.003694
         31.            0.       1.74694       10.1944       10.0005        9.2787         0.000       25.7714        7.1062     -0.003777
         32.            0.       1.74901       10.1949       10.0005        9.2663         0.000       25.6872        7.0561     -0.003882
         33.            0.       1.75076       10.1953       10.0005        9.2531         0.000       25.6028        7.0160     -0.003967
         34.            0.       1.74008       10.1958       10.0005        9.2404         0.000       23.7793        6.9659     -0.004135
         35.            0.       1.88037       10.2091       10.0005        9.2783         0.000       21.2789        4.1851     -0.014897
         36.            0.       1.88014       10.2126       10.0005        9.1662         0.000       20.4124        4.1650     -0.015030
         37.            0.       1.88052       10.2160       10.0005        9.0564         0.000       20.1945        4.1852     -0.014797
         38.            0.       1.88191       10.2189       10.0005        8.9572         0.000       20.1473        4.2054     -0.014576
         39.            0.       1.88465       10.2215       10.0005        8.8692         0.000       20.1152        4.2055     -0.014509
         40.            0.       1.88859       10.2238       10.0005        8.7906         0.000       20.0874        4.1854     -0.014587
         41.            0.       1.89084       10.2258       10.0005        8.7180         0.000       20.0980        4.1855     -0.014509
         42.            0.       1.89121       10.2274       10.0005        8.6513         0.000       20.1008        4.2057     -0.014281
         43.            0.       1.89397       10.2289       10.0005        8.5931         0.000       20.0450        4.1856     -0.014354
         44.            0.       1.89875       10.2304       10.0005        8.5390         0.000       19.9734        4.1354     -0.014647
         45.            0.       1.90113       10.2316       10.0005        8.4856         0.000       19.9211        4.1153     -0.014702
         46.            0.       1.90347       10.2326       10.0005        8.4353         0.000       19.9017        4.0953     -0.014747
         47.            0.       1.90281       10.2333       10.0005        8.3858         0.000       19.9155        4.1155     -0.014476
         48.            0.       1.90355       10.2338       10.0005        8.3417         0.000       19.9390        4.1156     -0.014360
         49.            0.       1.90284       10.2342       10.0005        8.2994         0.000       19.9872        4.1359     -0.014091
         50.            0.       1.90207       10.2343       10.0005        8.2603         0.000       20.0327        4.1562     -0.013829
         51.            0.       1.90187       10.2345       10.0005        8.2250         0.001       20.0666        4.1664     -0.013647
         52.            0.       1.90150       10.2345       10.0005        8.1922         0.001       20.0868        4.1765     -0.013470
         53.            0.       1.90171       10.2344       10.0005        8.1624         0.002       20.1022        4.1766     -0.013367
         54.            0.       1.90121       10.2343       10.0005        8.1335         0.002       20.1266        4.1868     -0.013191
         55.            0.       1.90068       10.2340       10.0005        8.1064         0.003       20.1536        4.1970     -0.013018
         56.            0.       1.90019       10.2337       10.0005        8.0808         0.003       20.1914        4.2072     -0.012847
         57.            0.       1.89904       10.2334       10.0005        8.0558         0.003       20.2333        4.2274     -0.012608
         58.            0.       1.89836       10.2330       10.0005        8.0332         0.003       20.2459        4.2376     -0.012447
         59.            0.       1.89875       10.2327       10.0005        8.0135         0.004       20.2261        4.2276     -0.012430
```

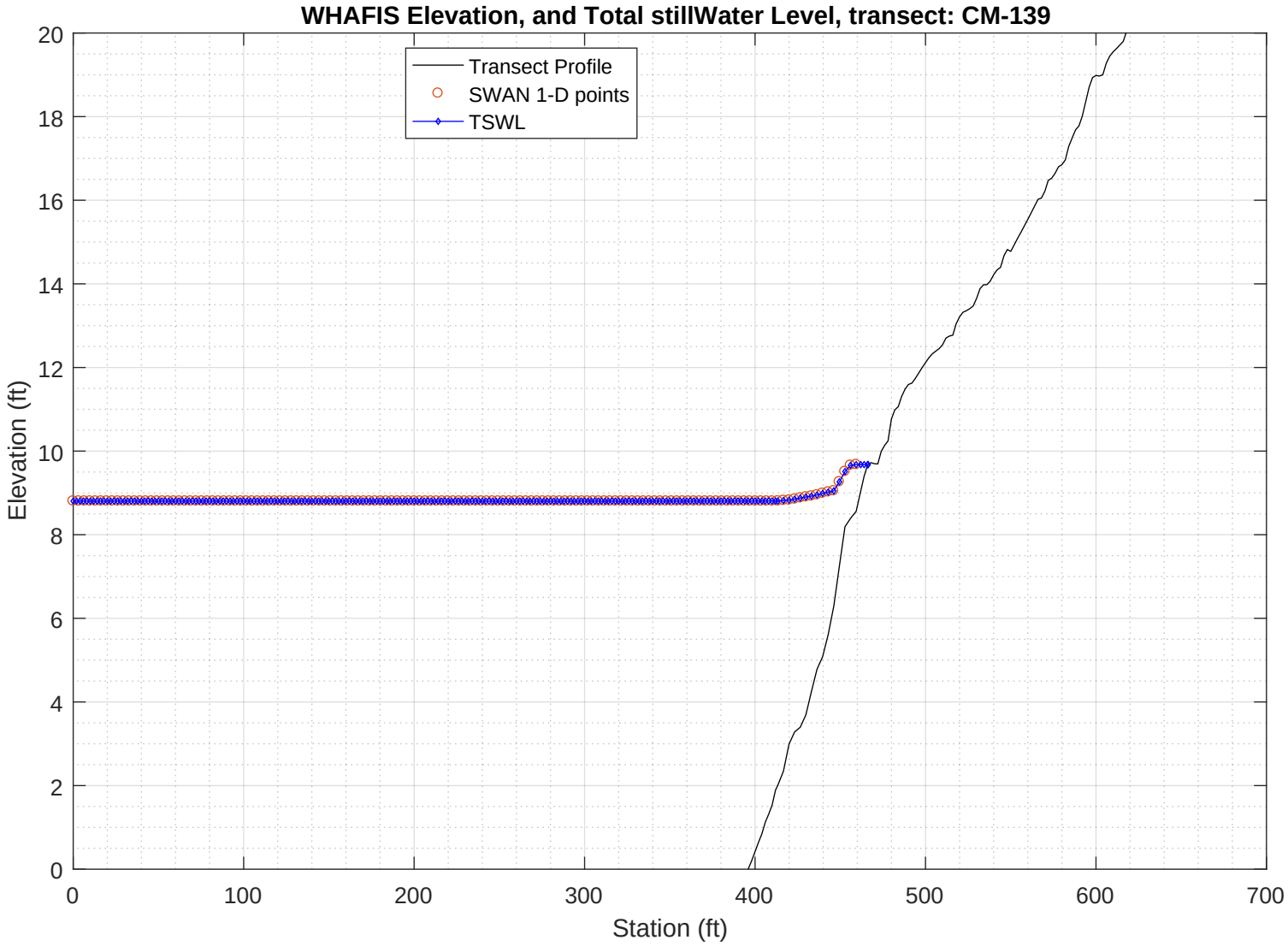
60.	0.	1.89962	10.2323	10.0005	7.9953	0.004	20.1881	4.2075	-0.012483
61.	0.	1.90032	10.2320	10.0005	7.9776	0.005	20.1367	4.1875	-0.012532
62.	0.	1.90163	10.2316	10.0005	7.9611	0.005	20.0876	4.1573	-0.012651
63.	0.	1.90294	10.2312	10.0005	7.9349	0.006	20.1001	4.1474	-0.012620
64.	0.	1.90094	10.2305	10.0005	7.9034	0.006	20.0984	4.1878	-0.012224
65.	0.	1.90428	10.2301	10.0005	7.8811	0.007	20.0071	4.1375	-0.012488
66.	0.	1.90897	10.2298	10.0005	7.8602	0.007	19.9387	4.0671	-0.012892
67.	0.	1.90819	10.2291	10.0005	7.8304	0.008	19.9881	4.0874	-0.012597
68.	0.	1.90619	10.2283	10.0005	7.7991	0.009	20.1562	4.1379	-0.012082
69.	0.	1.90140	10.2274	10.0005	7.7649	0.010	20.3451	4.2387	-0.011250
70.	0.	1.90017	10.2267	10.0005	7.7412	0.010	20.4104	4.2691	-0.010942
71.	0.	1.90197	10.2262	10.0005	7.7251	0.010	20.3916	4.2390	-0.011050
72.	0.	1.90372	10.2257	10.0005	7.7087	0.010	20.3670	4.2088	-0.011155
73.	0.	1.90381	10.2251	10.0005	7.6889	0.011	20.3737	4.2090	-0.011048
74.	0.	1.90328	10.2244	10.0005	7.6686	0.011	20.3915	4.2191	-0.010869
75.	0.	1.90329	10.2238	10.0005	7.6500	0.011	20.4034	4.2192	-0.010761
76.	0.	1.90311	10.2232	10.0005	7.6314	0.011	20.3846	4.2193	-0.010655
77.	0.	1.90503	10.2227	10.0005	7.6172	0.013	20.3273	4.1792	-0.010824
78.	0.	1.90680	10.2222	10.0005	7.6024	0.015	20.2588	4.1390	-0.010988
79.	0.	1.90862	10.2217	10.0005	7.5871	0.017	20.2169	4.0989	-0.011141
80.	0.	1.90903	10.2211	10.0005	7.5631	0.020	20.2761	4.0990	-0.010992
81.	0.	1.90654	10.2202	10.0005	7.5312	0.025	20.4123	4.1596	-0.010421
82.	0.	1.90520	10.2195	10.0005	7.5022	0.033	20.4971	4.2000	-0.010021
83.	0.	1.90726	10.2190	10.0005	7.4806	0.043	20.5585	4.1800	-0.010041
84.	0.	1.90657	10.2184	10.0005	7.4524	0.057	20.6305	4.2103	-0.009723
85.	0.	1.90798	10.2179	10.0005	7.4290	0.074	20.6698	4.2003	-0.009682
86.	0.	1.90978	10.2175	10.0005	7.4070	0.093	20.6990	4.1803	-0.009706
87.	0.	1.91150	10.2171	10.0005	7.3851	0.115	20.7440	4.1603	-0.009723
88.	0.	1.91197	10.2166	10.0005	7.3619	0.136	20.8093	4.1604	-0.009596
89.	0.	1.91248	10.2162	10.0005	7.3400	0.153	20.9057	4.1605	-0.009465
90.	0.	1.91131	10.2156	10.0005	7.3153	0.165	21.0046	4.1909	-0.009135
91.	0.	1.91157	10.2152	10.0005	7.2958	0.170	21.0667	4.1910	-0.009013
92.	0.	1.91150	10.2148	10.0005	7.2780	0.168	21.1138	4.1911	-0.008889
93.	0.	1.91138	10.2144	10.0005	7.2610	0.164	21.1650	4.1912	-0.008762
94.	0.	1.91081	10.2140	10.0005	7.2429	0.160	21.2269	4.2014	-0.008572
95.	0.	1.91026	10.2136	10.0005	7.2253	0.157	21.2907	4.2116	-0.008386
96.	0.	1.90948	10.2133	10.0005	7.2089	0.153	21.3360	4.2218	-0.008203
97.	0.	1.90941	10.2129	10.0005	7.1964	0.148	21.3493	4.2118	-0.008151
98.	0.	1.90950	10.2127	10.0005	7.1869	0.142	21.3463	4.1918	-0.008158
99.	0.	1.90876	10.2124	10.0005	7.1776	0.133	21.3389	4.1819	-0.008092
100.	0.	1.90776	10.2121	10.0005	7.1698	0.122	21.3240	4.1720	-0.008021
101.	0.	1.90656	10.2118	10.0005	7.1629	0.109	21.3032	4.1621	-0.007945
102.	0.	1.90524	10.2115	10.0005	7.1569	0.096	21.2852	4.1521	-0.007864
103.	0.	1.90339	10.2112	10.0005	7.1497	0.084	21.2763	4.1523	-0.007714
104.	0.	1.90154	10.2109	10.0005	7.1427	0.072	21.2708	4.1524	-0.007564
105.	0.	1.89971	10.2106	10.0005	7.1358	0.061	21.2673	4.1526	-0.007415
106.	0.	1.89790	10.2103	10.0005	7.1289	0.051	21.2657	4.1527	-0.007266
107.	0.	1.89594	10.2100	10.0005	7.1219	0.042	21.2389	4.1529	-0.007121
108.	0.	1.89554	10.2099	10.0005	7.1203	0.034	21.1399	4.1128	-0.007238
109.	0.	1.89718	10.2099	10.0005	7.1257	0.025	20.9765	4.0223	-0.007687
110.	0.	1.89842	10.2099	10.0005	7.1306	0.015	20.8031	3.9319	-0.008126
111.	0.	1.89779	10.2099	10.0005	7.1318	0.005	20.5786	3.8616	-0.008402
112.	0.	1.90140	10.2101	10.0005	7.1464	359.993	20.2814	3.7006	-0.009364
113.	0.	1.90182	10.2102	10.0005	7.1531	359.981	19.9928	3.5800	-0.009964
114.	0.	1.90125	10.2103	10.0005	7.1549	359.973	19.7481	3.4696	-0.010419
115.	0.	1.89564	10.2102	10.0005	7.1445	359.969	19.4710	3.4198	-0.010233
116.	0.	1.89780	10.2106	10.0005	7.1567	359.965	19.1036	3.2286	-0.011377
117.	0.	1.89298	10.2108	10.0005	7.1537	359.962	18.7822	3.1084	-0.011589
118.	0.	1.88448	10.2111	10.0005	7.1453	359.960	18.4724	3.0086	-0.011362
119.	0.	1.87511	10.2114	10.0005	7.1387	359.956	18.1300	2.8888	-0.011172
120.	0.	1.86373	10.2120	10.0005	7.1306	359.954	17.7657	2.7592	-0.010838
121.	0.	1.84829	10.2126	10.0005	7.1176	359.954	17.4110	2.6400	-0.009995
122.	0.	1.82783	10.2133	10.0005	7.0984	359.956	17.0681	2.5416	-0.008444
123.	0.	1.80495	10.2142	10.0005	7.0799	359.959	16.7059	2.4333	-0.006665
124.	0.	1.77941	10.2153	10.0005	7.0608	359.963	16.3291	2.3154	-0.004591
125.	0.	1.74963	10.2165	10.0005	7.0331	359.965	15.9374	2.2082	-0.001822
126.	0.	1.72155	10.2178	10.0005	6.9976	0.014	15.5361	2.0707	0.000682

127.	0.	1.68586	10.2189	10.0005	6.9408	0.093	15.0958	1.9747	0.004683
128.	0.	1.65893	10.2199	10.0005	6.8865	0.242	14.6090	1.7768	0.006826
129.	0.	1.60494	10.2201	10.0005	6.8220	0.317	14.2997	1.6942	0.014224
130.	0.	1.54911	10.2197	10.0005	6.7209	0.498	14.0632	1.6727	0.022668
131.	0.	1.49332	10.2192	10.0005	6.6811	0.560	13.7041	1.5900	0.030017
132.	0.	1.43913	10.2188	10.0005	6.6809	0.560	13.1883	1.4264	0.036399
133.	0.	1.37789	10.2187	10.0005	6.6754	0.526	12.6799	1.2747	0.044722
134.	0.	1.30403	10.2188	10.0005	6.6469	0.486	12.1687	1.1866	0.056625
135.	0.	1.24338	10.2186	10.0005	6.6271	0.424	11.5309	1.0361	0.066064
136.	0.	1.19186	10.2194	10.0005	6.6047	0.361	10.7415	0.8444	0.074396
137.	0.	0.90260	10.4342	10.0005	7.4537	359.019	10.8241	0.6106	0.140650
138.	0.	0.60724	11.0171	11.1572	8.4479	358.102	10.8320	0.4055	0.215470
139.	0.	0.40672	13.5028	13.8874	9.0559	357.195	10.5605	0.3907	0.260743
140.	0.	0.37907	13.6772	13.8874	8.4273	356.790	10.4531	0.3361	0.266076

PART 3: WHAFIS

WHAFIS input: CM-139.dat
WHAFIS output: CM-139.out

PART 3 COMPLETE


WHAFIS Elevation, and Total stillWater Level, transect: CM-139
Transect Profile
SWAN 1-D points
TSWL
Elevation (ft)
Station (ft)
0
2
4
6
8
10
12
14
16
18
20
0
100
200
300
400
500
600
700

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
Executed on: Thu Feb 20 14:57:37 2020
Input file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-139.dat
Output file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-139.out

header

THIS IS A 100-YEAR CASE
THE FOLLOWING NON-DEFAULT WIND SPEEDS ARE BEING USED
WINDIF 56.14 WINDOF 56.14 WINDVH 60.00

PART1 INPUT

IE	0.000	-24.080	1.000	1.000	8.804	8.978	10.446	56.140	0.045	0.000
OF	2.000	-23.989	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	4.000	-23.898	0.000	8.804	0.000	0.000	0.000	0.000	0.072	0.000
OF	6.000	-23.699	0.000	8.804	0.000	0.000	0.000	0.000	0.109	0.000
OF	8.000	-23.463	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	10.000	-23.226	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	12.000	-22.990	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	14.000	-22.754	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	16.000	-22.518	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	18.000	-22.281	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	20.000	-22.045	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	22.000	-21.809	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	24.000	-21.573	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	26.000	-21.336	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	28.000	-21.100	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	30.000	-20.864	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	32.000	-20.628	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	34.000	-20.392	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	36.000	-20.155	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	38.000	-19.919	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	40.000	-19.683	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	42.000	-19.447	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	44.000	-19.210	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	46.000	-18.974	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	48.000	-18.738	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	50.000	-18.502	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	52.000	-18.265	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	54.000	-18.029	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	56.000	-17.793	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	58.000	-17.557	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	60.000	-17.320	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	62.000	-17.084	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
OF	64.000	-16.848	0.000	8.804	0.000	0.000	0.000	0.000	0.112	0.000
OF	66.000	-16.635	0.000	8.804	0.000	0.000	0.000	0.000	0.102	0.000
OF	68.000	-16.440	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
OF	70.000	-16.244	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
OF	72.000	-16.048	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
OF	74.000	-15.852	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
OF	76.000	-15.657	0.000	8.804	0.000	0.000	0.000	0.000	0.071	0.000
OF	78.000	-15.568	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	80.000	-15.479	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	82.000	-15.390	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	84.000	-15.300	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	86.000	-15.211	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	88.000	-15.122	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	90.000	-15.033	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	92.000	-14.943	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	94.000	-14.854	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	96.000	-14.765	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	98.000	-14.676	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	100.000	-14.586	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	102.000	-14.497	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	104.000	-14.408	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	106.000	-14.318	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	108.000	-14.229	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	110.000	-14.140	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
OF	112.000	-14.051	0.000	8.804	0.000	0.000	0.000	0.000	2.290	0.000
OF	114.000	-4.981	0.000	8.804	0.000	0.000	0.000	0.000	2.275	0.000
OF	116.000	-4.950	0.000	8.804	0.000	0.000	0.000	0.000	0.015	0.000
OF	118.000	-4.920	0.000	8.804	0.000	0.000	0.000	0.000	0.005	0.000
OF	120.000	-4.928	0.000	8.804	0.000	0.000	0.000	0.000	-0.017	0.000
OF	122.000	-4.990	0.000	8.804	0.000	0.000	0.000	0.000	-0.024	0.000
OF	124.000	-5.025	0.000	8.804	0.000	0.000	0.000	0.000	-0.018	0.000
OF	126.000	-5.060	0.000	8.804	0.000	0.000	0.000	0.000	-0.003	0.000
OF	128.000	-5.036	0.000	8.804	0.000	0.000	0.000	0.000	0.017	0.000
OF	130.000	-4.992	0.000	8.804	0.000	0.000	0.000	0.000	0.023	0.000
OF	132.000	-4.945	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
OF	134.000	-4.984	0.000	8.804	0.000	0.000	0.000	0.000	-0.010	0.000
OF	136.000	-4.986	0.000	8.804	0.000	0.000	0.000	0.000	-0.017	0.000
OF	138.000	-5.054	0.000	8.804	0.000	0.000	0.000	0.000	-0.004	0.000
OF	140.000	-5.001	0.000	8.804	0.000	0.000	0.000	0.000	0.019	0.000
OF	142.000	-4.977	0.000	8.804	0.000	0.000	0.000	0.000	0.042	0.000
OF	144.000	-4.834	0.000	8.804	0.000	0.000	0.000	0.000	0.049	0.000
OF	146.000	-4.781	0.000	8.804	0.000	0.000	0.000	0.000	0.029	0.000
OF	148.000	-4.720	0.000	8.804	0.000	0.000	0.000	0.000	0.029	0.000
OF	150.000	-4.666	0.000	8.804	0.000	0.000	0.000	0.000	0.006	0.000
OF	152.000	-4.694	0.000	8.804	0.000	0.000	0.000	0.000	-0.021	0.000
OF	154.000	-4.748	0.000	8.804	0.000	0.000	0.000	0.000	-0.012	0.000
OF	156.000	-4.743	0.000	8.804	0.000	0.000	0.000	0.000	-0.003	0.000
OF	158.000	-4.759	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
OF	160.000	-4.798	0.000	8.804	0.000	0.000	0.000	0.000	-0.019	0.000
OF	162.000	-4.836	0.000	8.804	0.000	0.000	0.000	0.000	-0.019	0.000
OF	164.000	-4.874	0.000	8.804	0.000	0.000	0.000	0.000	-0.019	0.000
OF	166.000	-4.913	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
OF	168.000	-4.931	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
OF	170.000	-4.940	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
OF	172.000	-4.949	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
OF	174.000	-4.958	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
OF	176.000	-4.968	0.000	8.804	0.000	0.000	0.000	0.000	-0.004	0.000
OF	178.000	-4.976	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
OF	180.000	-5.003	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
OF	182.000	-5.031	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
OF	184.000	-5.058	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000

OF	186.000	-5.086	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
OF	188.000	-5.113	0.000	8.804	0.000	0.000	0.000	0.000	-0.011	0.000
OF	190.000	-5.131	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
OF	192.000	-5.141	0.000	8.804	0.000	0.000	0.000	0.000	0.008	0.000
OF	194.000	-5.098	0.000	8.804	0.000	0.000	0.000	0.000	0.020	0.000
OF	196.000	-5.063	0.000	8.804	0.000	0.000	0.000	0.000	0.018	0.000
OF	198.000	-5.027	0.000	8.804	0.000	0.000	0.000	0.000	0.021	0.000
OF	200.000	-4.979	0.000	8.804	0.000	0.000	0.000	0.000	0.027	0.000
OF	202.000	-4.920	0.000	8.804	0.000	0.000	0.000	0.000	0.030	0.000
OF	204.000	-4.861	0.000	8.804	0.000	0.000	0.000	0.000	0.030	0.000
OF	206.000	-4.802	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
OF	208.000	-4.888	0.000	8.804	0.000	0.000	0.000	0.000	-0.047	0.000
OF	210.000	-4.988	0.000	8.804	0.000	0.000	0.000	0.000	-0.008	0.000
OF	212.000	-4.918	0.000	8.804	0.000	0.000	0.000	0.000	0.055	0.000
OF	214.000	-4.769	0.000	8.804	0.000	0.000	0.000	0.000	0.075	0.000
OF	216.000	-4.620	0.000	8.804	0.000	0.000	0.000	0.000	0.059	0.000
OF	218.000	-4.532	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
OF	220.000	-4.645	0.000	8.803	0.000	0.000	0.000	0.000	-0.061	0.000
OF	222.000	-4.777	0.000	8.803	0.000	0.000	0.000	0.000	-0.047	0.000
OF	224.000	-4.834	0.000	8.803	0.000	0.000	0.000	0.000	-0.083	0.000
OF	226.000	-5.109	0.000	8.803	0.000	0.000	0.000	0.000	-0.106	0.000
OF	228.000	-5.258	0.000	8.803	0.000	0.000	0.000	0.000	-0.035	0.000
OF	230.000	-5.248	0.000	8.803	0.000	0.000	0.000	0.000	0.021	0.000
OF	232.000	-5.175	0.000	8.803	0.000	0.000	0.000	0.000	0.036	0.000
OF	234.000	-5.102	0.000	8.803	0.000	0.000	0.000	0.000	0.036	0.000
OF	236.000	-5.029	0.000	8.803	0.000	0.000	0.000	0.000	0.020	0.000
OF	238.000	-5.021	0.000	8.803	0.000	0.000	0.000	0.000	-0.008	0.000
OF	240.000	-5.060	0.000	8.803	0.000	0.000	0.000	0.000	-0.012	0.000
OF	242.000	-5.068	0.000	8.803	0.000	0.000	0.000	0.000	-0.007	0.000
OF	244.000	-5.089	0.000	8.803	0.000	0.000	0.000	0.000	-0.005	0.000
OF	246.000	-5.089	0.000	8.803	0.000	0.000	0.000	0.000	0.002	0.000
OF	248.000	-5.082	0.000	8.803	0.000	0.000	0.000	0.000	0.004	0.000
OF	250.000	-5.075	0.000	8.803	0.000	0.000	0.000	0.000	0.029	0.000
OF	252.000	-4.968	0.000	8.803	0.000	0.000	0.000	0.000	0.053	0.000
OF	254.000	-4.862	0.000	8.803	0.000	0.000	0.000	0.000	0.044	0.000
OF	256.000	-4.792	0.000	8.803	0.000	0.000	0.000	0.000	0.035	0.000
OF	258.000	-4.722	0.000	8.803	0.000	0.000	0.000	0.000	0.035	0.000
OF	260.000	-4.651	0.000	8.803	0.000	0.000	0.000	0.000	0.014	0.000
OF	262.000	-4.668	0.000	8.803	0.000	0.000	0.000	0.000	-0.033	0.000
OF	264.000	-4.782	0.000	8.803	0.000	0.000	0.000	0.000	-0.057	0.000
OF	266.000	-4.895	0.000	8.803	0.000	0.000	0.000	0.000	-0.057	0.000
OF	268.000	-5.009	0.000	8.803	0.000	0.000	0.000	0.000	-0.022	0.000
OF	270.000	-4.984	0.000	8.803	0.000	0.000	0.000	0.000	0.021	0.000
OF	272.000	-4.925	0.000	8.803	0.000	0.000	0.000	0.000	-0.014	0.000
OF	274.000	-5.042	0.000	8.803	0.000	0.000	0.000	0.000	-0.026	0.000
OF	276.000	-5.028	0.000	8.803	0.000	0.000	0.000	0.000	0.007	0.000
OF	278.000	-5.015	0.000	8.803	0.000	0.000	0.000	0.000	0.007	0.000
OF	280.000	-5.001	0.000	8.803	0.000	0.000	0.000	0.000	0.017	0.000
OF	282.000	-4.947	0.000	8.803	0.000	0.000	0.000	0.000	0.029	0.000
OF	284.000	-4.885	0.000	8.803	0.000	0.000	0.000	0.000	0.020	0.000
OF	286.000	-4.866	0.000	8.803	0.000	0.000	0.000	0.000	0.003	0.000
OF	288.000	-4.872	0.000	8.803	0.000	0.000	0.000	0.000	-0.003	0.000
OF	290.000	-4.878	0.000	8.803	0.000	0.000	0.000	0.000	-0.003	0.000
OF	292.000	-4.884	0.000	8.803	0.000	0.000	0.000	0.000	-0.003	0.000
OF	294.000	-4.890	0.000	8.803	0.000	0.000	0.000	0.000	-0.036	0.000
OF	296.000	-5.027	0.000	8.803	0.000	0.000	0.000	0.000	-0.026	0.000
OF	298.000	-4.993	0.000	8.803	0.000	0.000	0.000	0.000	0.012	0.000
OF	300.000	-4.979	0.000	8.803	0.000	0.000	0.000	0.000	0.004	0.000
OF	302.000	-4.978	0.000	8.803	0.000	0.000	0.000	0.000	0.000	0.000
OF	304.000	-4.977	0.000	8.803	0.000	0.000	0.000	0.000	0.000	0.000
OF	306.000	-4.979	0.000	8.803	0.000	0.000	0.000	0.000	-0.005	0.000
OF	308.000	-4.998	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
OF	310.000	-5.016	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
OF	312.000	-5.035	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
OF	314.000	-5.053	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
OF	316.000	-5.071	0.000	8.804	0.000	0.000	0.000	0.000	0.005	0.000
OF	318.000	-5.034	0.000	8.804	0.000	0.000	0.000	0.000	0.018	0.000
OF	320.000	-4.997	0.000	8.804	0.000	0.000	0.000	0.000	0.015	0.000
OF	322.000	-4.973	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
OF	324.000	-4.949	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
OF	326.000	-4.925	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
OF	328.000	-4.902	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
OF	330.000	-4.878	0.000	8.804	0.000	0.000	0.000	0.000	0.009	0.000
OF	332.000	-4.864	0.000	8.804	0.000	0.000	0.000	0.000	0.004	0.000
OF	334.000	-4.861	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
OF	336.000	-4.859	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
OF	338.000	-4.856	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
OF	340.000	-4.853	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
OF	342.000	-4.851	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
OF	344.000	-4.850	0.000	8.805	0.000	0.000	0.000	0.000	0.001	0.000
OF	346.000	-4.848	0.000	8.805	0.000	0.000	0.000	0.000	0.001	0.000
OF	348.000	-4.844	0.000	8.805	0.000	0.000	0.000	0.000	0.002	0.000
OF	350.000	-4.839	0.000	8.805	0.000	0.000	0.000	0.000	0.001	0.000
OF	352.000	-4.839	0.000	8.805	0.000	0.000	0.000	0.000	0.028	0.000
OF	354.000	-4.726	0.000	8.805	0.000	0.000	0.000	0.000	0.064	0.000
OF	356.000	-4.583	0.000	8.805	0.000	0.000	0.000	0.000	0.091	0.000
OF	358.000	-4.364	0.000	8.805	0.000	0.000	0.000	0.000	0.100	0.000
OF	360.000	-4.182	0.000	8.805	0.000	0.000	0.000	0.000	0.080	0.000
OF	362.000	-4.045	0.000	8.805	0.000	0.000	0.000	0.000	0.064	0.000
OF	364.000	-3.928	0.000	8.805	0.000	0.000	0.000	0.000	0.096	0.000
OF	366.000	-3.661	0.000	8.806	0.000	0.000	0.000	0.000	0.167	0.000
OF	368.000	-3.259	0.000	8.806	0.000	0.000	0.000	0.000	0.154	0.000
OF	370.000	-3.043	0.000	8.806	0.000	0.000	0.000	0.000	0.111	0.000
OF	372.000	-2.814	0.000	8.806	0.000	0.000	0.000	0.000	0.106	0.000
OF	374.000	-2.617	0.000	8.806	0.000	0.000	0.000	0.000	0.077	0.000
OF	376.000	-2.507	0.000	8.806	0.000	0.000	0.000	0.000	0.053	0.000
OF	378.000	-2.404	0.000	8.806	0.000	0.000	0.000	0.000	0.143	0.000
OF	380.000	-1.935	0.000	8.806	0.000	0.000	0.000	0.000	0.203	0.000
OF	382.000	-1.592	0.000	8.806	0.000	0.000	0.000	0.000	0.128	0.000
OF	384.000	-1.424	0.000	8.806	0.000	0.000	0.000	0.000	0.089	0.000
OF	386.000	-1.235	0.000	8.806	0.000	0.000	0.000	0.000	0.104	0.000
OF	388.000	-1.008	0.000	8.806	0.000	0.000	0.000	0.000	0.117	0.000

OF	390.000	-0.766	0.000	8.806	0.000	0.000	0.000	0.000	0.124	0.000
OF	392.000	-0.512	0.000	8.806	0.000	0.000	0.000	0.000	0.130	0.000
OF	394.000	-0.245	0.000	8.806	0.000	0.000	0.000	0.000	0.129	0.000
IF	396.000	0.005	0.000	8.806	0.000	0.000	0.000	0.000	0.112	0.000
IF	398.000	0.202	0.000	8.806	0.000	0.000	0.000	0.000	0.104	0.000
IF	400.000	0.420	0.000	8.806	0.000	0.000	0.000	0.000	0.110	0.000
IF	402.000	0.641	0.000	8.806	0.000	0.000	0.000	0.000	0.106	0.000
IF	404.000	0.845	0.000	8.806	0.000	0.000	0.000	0.000	0.120	0.000
IF	406.000	1.123	0.000	8.806	0.000	0.000	0.000	0.000	0.118	0.000
IF	408.000	1.317	0.000	8.806	0.000	0.000	0.000	0.000	0.102	0.000
IF	410.000	1.532	0.000	8.806	0.000	0.000	0.000	0.000	0.144	0.000
IF	412.000	1.891	0.000	8.806	0.000	0.000	0.000	0.000	0.141	0.000
IF	413.400	2.011	0.000	8.806	0.000	0.000	0.000	0.000	0.097	0.000
IF	416.700	2.347	0.000	8.819	0.000	0.000	0.000	0.000	0.151	0.000
IF	419.900	2.995	0.000	8.826	0.000	0.000	0.000	0.000	0.144	0.000
IF	423.200	3.284	0.000	8.851	0.000	0.000	0.000	0.000	0.061	0.000
IF	426.500	3.394	0.000	8.878	0.000	0.000	0.000	0.000	0.061	0.000
IF	429.800	3.689	0.000	8.903	0.000	0.000	0.000	0.000	0.130	0.000
IF	433.100	4.250	0.000	8.923	0.000	0.000	0.000	0.000	0.166	0.000
IF	436.400	4.783	0.000	8.951	0.000	0.000	0.000	0.000	0.128	0.000
IF	439.600	5.082	0.000	8.990	0.000	0.000	0.000	0.000	0.128	0.000
IF	442.900	5.614	0.000	9.021	0.000	0.000	0.000	0.000	0.184	0.000
IF	446.200	6.293	0.000	9.048	0.000	0.000	0.000	0.000	0.248	0.000
IF	449.500	7.251	0.000	9.266	0.000	0.000	0.000	0.000	0.288	0.000
IF	452.800	8.192	0.000	9.511	0.000	0.000	0.000	0.000	0.176	0.000
IF	456.000	8.393	0.000	9.660	0.000	0.000	0.000	0.000	0.057	0.000
IF	459.300	8.561	0.000	9.677	0.000	0.000	0.000	0.000	0.109	0.000
IF	462.000	9.045	0.000	9.677	0.000	0.000	0.000	0.000	0.179	0.000
IF	464.000	9.403	0.000	9.677	0.000	0.000	0.000	0.000	0.156	0.000
IF	466.000	9.668	0.000	9.677	0.000	0.000	0.000	0.000	0.119	0.000
IF	466.300	9.677	0.000	9.677	0.000	0.000	0.000	0.000	0.031	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD		BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-24.080	1.000	1.000	8.804	8.978	10.446	56.140	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	2.000	-23.989	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	4.000	-23.898	0.000	8.804	0.000	0.000	0.000	0.000	0.072	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	6.000	-23.699	0.000	8.804	0.000	0.000	0.000	0.000	0.109	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	8.000	-23.463	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	10.000	-23.226	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	12.000	-22.990	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	14.000	-22.754	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	16.000	-22.518	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	18.000	-22.281	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	20.000	-22.045	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	22.000	-21.809	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	24.000	-21.573	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	26.000	-21.336	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	28.000	-21.100	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	30.000	-20.864	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	32.000	-20.628	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	34.000	-20.392	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	36.000	-20.155	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	38.000	-19.919	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	40.000	-19.683	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	42.000	-19.447	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	44.000	-19.210	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	46.000	-18.974	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	48.000	-18.738	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	50.000	-18.502	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	52.000	-18.265	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	54.000	-18.029	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	56.000	-17.793	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	58.000	-17.557	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	60.000	-17.320	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	62.000	-17.084	0.000	8.804	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	64.000	-16.848	0.000	8.804	0.000	0.000	0.000	0.000	0.112	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	66.000	-16.635	0.000	8.804	0.000	0.000	0.000	0.000	0.102	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	68.000	-16.440	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	70.000	-16.244	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	72.000	-16.048	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	74.000	-15.852	0.000	8.804	0.000	0.000	0.000	0.000	0.098	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	76.000	-15.657	0.000	8.804	0.000	0.000	0.000	0.000	0.071	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	78.000	-15.568	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	80.000	-15.479	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	82.000	-15.390	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	84.000	-15.300	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	86.000	-15.211	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	88.000	-15.122	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	90.000	-15.033	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	92.000	-14.943	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	94.000	-14.854	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	96.000	-14.765	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	98.000	-14.676	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	100.000	-14.586	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	102.000	-14.497	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	104.000	-14.408	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	106.000	-14.318	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	108.000	-14.229	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	110.000	-14.140	0.000	8.804	0.000	0.000	0.000	0.000	0.045	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	112.000	-14.051	0.000	8.804	0.000	0.000	0.000	0.000	2.290	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	114.000	-4.981	0.000	8.804	0.000	0.000	0.000	0.000	2.275	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	116.000	-4.950	0.000	8.804	0.000	0.000	0.000	0.000	0.015	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	118.000	-4.920	0.000	8.804	0.000	0.000	0.000	0.000	0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	120.000	-4.928	0.000	8.804	0.000	0.000	0.000	0.000	-0.017	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	122.000	-4.990	0.000	8.804	0.000	0.000	0.000	0.000	-0.024	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	124.000	-5.025	0.000	8.804	0.000	0.000	0.000	0.000	-0.018	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	126.000	-5.060	0.000	8.804	0.000	0.000	0.000	0.000	-0.003	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	128.000	-5.036	0.000	8.804	0.000	0.000	0.000	0.000	0.017	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	130.000	-4.992	0.000	8.804	0.000	0.000	0.000	0.000	0.023	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	132.000	-4.945	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	134.000	-4.984	0.000	8.804	0.000	0.000	0.000	0.000	-0.010	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	136.000	-4.986	0.000	8.804	0.000	0.000	0.000	0.000	-0.017	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	138.000	-5.054	0.000	8.804	0.000	0.000	0.000	0.000	-0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	140.000	-5.001	0.000	8.804	0.000	0.000	0.000	0.000	0.019	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	142.000	-4.977	0.000	8.804	0.000	0.000	0.000	0.000	0.042	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	144.000	-4.834	0.000	8.804	0.000	0.000	0.000	0.000	0.049	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	146.000	-4.781	0.000	8.804	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	148.000	-4.720	0.000	8.804	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	150.000	-4.666	0.000	8.804	0.000	0.000	0.000	0.000	0.006	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	152.000	-4.694	0.000	8.804	0.000	0.000	0.000	0.000	-0.021	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	154.000	-4.748	0.000	8.804	0.000	0.000	0.000	0.000	-0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	156.000	-4.743	0.000	8.804	0.000	0.000	0.000	0.000	-0.003	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	158.000	-4.759	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	160.000	-4.798	0.000	8.804	0.000	0.000	0.000	0.000	-0.019	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	162.000	-4.836	0.000	8.804	0.000	0.000	0.000	0.000	-0.019	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	164.000	-4.874	0.000	8.804	0.000	0.000	0.000	0.000	-0.019	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	166.000	-4.913	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	168.000	-4.931	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	170.000	-4.940	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	172.000	-4.949	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	174.000	-4.958	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	176.000	-4.968	0.000	8.804	0.000	0.000	0.000	0.000	-0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	178.000	-4.976	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	180.000	-5.003	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	182.000	-5.031	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	184.000	-5.058	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	186.000	-5.086	0.000	8.804	0.000	0.000	0.000	0.000	-0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	188.000	-5.113	0.000	8.804	0.000	0.000	0.000	0.000	-0.011	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	190.000	-5.131	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	192.000	-5.141	0.000	8.804	0.000	0.000	0.000	0.000	0.008	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	194.000	-5.098	0.000	8.804	0.000	0.000	0.000	0.000	0.020	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	196.000	-5.063	0.000	8.804	0.000	0.000	0.000	0.000	0.018	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	198.000	-5.027	0.000	8.804	0.000	0.000	0.000	0.000	0.021	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	200.000	-4.979	0.000	8.804	0.000	0.000	0.000	0.000	0.027	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	202.000	-4.920	0.000	8.804	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	204.000	-4.861	0.000	8.804	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	206.000	-4.802	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	208.000	-4.888	0.000	8.804	0.000	0.000	0.000	0.000	-0.047	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	210.000	-4.988	0.000	8.804	0.000	0.000	0.000	0.000	-0.008	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	212.000	-4.918	0.000	8.804	0.000	0.000	0.000	0.000	0.055	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	214.000	-4.769	0.000	8.804	0.000	0.000	0.000	0.000	0.075	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	216.000	-4.620	0.000	8.804	0.000	0.000	0.000	0.000	0.059	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	218.000	-4.532	0.000	8.804	0.000	0.000	0.000	0.000	-0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	220.000	-4.645	0.000	8.803	0.000	0.000	0.000	0.000	-0.061	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	222.000	-4.777	0.000	8.803	0.000	0.000	0.000	0.000	-0.047	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	224.000	-4.834	0.000	8.803	0.000	0.000	0.000	0.000	-0.083	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	226.000	-5.109	0.000	8.803	0.000	0.000	0.000	0.000	-0.106	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	228.000	-5.258	0.000	8.803	0.000	0.000	0.000	0.000	-0.035	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	230.000	-5.248	0.000	8.803	0.000	0.000	0.000	0.000	0.021	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	232.000	-5.175	0.000	8.803	0.000	0.000	0.000	0.000	0.036	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	234.000	-5.102	0.000	8.803	0.000	0.000	0.000	0.000	0.036	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	236.000	-5.029	0.000	8.803	0.000	0.000	0.000	0.000	0.020	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	238.000	-5.021	0.000	8.803	0.000	0.000	0.000	0.000	-0.008	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	240.000	-5.060	0.000	8.803	0.000	0.000	0.000	0.000	-0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	242.000	-5.068	0.000	8.803	0.000	0.000	0.000	0.000	-0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	244.000	-5.089	0.000	8.803	0.000	0.000	0.000	0.000	-0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	246.000	-5.089	0.000	8.803	0.000	0.000	0.000	0.000	0.002	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	248.000	-5.082	0.000	8.803	0.000	0.000	0.000	0.000	0.004	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	250.000	-5.075	0.000	8.803	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	252.000	-4.968	0.000	8.803	0.000	0.000	0.000	0.000	0.053	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	254.000	-4.862	0.000	8.803	0.000	0.000	0.000	0.000	0.044	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	256.000	-4.792	0.000	8.803	0.000	0.000	0.000	0.000	0.035	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	258.000	-4.722	0.000	8.803	0.000	0.000	0.000	0.000	0.035	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	260.000	-4.651	0.000	8.803	0.000	0.000	0.000	0.000	0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	262.000	-4.668	0.000	8.803	0.000	0.000	0.000	0.000	-0.033	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	264.000	-4.782	0.000	8.803	0.000	0.000	0.000	0.000	-0.057	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	266.000	-4.895	0.000	8.803	0.000	0.000	0.000	0.000	-0.057	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	268.000	-5.009	0.000	8.803	0.000	0.000	0.000	0.000	-0.022	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	270.000	-4.984	0.000	8.803	0.000	0.000	0.000	0.000	0.021	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	272.000	-4.925	0.000	8.803	0.000	0.000	0.000	0.000	-0.014	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	274.000	-5.042	0.000	8.803	0.000	0.000	0.000	0.000	-0.026	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	276.000	-5.028	0.000	8.803	0.000	0.000	0.000	0.000	0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	278.000	-5.015	0.000	8.803	0.000	0.000	0.000	0.000	0.007	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	280.000	-5.001	0.000	8.803	0.000	0.000	0.000	0.000	0.017	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	282.000	-4.947	0.000	8.803	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	284.000	-4.885	0.000	8.803	0.000	0.000	0.000	0.000	0.020	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	286.000	-4.866	0.000	8.803	0.000	0.000	0.000	0.000	0.003	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	288.000	-4.872	0.000	8.803	0.000	0.000	0.000	0.000	-0.003	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	290.000	-4.878	0.000	8.803	0.000	0.000	0.000	0.000	-0.003	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	292.000	-4.884	0.000	8.803	0.000	0.000	0.000	0.000	-0.003	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	294.000	-4.890	0.000	8.803	0.000	0.000	0.000	0.000	-0.036	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	296.000	-5.027	0.000	8.803	0.000	0.000	0.000	0.000	-0.026	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	298.000	-4.993	0.000	8.803	0.000	0.000	0.000	0.000	0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	300.000	-4.979	0.000	8.803	0.000	0.000	0.000	0.000	0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	302.000	-4.978	0.000	8.803	0.000	0.000	0.000	0.000	0.000	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	304.000	-4.977	0.000	8.803	0.000	0.000	0.000	0.000	0.000	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	306.000	-4.979	0.000	8.803	0.000	0.000	0.000	0.000	-0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	308.000	-4.998	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	310.000	-5.016	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	312.000	-5.035	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	314.000	-5.053	0.000	8.804	0.000	0.000	0.000	0.000	-0.009	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	316.000	-5.071	0.000	8.804	0.000	0.000	0.000	0.000	0.005	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	318.000	-5.034	0.000	8.804	0.000	0.000	0.000	0.000	0.018	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	320.000	-4.997	0.000	8.804	0.000	0.000	0.000	0.000	0.015	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	322.000	-4.973	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	324.000	-4.949	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	326.000	-4.925	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	328.000	-4.902	0.000	8.804	0.000	0.000	0.000	0.000	0.012	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	330.000	-4.878	0.000	8.804	0.000	0.000	0.000	0.000	0.009	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	332.000	-4.864	0.000	8.804	0.000	0.000	0.000	0.000	0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	334.000	-4.861	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	336.000	-4.859	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	338.000	-4.856	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	340.000	-4.853	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	342.000	-4.851	0.000	8.804	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	344.000	-4.850	0.000	8.805	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	346.000	-4.848	0.000	8.805	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	348.000	-4.844	0.000	8.805	0.000	0.000	0.000	0.000	0.002	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	350.000	-4.839	0.000	8.805	0.000	0.000	0.000	0.000	0.001	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	352.000	-4.839	0.000	8.805	0.000	0.000	0.000	0.000	0.028	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	354.000	-4.726	0.000	8.805	0.000	0.000	0.000	0.000	0.064	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	356.000	-4.583	0.000	8.805	0.000	0.000	0.000	0.000	0.091	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	358.000	-4.364	0.000	8.805	0.000	0.000	0.000	0.000	0.100	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	360.000	-4.182	0.000	8.805	0.000	0.000	0.000	0.000	0.080	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	362.000	-4.045	0.000	8.805	0.000	0.000	0.000	0.000	0.064	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	364.000	-3.928	0.000	8.805	0.000	0.000	0.000	0.000	0.096	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	366.000	-3.661	0.000	8.806	0.000	0.000	0.000	0.000	0.167	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	368.000	-3.259	0.000	8.806	0.000	0.000	0.000	0.000	0.154	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	370.000	-3.043	0.000	8.806	0.000	0.000	0.000	0.000	0.111	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	372.000	-2.814	0.000	8.806	0.000	0.000	0.000	0.000	0.106	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	374.000	-2.617	0.000	8.806	0.000	0.000	0.000	0.000	0.077	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	376.000	-2.507	0.000	8.806	0.000	0.000	0.000	0.000	0.053	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	378.000	-2.404	0.000	8.806	0.000	0.000	0.000	0.000	0.143	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	380.000	-1.935	0.000	8.806	0.000	0.000	0.000	0.000	0.203	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	382.000	-1.592	0.000	8.806	0.000	0.000	0.000	0.000	0.128	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	384.000	-1.424	0.000	8.806	0.000	0.000	0.000	0.000	0.089	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	386.000	-1.235	0.000	8.806	0.000	0.000	0.000	0.000	0.104	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	388.000	-1.008	0.000	8.806	0.000	0.000	0.000	0.000	0.117	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	390.000	-0.766	0.000	8.806	0.000	0.000	0.000	0.000	0.124	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	392.000	-0.512	0.000	8.806	0.000	0.000	0.000	0.000	0.130	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	394.000	-0.245	0.000	8.806	0.000	0.000	0.000	0.000	0.129	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	396.000	0.005	0.000	8.806	0.000	0.000	0.000	0.000	0.112	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	398.000	0.202	0.000	8.806	0.000	0.000	0.000	0.000	0.104	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	400.000	0.420	0.000	8.806	0.000	0.000	0.000	0.000	0.110	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	402.000	0.641	0.000	8.806	0.000	0.000	0.000	0.000	0.106	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	404.000	0.845	0.000	8.806	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	406.000	1.123	0.000	8.806	0.000	0.000	0.000	0.000	0.118	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	408.000	1.317	0.000	8.806	0.000	0.000	0.000	0.000	0.102	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	410.000	1.532	0.000	8.806	0.000	0.000	0.000	0.000	0.144	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	412.000	1.891	0.000	8.806	0.000	0.000	0.000	0.000	0.141	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	413.400	2.011	0.000	8.806	0.000	0.000	0.000	0.000	0.097	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	416.700	2.347	0.000	8.819	0.000	0.000	0.000	0.000	0.151	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	419.900	2.995	0.000	8.826	0.000	0.000	0.000	0.000	0.144	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	423.200	3.284	0.000	8.851	0.000	0.000	0.000	0.000	0.061	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	426.500	3.394	0.000	8.878	0.000	0.000	0.000	0.000	0.061	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	429.800	3.689	0.000	8.903	0.000	0.000	0.000	0.000	0.130	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	433.100	4.250	0.000	8.923	0.000	0.000	0.000	0.000	0.166	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	436.400	4.783	0.000	8.951	0.000	0.000	0.000	0.000	0.128	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	439.600	5.082	0.000	8.990	0.000	0.000	0.000	0.000	0.128	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	442.900	5.614	0.000	9.021	0.000	0.000	0.000	0.000	0.184	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	446.200	6.293	0.000	9.048	0.000	0.000	0.000	0.000	0.248	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	449.500	7.251	0.000	9.266	0.000	0.000	0.000	0.000	0.288	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	452.800	8.192	0.000	9.511	0.000	0.000	0.000	0.000	0.176	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	456.000	8.393	0.000	9.660	0.000	0.000	0.000	0.000	0.057	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	459.300	8.561	0.000	9.677	0.000	0.000	0.000	0.000	0.109	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	462.000	9.045	0.000	9.677	0.000	0.000	0.000	0.000	0.179	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	464.000	9.403	0.000	9.677	0.000	0.000	0.000	0.000	0.156	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	466.000	9.668	0.000	9.677	0.000	0.000	0.000	0.000	0.119	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	466.300	9.677	0.000	9.677	0.000	0.000	0.000	0.000	0.031	0.000

----------END OF TRANSECT----------

NOTE:
SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS

	LOCATION	CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	8.98	10.45	15.09
OF	2.00	8.98	10.45	15.09
OF	4.00	8.99	10.45	15.10
OF	6.00	9.00	10.45	15.11
OF	8.00	9.02	10.45	15.12
OF	10.00	9.04	10.45	15.13
OF	12.00	9.05	10.45	15.14
OF	14.00	9.07	10.45	15.15
OF	16.00	9.09	10.45	15.17
OF	18.00	9.11	10.45	15.18
OF	20.00	9.12	10.45	15.19
OF	22.00	9.14	10.45	15.20
OF	24.00	9.16	10.45	15.22
OF	26.00	9.18	10.45	15.23
OF	28.00	9.20	10.45	15.24
OF	30.00	9.22	10.45	15.26
OF	32.00	9.24	10.45	15.27
OF	34.00	9.26	10.45	15.28
OF	36.00	9.28	10.45	15.30
OF	38.00	9.30	10.45	15.31
OF	40.00	9.32	10.45	15.33
OF	42.00	9.34	10.45	15.34
OF	44.00	9.36	10.45	15.36
OF	46.00	9.38	10.45	15.37
OF	48.00	9.40	10.45	15.39
OF	50.00	9.43	10.45	15.40
OF	52.00	9.45	10.45	15.42
OF	54.00	9.47	10.45	15.43
OF	56.00	9.49	10.45	15.45
OF	58.00	9.52	10.45	15.47
OF	60.00	9.54	10.45	15.48
OF	62.00	9.57	10.45	15.50
OF	64.00	9.59	10.45	15.52
OF	66.00	9.61	10.45	15.53
OF	68.00	9.64	10.45	15.55
OF	70.00	9.66	10.45	15.56
OF	72.00	9.68	10.45	15.58
OF	74.00	9.70	10.45	15.59
OF	76.00	9.72	10.45	15.61
OF	78.00	9.73	10.45	15.62
OF	80.00	9.74	10.45	15.62
OF	82.00	9.75	10.45	15.63
OF	84.00	9.76	10.45	15.64
OF	86.00	9.78	10.45	15.65
OF	88.00	9.79	10.45	15.65
OF	90.00	9.80	10.45	15.66
OF	92.00	9.81	10.45	15.67
OF	94.00	9.82	10.45	15.68
OF	96.00	9.83	10.45	15.68
OF	98.00	9.84	10.45	15.69
OF	100.00	9.85	10.45	15.70
OF	102.00	9.86	10.45	15.71
OF	104.00	9.87	10.45	15.72
OF	106.00	9.89	10.45	15.72
OF	108.00	9.90	10.45	15.73
OF	110.00	9.91	10.45	15.74
OF	112.00	9.92	10.45	15.75
OF	114.00	9.99	10.45	15.80
OF	116.00	9.98	10.45	15.79
OF	118.00	9.98	10.45	15.79
OF	120.00	9.98	10.45	15.79
OF	122.00	10.00	10.45	15.80
OF	124.00	10.01	10.45	15.81
OF	126.00	10.02	10.45	15.81
OF	128.00	10.01	10.45	15.81
OF	130.00	10.01	10.45	15.81
OF	132.00	10.00	10.45	15.80
OF	134.00	10.01	10.45	15.81
OF	136.00	10.01	10.45	15.81
OF	138.00	10.03	10.45	15.82
OF	140.00	10.02	10.45	15.82
OF	142.00	10.02	10.45	15.81
OF	144.00	9.99	10.45	15.80
OF	146.00	9.98	10.45	15.79
OF	148.00	9.97	10.45	15.78
OF	150.00	9.96	10.45	15.78
OF	152.00	9.97	10.45	15.78
OF	154.00	9.98	10.45	15.79
OF	156.00	9.98	10.45	15.79
OF	158.00	9.99	10.45	15.80
OF	160.00	10.00	10.45	15.80
OF	162.00	10.01	10.45	15.81
OF	164.00	10.02	10.45	15.82
OF	166.00	10.03	10.45	15.82
OF	168.00	10.03	10.45	15.83
OF	170.00	10.04	10.45	15.83
OF	172.00	10.04	10.45	15.83
OF	174.00	10.05	10.45	15.84
OF	176.00	10.05	10.45	15.84
OF	178.00	10.05	10.45	15.84
OF	180.00	10.06	10.45	15.85
OF	182.00	10.07	10.45	15.85
OF	184.00	10.08	10.45	15.86
OF	186.00	10.08	10.45	15.86
OF	188.00	10.09	10.45	15.87
OF	190.00	10.10	10.45	15.87
OF	192.00	10.10	10.45	15.87

OF	194.00	10.09	10.45	15.87
OF	196.00	10.09	10.45	15.87
OF	198.00	10.08	10.45	15.86
OF	200.00	10.08	10.45	15.86
OF	202.00	10.07	10.45	15.85
OF	204.00	10.06	10.45	15.84
OF	206.00	10.05	10.45	15.84
OF	208.00	10.07	10.45	15.85
OF	210.00	10.09	10.45	15.87
OF	212.00	10.08	10.45	15.86
OF	214.00	10.05	10.45	15.84
OF	216.00	10.06	10.45	15.85
OF	218.00	10.02	10.45	15.82
OF	220.00	10.01	10.45	15.81
OF	222.00	10.02	10.45	15.82
OF	224.00	10.04	10.45	15.83
OF	226.00	10.09	10.45	15.87
OF	228.00	10.12	10.45	15.89
OF	230.00	10.12	10.45	15.89
OF	232.00	10.11	10.45	15.88
OF	234.00	10.10	10.45	15.87
OF	236.00	10.09	10.45	15.86
OF	238.00	10.09	10.45	15.86
OF	240.00	10.10	10.45	15.87
OF	242.00	10.10	10.45	15.87
OF	244.00	10.11	10.45	15.88
OF	246.00	10.11	10.45	15.88
OF	248.00	10.11	10.45	15.88
OF	250.00	10.11	10.45	15.88
OF	252.00	10.09	10.45	15.87
OF	254.00	10.07	10.45	15.85
OF	256.00	10.06	10.45	15.84
OF	258.00	10.06	10.45	15.84
OF	260.00	10.07	10.45	15.85
OF	262.00	10.07	10.45	15.85
OF	264.00	10.06	10.45	15.84
OF	266.00	10.08	10.45	15.86
OF	268.00	10.11	10.45	15.88
OF	270.00	10.11	10.45	15.88
OF	272.00	10.10	10.45	15.87
OF	274.00	10.12	10.45	15.89
OF	276.00	10.12	10.45	15.89
OF	278.00	10.12	10.45	15.89
OF	280.00	10.12	10.45	15.89
OF	282.00	10.11	10.45	15.88
OF	284.00	10.10	10.45	15.87
OF	286.00	10.10	10.45	15.87
OF	288.00	10.10	10.45	15.88
OF	290.00	10.11	10.45	15.88
OF	292.00	10.11	10.45	15.88
OF	294.00	10.11	10.45	15.88
OF	296.00	10.14	10.45	15.90
OF	298.00	10.14	10.45	15.90
OF	300.00	10.14	10.45	15.90
OF	302.00	10.14	10.45	15.90
OF	304.00	10.14	10.45	15.90
OF	306.00	10.14	10.45	15.90
OF	308.00	10.15	10.45	15.91
OF	310.00	10.16	10.45	15.91
OF	312.00	10.16	10.45	15.92
OF	314.00	10.17	10.45	15.92
OF	316.00	10.17	10.45	15.93
OF	318.00	10.17	10.45	15.92
OF	320.00	10.16	10.45	15.92
OF	322.00	10.16	10.45	15.92
OF	324.00	10.16	10.45	15.91
OF	326.00	10.15	10.45	15.91
OF	328.00	10.15	10.45	15.91
OF	330.00	10.16	10.45	15.91
OF	332.00	10.16	10.45	15.91
OF	334.00	10.16	10.45	15.91
OF	336.00	10.16	10.45	15.91
OF	338.00	10.16	10.45	15.91
OF	340.00	10.16	10.45	15.91
OF	342.00	10.16	10.45	15.91
OF	344.00	10.16	10.45	15.92
OF	346.00	10.16	10.45	15.92
OF	348.00	10.16	10.45	15.92
OF	350.00	10.16	10.45	15.92
OF	352.00	10.16	10.45	15.92
OF	354.00	10.17	10.45	15.92
OF	356.00	10.06	10.45	15.85
OF	358.00	9.90	10.45	15.74
OF	360.00	9.77	10.45	15.64
OF	362.00	9.67	10.45	15.58
OF	364.00	9.59	10.45	15.52
OF	366.00	9.39	10.45	15.38
OF	368.00	9.10	10.45	15.18
OF	370.00	8.94	10.45	15.07
OF	372.00	8.78	10.45	14.95
OF	374.00	8.63	10.45	14.85
OF	376.00	8.55	10.45	14.79
OF	378.00	8.48	10.45	14.74
OF	380.00	8.13	10.45	14.50
OF	382.00	7.88	10.45	14.32
OF	384.00	7.76	10.45	14.23
OF	386.00	7.62	10.45	14.14
OF	388.00	7.45	10.45	14.02
OF	390.00	7.27	10.45	13.89
OF	392.00	7.08	10.45	13.76
OF	394.00	6.88	10.45	13.62
IF	396.00	6.70	10.45	13.49

IF	398.00	6.55	10.45	13.39
IF	400.00	6.39	10.45	13.28
IF	402.00	6.23	10.45	13.16
IF	404.00	6.07	10.45	13.06
IF	406.00	5.87	10.45	12.91
IF	408.00	5.72	10.45	12.81
IF	410.00	5.56	10.45	12.70
IF	412.00	5.29	10.45	12.51
IF	413.40	5.20	10.45	12.45
IF	416.70	4.96	10.45	12.29
IF	419.90	4.47	10.45	11.96
IF	423.20	4.28	10.45	11.84
IF	426.50	4.21	10.45	11.83
IF	429.80	4.01	10.45	11.71
IF	433.10	3.60	10.45	11.44
IF	436.40	3.21	10.45	11.20
IF	439.60	3.01	10.45	11.10
IF	442.90	2.63	10.45	10.86
IF	446.20	2.13	10.45	10.54
IF	449.50	1.56	10.45	10.36
IF	452.80	1.02	10.45	10.23
IF	456.00	0.98	10.45	10.35
IF	459.30	0.87	10.45	10.28
IF	462.00	0.49	10.45	10.02
IF	464.00	0.21	10.45	9.83
IF	466.00	0.01	10.45	9.68
IF	466.30	0.01	10.45	9.68

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
220.00	1.00	8.80
308.00	1.00	8.80
344.00	1.00	8.81
366.00	1.00	8.81
416.70	1.00	8.82
419.90	1.00	8.83
423.20	1.00	8.85
426.50	1.00	8.88
429.80	1.00	8.90
433.10	1.00	8.92
436.40	1.00	8.95
439.60	1.00	8.99
442.90	1.00	9.02
446.20	1.00	9.05
449.50	1.00	9.27
452.80	1.00	9.51
456.00	1.00	9.66
459.30	1.00	9.68

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
439.73	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION		FHF
0.00	15.09			
		V22	EL=15	120
61.93	15.50			
		V22	EL=16	120
218.00	15.82			
		V22	EL=16	120
220.00	15.81			
		V22	EL=16	120
306.00	15.90			
		V22	EL=16	120
308.00	15.91			
		V22	EL=16	120
342.00	15.91			
		V22	EL=16	120
344.00	15.92			
		V22	EL=16	120
364.00	15.52			
		V22	EL=16	120
364.23	15.50			
		V22	EL=15	120
366.00	15.38			
		V22	EL=15	120
379.98	14.50			
		V22	EL=14	120
395.92	13.50			
		V22	EL=13	120
412.21	12.50			
		V22	EL=12	120
413.40	12.45			
		V22	EL=12	120
416.70	12.29			
		V22	EL=12	120
419.90	11.96			
		V22	EL=12	120
423.20	11.84			
		V22	EL=12	120
426.50	11.83			
		V22	EL=12	120
429.80	11.71			
		V22	EL=12	120
432.37	11.50			
		V22	EL=11	120
433.10	11.44			
		V22	EL=11	120
436.40	11.20			
		V22	EL=11	120
439.60	11.10			
		V22	EL=11	120

```
                                439.73          11.11
                                                          A19  EL=11      95
                                442.90          10.86
                                                          A19  EL=11      95
                                446.20          10.54
                                                          A19  EL=11      95
                                446.94          10.50
                                                          A19  EL=10      95
                                449.50          10.36
                                                          A19  EL=10      95
                                452.80          10.23
                                                          A19  EL=10      95
                                456.00          10.35
                                                          A19  EL=10      95
                                459.30          10.28
                                                          A19  EL=10      95
                                466.30           9.68
                                     ZONE TERMINATED AT END OF TRANSECT
                                     PART 7   POSTSCRIPT NOTES
                           PS#  1   START(419662.1474,4842368.952)
                           PS#  2   END(419770.6124,4842545.4995)
-1.000000e+00
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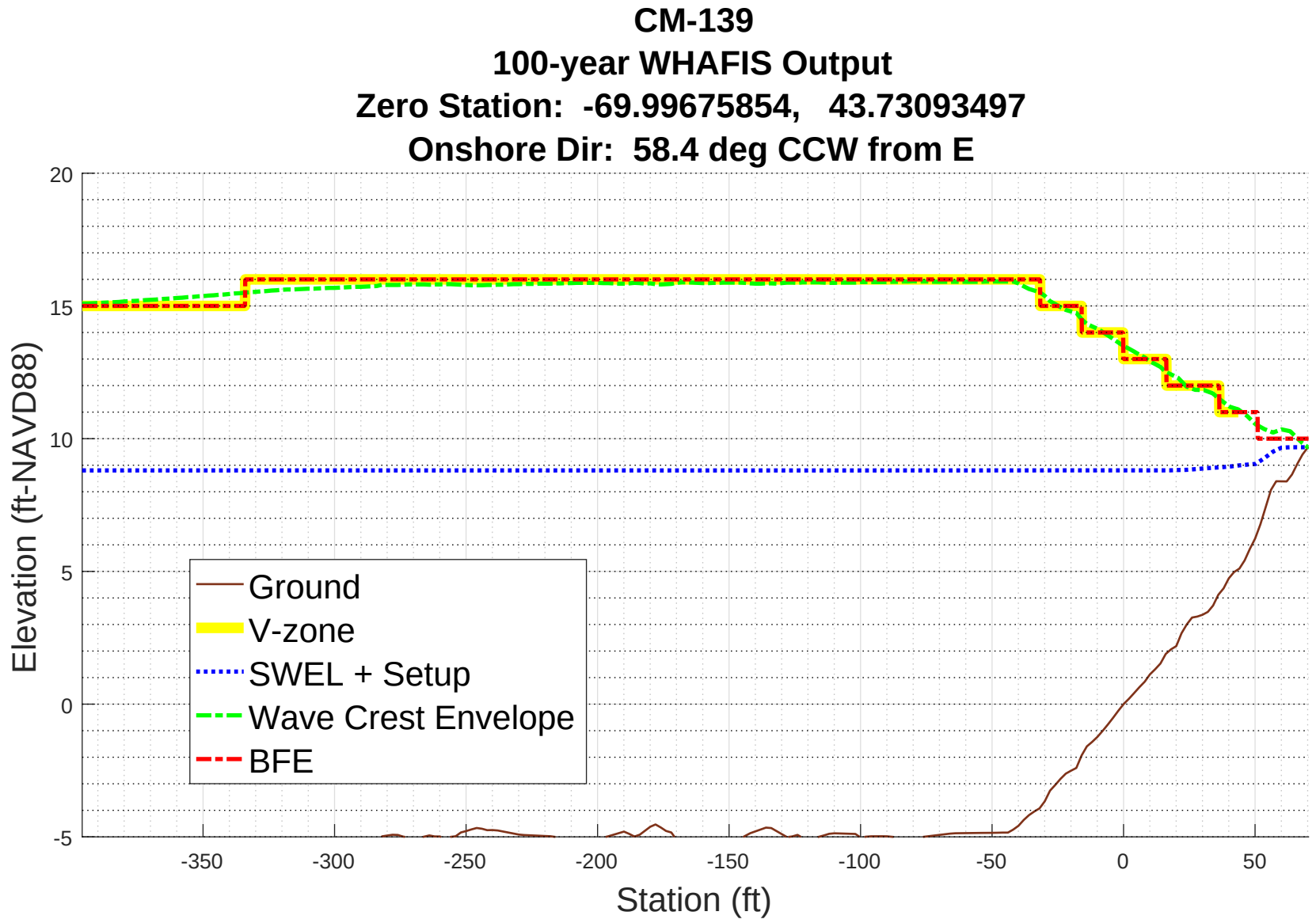
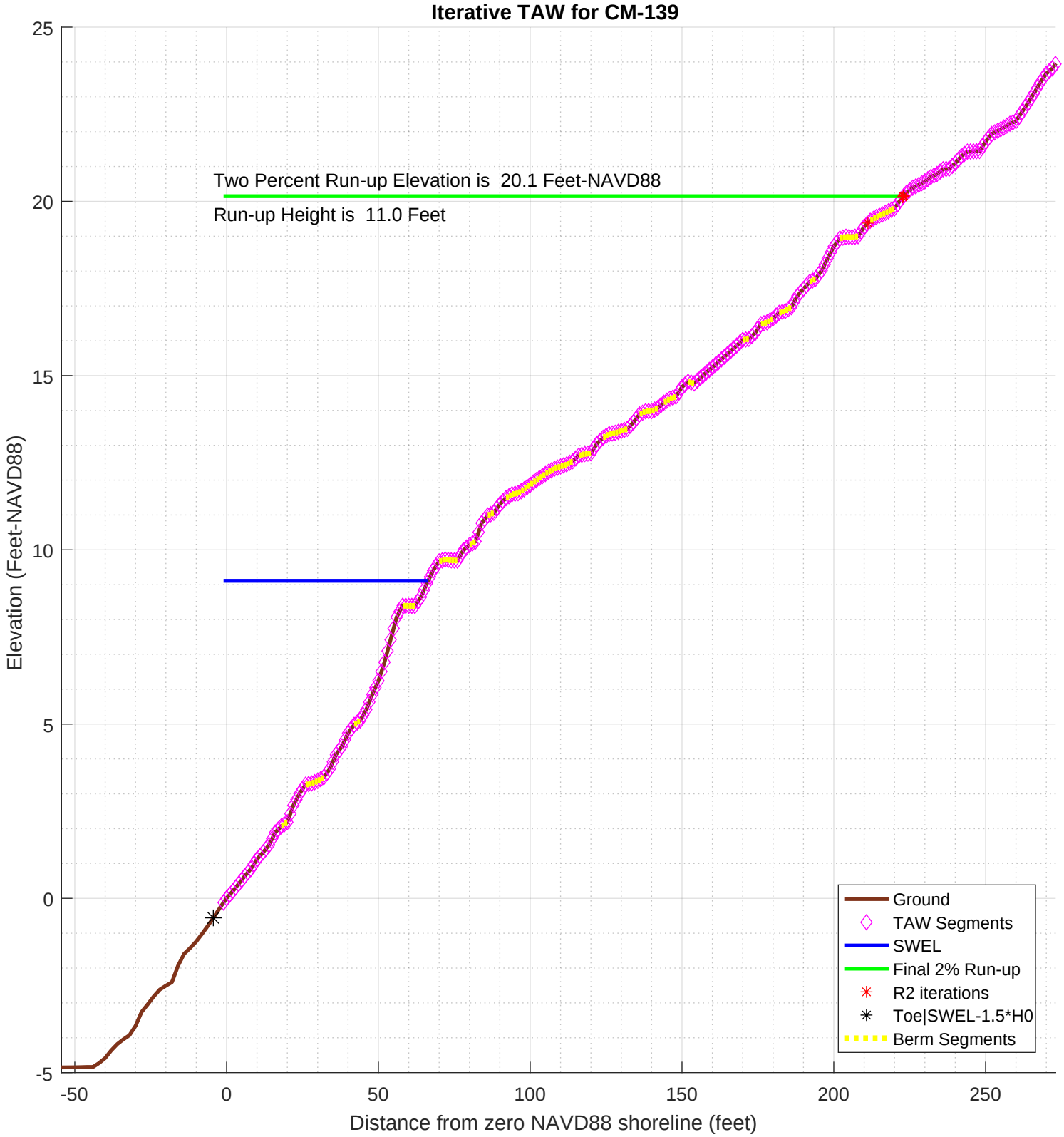

CM-139
100-year WHAFIS Output
Zero Station: -69.99675854, 43.73093497
Onshore Dir: 58.4 deg CCW from E
Elevation (ft-NAVD88)
Station (ft)
20
15
10
5
0
-5
-350
-300
-250
-200
-150
-100
-50
0
50
Ground
V-zone
SWEL + Setup
Wave Crest Envelope
BFE


Iterative TAW for CM-139
Two Percent Run-up Elevation is 20.1 Feet-NAVD88
Run-up Height is 11.0 Feet
Elevation (Feet-NAVD88)
Distance from zero NAVD88 shoreline (feet)
25
20
15
10
5
0
-5
-50
0
50
100
150
200
250
Ground
TAW Segments
SWEL
Final 2% Run-up
R2 iterations
Toe|SWEL-1.5*H0
Berm Segments

```
diary on         % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-139
% calculation by SJH, Ransom Consulting, Inc. 20-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20200220
%
% This script assumes that the incident wave conditions provided
% as input in the configuration section below are the
% appropriate values located at the end of the foreshore
% or toe of the slope on which the run-up is being calculated
% the script does not attempt to apply a depth limit or any other
% transformation to the incident wave conditions other than
% conversion of the peak wave period to the spectral mean wave
% as recommended in the references below
%
% references:
%
% Van der Meer, J.W., 2002. Technical Report Wave Run-up and
% Wave Overtopping at Dikes. TAW Technical Advisory Committee on
% Flood Defence, The Netherlands.
%
% FEMA. 2007,  Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update
%
%
%

%-------------------------------------------------------------------------
% CONFIG
%-------------------------------------------------------------------------
fname='inpfiles/CM-139sta_ele_include.csv';   % file with station, elevation, include
                                    % third colunm is 0 for excluded points
imgname='logfiles/CM-139-runup';
SWEL=8.804;  % 100-yr still water level including wave setup.
H0=6.2267;    % significant wave height at toe of structure
Tp=10.2103;    % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.7549;   % this may get changed automatically below
gamma_rough=1;
gamma_beta=1;
gamma_perm=1;

setupAtToe=-0.023839;
maxSetup=0.87295;   % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-139'

plotTitle =

Iterative TAW for CM-139



% END CONFIG
%------------------------------

SWEL=SWEL+setupAtToe

SWEL =

                  8.780161

SWEL_fore=SWEL+maxSetup

SWEL_fore =

                  9.653111



% FIND WAVELENGTH USING DEEPWATER DISPERSION RELATION
% using English units
L0=32.15/(2*pi)*T0^2

L0 =

          440.851927637668


% Find Hb (Munk, 1949)
%Hb=H0/(3.3*(H0/L0)^(1/3))
%Db=-Hb/.78+SWEL;  % depth at breaking

% The toe elevation here is only used to determine the average
% structure slope, it is not used to depth limit the wave height.
% Any depth limiting or other modification of the wave height
```

```
% to make it consitent with TAW guidance should be performed
% prior to the input of the significant wave height given above.
Ztoe=SWEL-1.5*H0

Ztoe =

                -0.559889


% read the transect
[sta,dep,inc] = textread(fname,'%n%n%n%*[^\n]','delimiter',',','headerlines',0);

% remove unselected points
k=find(inc==0);
sta(k)=[];
dep(k)=[];

sta_org=sta;  % used for plotting purposes
dep_org=dep;


% initial guess at maximum run-up elevation to estimate slope
Z2=SWEL+1.5*H0

Z2 =

                18.120211


% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1)))    % here is the intersection of z2 with profile
       top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if  ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1)))    % here is the intersection of Ztoe with profile
       toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end

toe_sta =

         -4.37839811542992


top_sta =

           196.59710472875

% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta==-999
   dy=dep(1)-Ztoe;
   toe_sta=sta(1)-dy/S(1)
end
if top_sta==-999
   dy=Z2-dep(end);
   top_sta=sta(end)+dy/S(end)
end

% just so the reader can tell the values aren't -999 anymore
top_sta

top_sta =

           196.59710472875

toe_sta

toe_sta =

         -4.37839811542992




% check for case where the toe of slope is below SWL-1.5*H0
% in this case interpolate setup from the setupAtToe(really setup as first station), and the max setup
% also un-include points seaward of SWL-1.5*H0
if Ztoe > dep(1)
   dd=SWEL_fore-dep;
   k=find(dd<0,1); % k is index of first land point
   staAtSWL=interp1(dep(k-1:k),sta(k-1:k),SWEL_fore);
   dsta=staAtSWL-sta(1);
   dsetup=maxSetup-setupAtToe;
   dsetdsta=dsetup/dsta;
   setup=setupAtToe+dsetdsta*(toe_sta-sta(1));
   sprintf('-!!- Location of SWEL-1.5*H0 is %4.1f ft landward of toe of slope',dsta)
   sprintf('-!!- Setup is interpolated between setup at toe of slope and max setup')
```

```
   sprintf('-!!-       setup is adjusted to %4.2f feet',setup)
   SWEL=SWEL-setupAtToe+setup;
   sprintf('-!!-       SWEL is adjusted to %4.2f feet',SWEL)
   k=find(dep < SWEL-1.5*H0)
   sta(k)=[];
   dep(k)=[];
else
   sprintf('-!!- The User has selected a starting point that is %4.2f feet above the elevation of SWEL-1.5H0\n',dep(1
   sprintf('-!!- This may be reasonable for some cases.  However the user may want to consider:\n')
   sprintf('-!!-   1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
   sprintf('-!!-   2) Reducing the incident wave height to a depth limited condition.\n')
end

ans =

-!!- Location of SWEL-1.5*H0 is 117.9 ft landward of toe of slope


ans =

-!!- Setup is interpolated between setup at toe of slope and max setup


ans =

-!!-       setup is adjusted to 0.31 feet


ans =

-!!-       SWEL is adjusted to 9.11 feet


k =

     1
     2
     3
     4
     5
     6
     7
     8
     9
    10
    11
    12
    13
    14
    15
    16
    17
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    21
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    43
    44
    45
    46
    47



% now iterate converge on a runup elevation
tol=0.01;  % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
```

```
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf ('!----------------- STARTING ITERATION %d -----------------!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

    R2=R2_new
    Z2=R2+SWEL
    % determine slope for this iteration
    top_sta=-999;
    for kk=1:length(sta)-1
       if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1)))    % here is the intersection of z2 with profile
          top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
          break;
       end
    end
    if top_sta==-999
       dy=Z2-dep(end);
       top_sta=sta(end)+dy/S(end)
    end

    % get the length of the slope (not accounting for berm)
    Lslope=top_sta-toe_sta

    % loop over profile segments to determine berm factor
    % re-calculate influence of depth of berm based on this run-up elevation
    % check for berm, berm width, berm height
    berm_width=0;
    rdh_sum=0;
    Berm_Segs=[];
    Berm_Heights=[];
    for kk=1:length(sta)-1
       ddep=dep(kk+1)-dep(kk);
       dsta=sta(kk+1)-sta(kk);
       s=ddep/dsta;
       if  (s < 1/15)     % count it as a berm if slope is flatter than 1:15 (see TAW manual)
          sprintf ('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter,kk)
          berm_width=berm_width+dsta;   % tally the width of all berm segments
          % compute the rdh for this segment and weight it by the segment length
          dh=SWEL-(dep(kk)+dep(kk+1))/2
          if  dh < 0
              chi=R2;
          else
              chi=2* H0;
          end
          if (dh <= R2 & dh >=-2*H0)
             rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
          else
             rdh=1;
          end
          rdh_sum=rdh_sum + rdh * dsta
          Berm_Segs=[Berm_Segs, kk];
          Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
       end
       if dep(kk) >= Z2  % jump out of loop if we reached limit of run-up for this iteration
          break
       end
    end
    sprintf ('!------- End Berm Factor Calculation, Iter: %d ---------!',iter)
    berm_width
    rB=berm_width/Lslope
    if (berm_width > 0)
       rdh_mean=rdh_sum/berm_width
    else
       rdh_mean=1
    end
    gamma_berm=1- rB * (1-rdh_mean)
    if gamma_berm > 1
       gamma_berm=1
    end
    if gamma_berm < 0.6
       gamma_berm =0.6
```

```
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough

% check validity
TAW_VALID=1;
if (Irb*gamma_berm < 0.5 | Irb*gamma_berm > 10 )
   sprintf('!!! - - Iribaren number: %6.2f is outside the valid range (0.5-10), TAW NOT VALID - - !!!\n', Irb*gam
   TAW_VALID=0;
else
   sprintf('!!! - - Iribaren number: %6.2f is in the valid range (0.5-10), TAW RECOMMENDED - - !!!\n', Irb*gamma_
end
islope=1/slope;
if (slope < 1/8 | slope > 1)
   sprintf('!!! - - slope: 1:%3.1f V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!\n', islope)
   TAW_VALID=0;
else
   sprintf('!!! - - slope: 1:%3.1f V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!\n', islope)
end
if TAW_VALID == 0
   TAW_ALWAYS_VALID=0;
end

if (Irb*gamma_berm < 1.8)
   R2_new=gamma*H0*1.77*Irb
else
   R2_new=gamma*H0*(4.3-(1.6/sqrt(Irb)))
end


% check to see if we need to evaluate a shallow foreshore
if berm_width > 0.25 * L0;
   disp ('!   Berm_width is greater than 1/4 wave length')
   disp ('!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on ber
   % do the foreshore calculation
   fore_H0=0.78*(SWEL_fore-min(Berm_Heights))
   % get upper slope
   fore_toe_sta=-999;
   fore_toe_dep=-999;
   for kk=length(dep)-1:-1:1
      ddep=dep(kk+1)-dep(kk);
      dsta=sta(kk+1)-sta(kk);
      s=ddep/dsta;
      if s < 1/15
         break
      end
      fore_toe_sta=sta(kk);
      fore_toe_dep=dep(kk);
      upper_slope=(Z2-fore_toe_dep)/(top_sta-fore_toe_sta)
   end
   fore_Irb=upper_slope/(sqrt(fore_H0/L0));
   fore_gamma=gamma_perm*gamma_beta*gamma_rough;
   if (fore_Irb < 1.8)
      fore_R2=fore_gamma*fore_H0*1.77*fore_Irb;
   else
      fore_R2=fore_gamma*fore_H0*(4.3-(1.6/sqrt(fore_Irb)));
   end
   if berm_width >= L0
      R2_new=fore_R2
      disp ('berm is wider than one wavelength, use full shallow foreshore solution');
   else
      w2=(berm_width-0.25*L0)/(0.75*L0)
      w1=1-w2
      R2_new=w2*fore_R2 + w1*R2_new
   end
end % end berm width check
% convergence criterion
R2del=abs(R2-R2_new)
R2_all(iter)=R2_new;
% get the new top station (for plot purposes)
Z2=R2_new+SWEL
top_sta=-999;
for kk=1:length(sta)-1
   if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1)))    % here is the intersection of z2 with profile
      top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
      break;
   end
end
if top_sta==-999
   dy=Z2-dep(end);
   top_sta=sta(end)+dy/S(end);
end
topStaAll(iter)=top_sta;
```

```
end
ans =
!----------------- STARTING ITERATION 1 -----------------!
Ztoe =
                -0.559889
toe_sta =
          -4.37839811542992
top_sta =
           196.59710472875
Z2 =
                 18.120211
H0 =
                    6.2267
Tp =
                   10.2103
T0 =
          9.28209090909091
R2 =
                   18.6801
Z2 =
          27.7920895455134
top_sta =
           313.97001027602
Lslope =
           318.34840839145
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 20
dh =
          7.01733954551342
rdh_sum =
         0.599065845823981
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 21
dh =
          6.95683954551342
rdh_sum =
          1.19064063116286
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 28
dh =
          5.84106454551342
rdh_sum =
           1.6420749834842
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 29
dh =
          5.82241454551342
rdh_sum =
          2.09116860919536
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 30
dh =
          5.79601454551342
rdh_sum =
          2.53695075903407
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 31
dh =
          5.76186454551342
rdh_sum =
          2.97845290273617
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 32
dh =
          5.71803954551342
rdh_sum =
          3.41446888099168
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 33
dh =
          5.66453954551342
rdh_sum =
          3.84379821136296
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh =
          4.10266454551342
rdh_sum =
          4.08852215773557
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh =
          4.03861454551342
rdh_sum =
          4.32633313641215
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 60
dh =
         0.716464545513425
rdh_sum =
```

```
          4.33447774023632
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 61
dh =
         0.718214545513424
rdh_sum =
          4.34266207081192
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 62
dh =
         0.719939545513425
rdh_sum =
          4.35088565442187
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 63
dh =
         0.721639545513424
rdh_sum =
          4.35914801329253
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 72
dh =
        -0.569610454486575
rdh_sum =
          4.36144048709367
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 73
dh =
        -0.597610454486576
rdh_sum =
          4.36396368543612
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 74
dh =
        -0.605235454486575
rdh_sum =
          4.36655162630951
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 75
dh =
        -0.592485454486576
rdh_sum =
          4.36903176888756
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 76
dh =
        -0.584710454486576
rdh_sum =
           4.3714472984164
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 77
dh =
        -0.581910454486575
rdh_sum =
          4.37383976729215
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 82
dh =
         -1.05048545448658
rdh_sum =
          4.38162247682359
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 83
dh =
         -1.10383545448657
rdh_sum =
          4.39021343688658
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh =
         -1.89333545448658
rdh_sum =
          4.41534753029256
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh =
         -1.93178545448658
rdh_sum =
          4.44150375509001
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 94
dh =
         -2.39768545448658
rdh_sum =
           4.4816063336612
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 95
dh =
         -2.45383545448658
rdh_sum =
```

```
          4.52358214779857
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 96
dh =
         -2.48993545448658
rdh_sum =
          4.56678388555495
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 97
dh =
         -2.50598545448658
rdh_sum =
          4.61053607670744
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 98
dh =
         -2.54166045448657
rdh_sum =
          4.65552368380569
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 99
dh =
         -2.59696045448658
rdh_sum =
          4.70245867193533
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 100
dh =
         -2.65703545448658
rdh_sum =
          4.75155359566805
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 101
dh =
         -2.72188545448658
rdh_sum =
          4.80303178825642
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 102
dh =
         -2.78673545448658
rdh_sum =
           4.8569466003655
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 103
dh =
         -2.85158545448658
rdh_sum =
           4.9133510928299
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 104
dh =
         -2.91396045448658
rdh_sum =
          4.97220003309272
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 105
dh =
         -2.97386045448658
rdh_sum =
          5.03344212435562
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 106
dh =
         -3.03341045448658
rdh_sum =
          5.09710752043771
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 107
dh =
         -3.09261045448658
rdh_sum =
          5.16322535829537
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 108
dh =
         -3.14551045448658
rdh_sum =
           5.2315710456004
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 109
dh =
         -3.19211045448658
rdh_sum =
          5.30190757209896
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 110
dh =
         -3.23113545448658
rdh_sum =
```

```
          5.37393162870342
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 111
dh =
         -3.26258545448658
rdh_sum =
          5.44732907336501
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 112
dh =
         -3.29383545448658
rdh_sum =
          5.52210299327982
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 113
dh =
         -3.32488545448658
rdh_sum =
          5.59825621175062
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 114
dh =
         -3.36333545448658
rdh_sum =
          5.67613346400767
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 115
dh =
         -3.40918545448658
rdh_sum =
          5.75608962116676
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 118
dh =
         -3.60403545448658
rdh_sum =
          5.84515763480688
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 119
dh =
         -3.62728545448658
rdh_sum =
          5.93534256115743
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 120
dh =
         -3.64426045448658
rdh_sum =
          6.02634691220303
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 121
dh =
         -3.65496045448658
rdh_sum =
          6.11786949157243
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 126
dh =
         -4.12838545448658
rdh_sum =
          6.23362033016775
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 127
dh =
         -4.18293545448658
rdh_sum =
          6.35232234057193
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 128
dh =
         -4.21903545448658
rdh_sum =
          6.47299503364288
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 129
dh =
         -4.23668545448658
rdh_sum =
          6.59463632591779
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 130
dh =
         -4.25831045448658
rdh_sum =
           6.7174689016373
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 131
dh =
         -4.28391045448658
rdh_sum =
```

```
          6.84171818381369
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 132
dh =
         -4.31266045448658
rdh_sum =
           6.9675667956922
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 133
dh =
         -4.34456045448658
rdh_sum =
           7.09520020371398
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 138
dh =
         -4.79738545448658
rdh_sum =
           7.24929995385892
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 139
dh =
         -4.84253545448658
rdh_sum =
           7.40615115174649
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 140
dh =
         -4.86608545448658
rdh_sum =
           7.56444535148319
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 141
dh =
         -4.86803545448658
rdh_sum =
           7.72285927605111
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 142
dh =
         -4.89063545448658
rdh_sum =
           7.8826634576163
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 143
dh =
         -4.93388545448658
rdh_sum =
           8.04514188216504
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 146
dh =
         -5.13698545448658
rdh_sum =
           8.22041489208975
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 147
dh =
         -5.19413545448658
rdh_sum =
           8.39935710230119
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 148
dh =
         -5.23781045448658
rdh_sum =
           8.58112338933707
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 149
dh =
         -5.26801045448657
rdh_sum =
           8.76485249365481
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 154
dh =
         -5.69873545448658
rdh_sum =
           8.97743932112012
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 155
dh =
         -5.67618545448657
rdh_sum =
           9.18847659558763
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 172
dh =
         -6.91756045448658
rdh_sum =
```

```
          9.49035943034023
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 173
dh =
         -6.93326045448658
rdh_sum =
          9.79345509581798
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 178
dh =
         -7.37643545448658
rdh_sum =
          10.1313205579696
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 179
dh =
         -7.40228545448657
rdh_sum =
          10.4712437956307
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 180
dh =
         -7.44433545448658
rdh_sum =
           10.814520847403
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 181
dh =
         -7.50258545448658
rdh_sum =
           11.16245670252
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 184
dh =
         -7.70038545448658
rdh_sum =
           11.526318732635
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 185
dh =
         -7.72573545448657
rdh_sum =
          11.8922331195691
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 186
dh =
         -7.76693545448658
rdh_sum =
          12.2614882749465
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 187
dh =
         -7.82398545448658
rdh_sum =
          12.6353797514282
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 194
dh =
         -8.59431045448657
rdh_sum =
          13.0728347048123
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 195
dh =
         -8.64211045448658
rdh_sum =
          13.5142795294783
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 204
dh =
         -9.83591045448658
rdh_sum =
          14.0559270739797
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 205
dh =
         -9.86051045448658
rdh_sum =
          14.5996356624158
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 206
dh =
         -9.86938545448658
rdh_sum =
          15.1440876367368
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 207
dh =
         -9.86253545448658
rdh_sum =
```

```
          15.6879658514312
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 208
dh =
         -9.86646045448658
rdh_sum =
          16.2321728333765
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 209
dh =
         -9.88116045448658
rdh_sum =
          16.7776109496387
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 214
dh =
         -10.3572104544866
rdh_sum =
          17.3627259773918
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 215
dh =
         -10.4098104544866
rdh_sum =
          17.9521961529196
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 216
dh =
         -10.4557854544866
rdh_sum =
          18.5454672203581
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 217
dh =
         -10.4951354544866
rdh_sum =
          19.1419870509342
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 218
dh =
         -10.5365604544866
rdh_sum =
          19.7419223880212
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 219
dh =
         -10.5800604544866
rdh_sum =
          20.3454390921685
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 220
dh =
         -10.6233604544866
rdh_sum =
           20.952515195534
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 221
dh =
         -10.6664604544866
rdh_sum =
          21.5631286188907
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 228
dh =
         -11.2982604544866
rdh_sum =
          22.2248319635042
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 229
dh =
         -11.3397604544866
rdh_sum =
          22.8898335090317
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 230
dh =
         -11.3860854544866
rdh_sum =
          23.5585072200711
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 231
dh =
         -11.4372354544866
rdh_sum =
          24.2312236705167
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 232
dh =
         -11.4944104544866
rdh_sum =
```

```
          24.9084439162284
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 233
dh =
         -11.5576104544866
rdh_sum =
          25.5906234755512
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 234
dh =
         -11.6099604544866
rdh_sum =
          26.2768953870441
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 235
dh =
         -11.6514604544866
rdh_sum =
          26.9664012303305
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 238
dh =
         -11.8127354544866
rdh_sum =
          27.6683855252169
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 239
dh =
         -11.8211854544866
rdh_sum =
           28.371019611339
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 244
dh =
         -12.2150604544866
rdh_sum =
          29.1034659701403
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 245
dh =
         -12.2813604544866
rdh_sum =
          29.8408338001472
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 246
dh =
         -12.3164354544866
rdh_sum =
          30.5807933619185
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 247
dh =
         -12.3202854544866
rdh_sum =
          31.3210368976555
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 248
dh =
         -12.3250104544866
rdh_sum =
          32.0616288092266
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 249
dh =
         -12.3306104544866
rdh_sum =
          32.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 254
dh =
         -12.8425354544866
rdh_sum =
          33.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 255
dh =
         -12.8881854544866
rdh_sum =
          34.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 256
dh =
         -12.9345104544866
rdh_sum =
          35.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 257
dh =
         -12.9815104544866
rdh_sum =
```

```
          36.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 258
dh =
         -13.0322354544866
rdh_sum =
          37.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 259
dh =
         -13.0866854544866
rdh_sum =
          38.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 260
dh =
         -13.1325604544866
rdh_sum =
          39.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 261
dh =
         -13.1698604544866
rdh_sum =
          40.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 278
dh =
         -15.1985854544866
rdh_sum =
          41.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 279
dh =
         -15.2425354544866
rdh_sum =
          42.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 284
dh =
         -15.8273854544866
rdh_sum =
          43.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 285
dh =
         -15.8577354544866
rdh_sum =
          44.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 290
dh =
         -16.3686354544866
rdh_sum =
          45.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 291
dh =
         -16.3826854544866
rdh_sum =
          46.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 292
dh =
         -16.3988104544866
rdh_sum =
          47.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 293
dh =
         -16.4170104544866
rdh_sum =
          48.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 294
dh =
         -16.4539854544866
rdh_sum =
          49.8026334139279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 295
dh =
         -16.5097354544866
rdh_sum =
          50.8026334139279
ans =
!------- End Berm Factor Calculation, Iter: 1 ---------!
berm_width =
   130
rB =
```

```
         0.408357625083988
rdh_mean =
         0.390789487799445
gamma_berm =
         0.751224242061582
slope =
         0.150529429941286
Irb =
          1.26659805841667
gamma_berm =
         0.751224242061582
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
     1
gamma =
         0.751224242061582
ans =
!!! - - Iribaren number:   0.95 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:6.6 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          10.4867187515172
!   Berm_width is greater than 1/4 wave length
!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm
fore_H0 =
                5.89559958
upper_slope =
        0.0760215167036978
upper_slope =
        0.0759137707687769
upper_slope =
         0.075804847475598
upper_slope =
        0.0756947274203544
upper_slope =
        0.0755833907704967
upper_slope =
        0.0754708172528257
upper_slope =
        0.0754223383205499
upper_slope =
        0.0753733147729274
upper_slope =
        0.0753539582490276
upper_slope =
         0.075334381802103
w2 =
        0.0598447894485056
w1 =
         0.940155210551494
R2_new =
           10.265964123278
R2del =
          8.41413587672201
Z2 =
          19.3779536687914
top_sta =
          211.236374706542
ans =
!----------------- STARTING ITERATION 2 -----------------!
Ztoe =
               -0.559889
toe_sta =
         -4.37839811542992
top_sta =
          211.236374706542
Z2 =
          19.3779536687914
H0 =
                    6.2267
Tp =
                   10.2103
T0 =
          9.28209090909091
R2 =
           10.265964123278
Z2 =
          19.3779536687914
top_sta =
          211.236374706542
Lslope =
          215.614772821972
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 20
dh =
          7.01733954551342
rdh_sum =
```

```
         0.599065845823981
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 21
dh =
          6.95683954551342
rdh_sum =
          1.19064063116286
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 28
dh =
          5.84106454551342
rdh_sum =
           1.6420749834842
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 29
dh =
          5.82241454551342
rdh_sum =
          2.09116860919536
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 30
dh =
          5.79601454551342
rdh_sum =
          2.53695075903407
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 31
dh =
          5.76186454551342
rdh_sum =
          2.97845290273617
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 32
dh =
          5.71803954551342
rdh_sum =
          3.41446888099168
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 33
dh =
          5.66453954551342
rdh_sum =
          3.84379821136296
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
          4.10266454551342
rdh_sum =
          4.08852215773557
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
          4.03861454551342
rdh_sum =
          4.32633313641215
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 60
dh =
         0.716464545513425
rdh_sum =
          4.33447774023632
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 61
dh =
         0.718214545513424
rdh_sum =
          4.34266207081192
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 62
dh =
         0.719939545513425
rdh_sum =
          4.35088565442187
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 63
dh =
         0.721639545513424
rdh_sum =
          4.35914801329253
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 72
dh =
        -0.569610454486575
rdh_sum =
          4.36672498212041
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 73
dh =
        -0.597610454486576
rdh_sum =
```

```
          4.37506304456257
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 74
dh =
        -0.605235454486575
rdh_sum =
          4.38361462508888
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 75
dh =
        -0.592485454486576
rdh_sum =
          4.39181067962445
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 76
dh =
        -0.584710454486576
rdh_sum =
          4.39979360756762
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 77
dh =
        -0.581910454486575
rdh_sum =
          4.40770046462582
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 82
dh =
         -1.05048545448658
rdh_sum =
          4.43331439950748
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 83
dh =
         -1.10383545448657
rdh_sum =
          4.46157065763506
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
         -1.89333545448658
rdh_sum =
          4.54317457725032
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
         -1.93178545448658
rdh_sum =
          4.62802857774397
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 94
dh =
         -2.39768545448658
rdh_sum =
          4.75669089949592
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 95
dh =
         -2.45383545448658
rdh_sum =
          4.89116107578002
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 96
dh =
         -2.48993545448658
rdh_sum =
          5.02942234879217
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 97
dh =
         -2.50598545448658
rdh_sum =
          5.16938334197964
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 98
dh =
         -2.54166045448657
rdh_sum =
          5.31315342220386
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 99
dh =
         -2.59696045448658
rdh_sum =
          5.46291173718541
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 100
dh =
         -2.65703545448658
rdh_sum =
```

```
          5.61928896405186
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 101
dh =
         -2.72188545448658
rdh_sum =
           5.7829414790897
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 102
dh =
         -2.78673545448658
rdh_sum =
          5.95400174494285
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 103
dh =
         -2.85158545448658
rdh_sum =
          6.13259930688464
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 104
dh =
         -2.91396045448658
rdh_sum =
           6.3185659629714
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 105
dh =
         -2.97386045448658
rdh_sum =
          6.51171704134807
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 106
dh =
         -3.03341045448658
rdh_sum =
          6.71211276739417
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 107
dh =
         -3.09261045448658
rdh_sum =
          6.91980918509293
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 108
dh =
         -3.14551045448658
rdh_sum =
          7.13411059738993
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 109
dh =
         -3.19211045448658
rdh_sum =
          7.35429248199598
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 110
dh =
         -3.23113545448658
rdh_sum =
          7.57944277746044
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 111
dh =
         -3.26258545448658
rdh_sum =
          7.80862564159852
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 112
dh =
         -3.29383545448658
rdh_sum =
          8.04184027707684
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 113
dh =
         -3.32488545448658
rdh_sum =
          8.27908504584482
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 114
dh =
         -3.36333545448658
rdh_sum =
          8.52135326780243
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 115
dh =
         -3.40918545448658
rdh_sum =
```

```
           8.769658331117
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 118
dh =
         -3.60403545448658
rdh_sum =
          9.04415651201236
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 119
dh =
         -3.62728545448658
rdh_sum =
          9.32183550529751
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 120
dh =
         -3.64426045448658
rdh_sum =
          9.60184395092967
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 121
dh =
         -3.65496045448658
rdh_sum =
          9.88332379491445
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 126
dh =
         -4.12838545448658
rdh_sum =
          10.2320197060058
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 127
dh =
         -4.18293545448658
rdh_sum =
          10.5886916892261
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 128
dh =
         -4.21903545448658
rdh_sum =
          10.9506641629155
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 129
dh =
         -4.23668545448658
rdh_sum =
          11.3152343221553
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 130
dh =
         -4.25831045448658
rdh_sum =
          11.6829925762071
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 131
dh =
         -4.28391045448658
rdh_sum =
          12.0545324197132
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 132
dh =
         -4.31266045448658
rdh_sum =
          12.4303285528878
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 133
dh =
         -4.34456045448658
rdh_sum =
          12.8108585547613
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 138
dh =
         -4.79738545448658
rdh_sum =
          13.2595984812618
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 139
dh =
         -4.84253545448658
rdh_sum =
          13.7152150818047
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 140
dh =
         -4.86608545448658
rdh_sum =
```

```
          14.1744219643721
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 141
dh =
         -4.86803545448658
rdh_sum =
          14.6339262289742
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 142
dh =
         -4.89063545448658
rdh_sum =
          15.0968780998871
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 143
dh =
         -4.93388545448658
rdh_sum =
          15.5664325134237
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 146
dh =
         -5.13698545448658
rdh_sum =
          16.0670444089466
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 147
dh =
         -5.19413545448658
rdh_sum =
          16.5764002791265
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 148
dh =
         -5.23781045448658
rdh_sum =
          17.0924366557703
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 149
dh =
         -5.26801045448657
rdh_sum =
          17.6130908060481
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 154
dh =
         -5.69873545448658
rdh_sum =
          18.1992242539089
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 155
dh =
         -5.67618545448657
rdh_sum =
          18.7819568848075
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 172
dh =
         -6.91756045448658
rdh_sum =
           19.541642627791
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 173
dh =
         -6.93326045448658
rdh_sum =
          20.3033782107369
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 178
dh =
         -7.37643545448658
rdh_sum =
          21.1203107234644
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 179
dh =
         -7.40228545448657
rdh_sum =
          21.9402924958984
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 180
dh =
         -7.44433545448658
rdh_sum =
          22.7651916126735
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 181
dh =
         -7.50258545448658
rdh_sum =
```

```
          23.5968134563169
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 184
dh =
         -7.70038545448658
rdh_sum =
          24.4504648421444
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 185
dh =
         -7.72573545448657
rdh_sum =
          25.3068475266138
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 186
dh =
         -7.76693545448658
rdh_sum =
          26.1676234181942
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 187
dh =
         -7.82398545448658
rdh_sum =
          27.0343877890093
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 194
dh =
         -8.59431045448657
rdh_sum =
          27.9703782310523
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 195
dh =
         -8.64211045448658
rdh_sum =
          28.9099023364405
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 204
dh =
         -9.83591045448658
rdh_sum =
           29.905578438641
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 205
dh =
         -9.86051045448658
rdh_sum =
          30.9017344391704
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 206
dh =
         -9.86938545448658
rdh_sum =
          31.8980566731293
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 207
dh =
         -9.86253545448658
rdh_sum =
          32.8942509252786
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 208
dh =
         -9.86646045448658
rdh_sum =
           33.890518776846
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 209
dh =
         -9.88116045448658
rdh_sum =
          34.8870559117084
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 214
dh =
         -10.3572104544866
rdh_sum =
          35.8868610351513
ans =
!------- End Berm Factor Calculation, Iter: 2 ---------!
berm_width =
    89
rB =
         0.412773201182672
rdh_mean =
         0.403223157698329
gamma_berm =
         0.753666512411453
slope =
```

```
         0.157468534077182
Irb =
          1.32498568287725
gamma_berm =
         0.753666512411453
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
     1
gamma =
         0.753666512411453
ans =
!!! - - Iribaren number:   1.00 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:6.4 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          11.0057999055228
R2del =
         0.739835782244787
Z2 =
          20.1177894510362
top_sta =
          222.698821613257
ans =
!----------------- STARTING ITERATION 3 -----------------!
Ztoe =
                -0.559889
toe_sta =
         -4.37839811542992
top_sta =
          222.698821613257
Z2 =
          20.1177894510362
H0 =
                   6.2267
Tp =
                  10.2103
T0 =
          9.28209090909091
R2 =
          11.0057999055228
Z2 =
          20.1177894510362
top_sta =
          222.698821613257
Lslope =
          227.077219728687
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 20
dh =
          7.01733954551342
rdh_sum =
         0.599065845823981
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 21
dh =
          6.95683954551342
rdh_sum =
          1.19064063116286
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 28
dh =
          5.84106454551342
rdh_sum =
           1.6420749834842
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 29
dh =
          5.82241454551342
rdh_sum =
          2.09116860919536
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 30
dh =
          5.79601454551342
rdh_sum =
          2.53695075903407
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 31
dh =
          5.76186454551342
rdh_sum =
          2.97845290273617
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 32
dh =
          5.71803954551342
rdh_sum =
```

```
          3.41446888099168
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 33
dh =
          5.66453954551342
rdh_sum =
          3.84379821136296
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
          4.10266454551342
rdh_sum =
          4.08852215773557
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
          4.03861454551342
rdh_sum =
          4.32633313641215
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 60
dh =
         0.716464545513425
rdh_sum =
          4.33447774023632
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 61
dh =
         0.718214545513424
rdh_sum =
          4.34266207081192
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 62
dh =
         0.719939545513425
rdh_sum =
          4.35088565442187
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 63
dh =
         0.721639545513424
rdh_sum =
          4.35914801329253
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 72
dh =
        -0.569610454486575
rdh_sum =
          4.36574270809429
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 73
dh =
        -0.597610454486576
rdh_sum =
          4.37300006948653
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 74
dh =
        -0.605235454486575
rdh_sum =
          4.38044334405394
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 75
dh =
        -0.592485454486576
rdh_sum =
          4.38757705910298
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 76
dh =
        -0.584710454486576
rdh_sum =
          4.39452520762113
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 77
dh =
        -0.581910454486575
rdh_sum =
          4.40140712305405
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 82
dh =
         -1.05048545448658
rdh_sum =
          4.42371813555522
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 83
dh =
         -1.10383545448657
rdh_sum =
```

```
          4.44833362132377
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
         -1.89333545448658
rdh_sum =
          4.51959498529184
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
         -1.93178545448658
rdh_sum =
          4.59370568232418
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 94
dh =
         -2.39768545448658
rdh_sum =
          4.70631145841565
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 95
dh =
         -2.45383545448658
rdh_sum =
          4.82403337241888
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 96
dh =
         -2.48993545448658
rdh_sum =
          4.94509650571875
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 97
dh =
         -2.50598545448658
rdh_sum =
          5.06765808246897
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 98
dh =
         -2.54166045448657
rdh_sum =
          5.19357864037501
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 99
dh =
         -2.59696045448658
rdh_sum =
          5.32478251596152
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 100
dh =
         -2.65703545448658
rdh_sum =
          5.46183000323624
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 101
dh =
         -2.72188545448658
rdh_sum =
          5.60530531491284
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 102
dh =
         -2.78673545448658
rdh_sum =
          5.75533061772272
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 103
dh =
         -2.85158545448658
rdh_sum =
          5.91202583397765
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 104
dh =
         -2.91396045448658
rdh_sum =
           6.0752474223091
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 105
dh =
         -2.97386045448658
rdh_sum =
          6.24483693657685
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 106
dh =
         -3.03341045448658
rdh_sum =
```

```
          6.42085292176391
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 107
dh =
         -3.09261045448658
rdh_sum =
          6.60335039900445
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 108
dh =
         -3.14551045448658
rdh_sum =
           6.7917163760749
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 109
dh =
         -3.19211045448658
rdh_sum =
          6.98531086923436
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 110
dh =
         -3.23113545448658
rdh_sum =
          7.18332571482023
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 111
dh =
         -3.26258545448658
rdh_sum =
          7.38493018895868
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 112
dh =
         -3.29383545448658
rdh_sum =
          7.59012528423923
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 113
dh =
         -3.32488545448658
rdh_sum =
          7.79891125439882
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 114
dh =
         -3.36333545448658
rdh_sum =
          8.01217556865805
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 115
dh =
         -3.40918545448658
rdh_sum =
          8.23082522475304
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 118
dh =
         -3.60403545448658
rdh_sum =
          8.47288739509683
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 119
dh =
         -3.62728545448658
rdh_sum =
           8.7177979255399
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 120
dh =
         -3.64426045448658
rdh_sum =
          8.96479516842474
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 121
dh =
         -3.65496045448658
rdh_sum =
          9.21311080235554
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 126
dh =
         -4.12838545448658
rdh_sum =
          9.52192825311554
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 127
dh =
         -4.18293545448658
rdh_sum =
```

```
          9.83796258198087
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 128
dh =
         -4.21903545448658
rdh_sum =
          10.1587975183832
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 129
dh =
         -4.23668545448658
rdh_sum =
          10.4819865225741
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 130
dh =
         -4.25831045448658
rdh_sum =
          10.8080658717953
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 131
dh =
         -4.28391045448658
rdh_sum =
          11.1375754123495
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 132
dh =
         -4.31266045448658
rdh_sum =
          11.4709480628741
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 133
dh =
         -4.34456045448658
rdh_sum =
          11.8086202085289
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 138
dh =
         -4.79738545448658
rdh_sum =
          12.2086047666992
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 139
dh =
         -4.84253545448658
rdh_sum =
          12.6149112221677
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 140
dh =
         -4.86608545448658
rdh_sum =
          13.0245213877872
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 141
dh =
         -4.86803545448658
rdh_sum =
          13.4344052941846
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 142
dh =
         -4.89063545448658
rdh_sum =
          13.8474638011439
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 143
dh =
         -4.93388545448658
rdh_sum =
          14.2666075699897
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 146
dh =
         -5.13698545448658
rdh_sum =
            14.71447693083
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 147
dh =
         -5.19413545448658
rdh_sum =
          15.1704651072159
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 148
dh =
         -5.23781045448658
rdh_sum =
```

```
          15.6326658304612
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 149
dh =
         -5.26801045448657
rdh_sum =
          16.0991658440298
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 154
dh =
         -5.69873545448658
rdh_sum =
          16.6271011101238
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 155
dh =
         -5.67618545448657
rdh_sum =
          17.1518224140215
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 172
dh =
         -6.91756045448658
rdh_sum =
          17.8482854833836
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 173
dh =
         -6.93326045448658
rdh_sum =
          18.5468071191688
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 178
dh =
         -7.37643545448658
rdh_sum =
          19.3016401999774
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 179
dh =
         -7.40228545448657
rdh_sum =
          20.0596405916311
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 180
dh =
         -7.44433545448658
rdh_sum =
          20.8227631363251
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 181
dh =
         -7.50258545448658
rdh_sum =
          21.5929183878569
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 184
dh =
         -7.70038545448658
rdh_sum =
          22.3863858216431
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 185
dh =
         -7.72573545448657
rdh_sum =
          23.1827748523011
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 186
dh =
         -7.76693545448658
rdh_sum =
          23.9838790226263
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 187
dh =
         -7.82398545448658
rdh_sum =
           24.791443392604
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 194
dh =
         -8.59431045448657
rdh_sum =
          25.6775881902255
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 195
dh =
         -8.64211045448658
rdh_sum =
```

```
          26.5680308662617
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 204
dh =
         -9.83591045448658
rdh_sum =
          27.5404090297858
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 205
dh =
         -9.86051045448658
rdh_sum =
          28.5139263562617
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 206
dh =
         -9.86938545448658
rdh_sum =
          29.4878489329007
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 207
dh =
         -9.86253545448658
rdh_sum =
          30.4614589925952
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 208
dh =
         -9.86646045448658
rdh_sum =
          31.4352483438142
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 209
dh =
         -9.88116045448658
rdh_sum =
          32.4097038951878
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 214
dh =
         -10.3572104544866
rdh_sum =
          33.4011589927084
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 215
dh =
         -10.4098104544866
rdh_sum =
          34.3939406292343
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 216
dh =
         -10.4557854544866
rdh_sum =
          35.3877907529978
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 217
dh =
         -10.4951354544866
rdh_sum =
           36.382487849933
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 218
dh =
         -10.5365604544866
rdh_sum =
          37.3780091433394
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 219
dh =
         -10.5800604544866
rdh_sum =
          38.3743213382053
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 220
dh =
         -10.6233604544866
rdh_sum =
          39.3713448037664
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 221
dh =
         -10.6664604544866
rdh_sum =
          40.3690008519398
ans =
!------- End Berm Factor Calculation, Iter: 3 ---------!
berm_width =
    96
rB =
```

```
         0.422763675346656
rdh_mean =
         0.42051042554104
gamma_berm =
         0.75501285767666
slope =
         0.157751884681689
Irb =
         1.32736987662368
gamma_berm =
         0.75501285767666
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
     1
gamma =
         0.75501285767666
ans =
!!! - - Iribaren number:   1.00 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:6.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
         11.0452999339406
R2del =
        0.0395000284178515
Z2 =
         20.1572894794541
top_sta =
         223.084941148133
ans =
!----------------- STARTING ITERATION 4 -----------------!
Ztoe =
                -0.559889
toe_sta =
        -4.37839811542992
top_sta =
         223.084941148133
Z2 =
         20.1572894794541
H0 =
                  6.2267
Tp =
                 10.2103
T0 =
         9.28209090909091
R2 =
         11.0452999339406
Z2 =
         20.1572894794541
top_sta =
         223.084941148133
Lslope =
         227.463339263563
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 20
dh =
         7.01733954551342
rdh_sum =
         0.599065845823981
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 21
dh =
         6.95683954551342
rdh_sum =
         1.19064063116286
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 28
dh =
         5.84106454551342
rdh_sum =
          1.6420749834842
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 29
dh =
         5.82241454551342
rdh_sum =
         2.09116860919536
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 30
dh =
         5.79601454551342
rdh_sum =
         2.53695075903407
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 31
dh =
         5.76186454551342
rdh_sum =
```

```
          2.97845290273617
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 32
dh =
          5.71803954551342
rdh_sum =
          3.41446888099168
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 33
dh =
          5.66453954551342
rdh_sum =
          3.84379821136296
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 44
dh =
          4.10266454551342
rdh_sum =
          4.08852215773557
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 45
dh =
          4.03861454551342
rdh_sum =
          4.32633313641215
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 60
dh =
         0.716464545513425
rdh_sum =
          4.33447774023632
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 61
dh =
         0.718214545513424
rdh_sum =
          4.34266207081192
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 62
dh =
         0.719939545513425
rdh_sum =
          4.35088565442187
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 63
dh =
         0.721639545513424
rdh_sum =
          4.35914801329253
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 72
dh =
        -0.569610454486575
rdh_sum =
          4.36569572778009
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 73
dh =
        -0.597610454486576
rdh_sum =
          4.37290139947767
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 74
dh =
        -0.605235454486575
rdh_sum =
          4.38029166349505
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 75
dh =
        -0.592485454486576
rdh_sum =
          4.38737456740953
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 76
dh =
        -0.584710454486576
rdh_sum =
          4.39427322345938
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 77
dh =
        -0.581910454486575
rdh_sum =
          4.40110611712692
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 82
dh =
         -1.05048545448658
rdh_sum =
```

```
          4.42325902522953
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 83
dh =
         -1.10383545448657
rdh_sum =
          4.44770021282661
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 88
dh =
         -1.89333545448658
rdh_sum =
           4.5184651572114
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 89
dh =
         -1.93178545448658
rdh_sum =
          4.59206011566953
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 94
dh =
         -2.39768545448658
rdh_sum =
          4.70389334217407
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 95
dh =
         -2.45383545448658
rdh_sum =
           4.8208091755344
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 96
dh =
         -2.48993545448658
rdh_sum =
          4.94104440753902
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 97
dh =
         -2.50598545448658
rdh_sum =
          5.06276831705426
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 98
dh =
         -2.54166045448657
rdh_sum =
          5.18782936113373
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 99
dh =
         -2.59696045448658
rdh_sum =
          5.31813948762408
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 100
dh =
         -2.65703545448658
rdh_sum =
          5.45425554208633
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 101
dh =
         -2.72188545448658
rdh_sum =
          5.59675819266703
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 102
dh =
         -2.78673545448658
rdh_sum =
          5.74576906481571
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 103
dh =
         -2.85158545448658
rdh_sum =
          5.90140756979662
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 104
dh =
         -2.91396045448658
rdh_sum =
          6.06353132631094
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 105
dh =
         -2.97386045448658
rdh_sum =
```

```
          6.23198312730808
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 106
dh =
         -3.03341045448658
rdh_sum =
          6.40682139450134
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 107
dh =
         -3.09261045448658
rdh_sum =
          6.58810105653411
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 108
dh =
         -3.14551045448658
rdh_sum =
          6.77521313202248
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 109
dh =
         -3.19211045448658
rdh_sum =
          6.96752174915066
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 110
dh =
         -3.23113545448658
rdh_sum =
          7.16422381730647
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 111
dh =
         -3.26258545448658
rdh_sum =
          7.36449375701655
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 112
dh =
         -3.29383545448658
rdh_sum =
          7.56833263493058
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 113
dh =
         -3.32488545448658
rdh_sum =
          7.77574078379305
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 114
dh =
         -3.36333545448658
rdh_sum =
          7.98760044704861
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 115
dh =
         -3.40918545448658
rdh_sum =
          8.20481335669187
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 118
dh =
         -3.60403545448658
rdh_sum =
          8.44530141819106
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 119
dh =
         -3.62728545448658
rdh_sum =
          8.68862137326608
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 120
dh =
         -3.64426045448658
rdh_sum =
          8.93401601162604
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 121
dh =
         -3.65496045448658
rdh_sum =
          9.18072145595269
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 126
dh =
         -4.12838545448658
rdh_sum =
```

```
          9.48759356819826
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 127
dh =
         -4.18293545448658
rdh_sum =
          9.80164433922863
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 128
dh =
         -4.21903545448658
rdh_sum =
          10.1204705111922
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 129
dh =
         -4.23668545448658
rdh_sum =
          10.4416384541943
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 130
dh =
         -4.25831045448658
rdh_sum =
          10.7656817019238
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 131
dh =
         -4.28391045448658
rdh_sum =
          11.0931373745673
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 132
dh =
         -4.31266045448658
rdh_sum =
          11.4244362570965
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 133
dh =
         -4.34456045448658
rdh_sum =
          11.7600126229715
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 138
dh =
         -4.79738545448658
rdh_sum =
          12.1575992520768
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 139
dh =
         -4.84253545448658
rdh_sum =
          12.5614789743605
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 140
dh =
         -4.86608545448658
rdh_sum =
          12.9686474966653
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 141
dh =
         -4.86803545448658
rdh_sum =
           13.376088528731
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 142
dh =
         -4.89063545448658
rdh_sum =
          13.7866899347235
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 143
dh =
         -4.93388545448658
rdh_sum =
          14.2033495891876
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 146
dh =
         -5.13698545448658
rdh_sum =
          14.6486120081791
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 147
dh =
         -5.19413545448658
rdh_sum =
```

```
          15.1019599760397
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 148
dh =
         -5.23781045448658
rdh_sum =
          15.5614954804189
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 149
dh =
         -5.26801045448657
rdh_sum =
          16.0253131965372
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 154
dh =
         -5.69873545448658
rdh_sum =
          16.5503438673183
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 155
dh =
         -5.67618545448657
rdh_sum =
          17.0721711431519
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 172
dh =
         -6.91756045448658
rdh_sum =
          17.7653825409224
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 173
dh =
         -6.93326045448658
rdh_sum =
          18.4606513267108
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 178
dh =
         -7.37643545448658
rdh_sum =
          19.2122379168318
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 179
dh =
         -7.40228545448657
rdh_sum =
          19.9669946222166
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 180
dh =
         -7.44433545448658
rdh_sum =
          20.7268786319228
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 181
dh =
         -7.50258545448658
rdh_sum =
          21.4938036977231
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 184
dh =
         -7.70038545448658
rdh_sum =
          22.2840799591124
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 185
dh =
         -7.72573545448657
rdh_sum =
          23.0772840222052
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 186
dh =
         -7.76693545448658
rdh_sum =
          23.8752138992894
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 187
dh =
         -7.82398545448658
rdh_sum =
          24.6796199680946
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 194
dh =
         -8.59431045448657
rdh_sum =
```

```
          25.5629632576319
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 195
dh =
         -8.64211045448658
rdh_sum =
          26.4506353337351
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 204
dh =
         -9.83591045448658
rdh_sum =
           27.421344182127
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 205
dh =
         -9.86051045448658
rdh_sum =
          28.3932213297462
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 206
dh =
         -9.86938545448658
rdh_sum =
          29.3655142997744
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 207
dh =
         -9.86253545448658
rdh_sum =
          30.3374865900422
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 208
dh =
         -9.86646045448658
rdh_sum =
          31.3096428467276
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 209
dh =
         -9.88116045448658
rdh_sum =
          32.2824828678676
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 214
dh =
         -10.3572104544866
rdh_sum =
          33.2729373632931
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 215
dh =
         -10.4098104544866
rdh_sum =
          34.2647916199884
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 216
dh =
         -10.4557854544866
rdh_sum =
          35.2577791838701
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 217
dh =
         -10.4951354544866
rdh_sum =
          36.2516698001199
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 218
dh =
         -10.5365604544866
rdh_sum =
          37.2464442397028
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 219
dh =
         -10.5800604544866
rdh_sum =
          38.2420728382586
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 220
dh =
         -10.6233604544866
rdh_sum =
          39.2384763206842
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 221
dh =
         -10.6664604544866
rdh_sum =
```

```
          40.2355763368092
ans =
!------- End Berm Factor Calculation, Iter: 4 ---------!
berm_width =
    96
rB =
         0.422046033047832
rdh_mean =
         0.419120586841762
gamma_berm =
         0.754842147997413
slope =
         0.157589017558115
Irb =
          1.32599946565103
gamma_berm =
         0.754842147997413
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
     1
gamma =
         0.754842147997413
ans =
!!! - - Iribaren number:   1.00 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:6.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          11.0314016981865
R2del =
        0.0138982357541675
Z2 =
          20.1433912436999
top_sta =
          222.949083516128
ans =
!----------------- STARTING ITERATION 5 -----------------!
Ztoe =
                -0.559889
toe_sta =
         -4.37839811542992
top_sta =
          222.949083516128
Z2 =
          20.1433912436999
H0 =
                    6.2267
Tp =
                   10.2103
T0 =
          9.28209090909091
R2 =
          11.0314016981865
Z2 =
          20.1433912436999
top_sta =
          222.949083516128
Lslope =
          227.327481631558
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 20
dh =
          7.01733954551342
rdh_sum =
         0.599065845823981
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 21
dh =
          6.95683954551342
rdh_sum =
          1.19064063116286
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 28
dh =
          5.84106454551342
rdh_sum =
           1.6420749834842
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 29
dh =
          5.82241454551342
rdh_sum =
          2.09116860919536
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 30
dh =
          5.79601454551342
rdh_sum =
```

```
          2.53695075903407
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 31
dh =
          5.76186454551342
rdh_sum =
          2.97845290273617
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 32
dh =
          5.71803954551342
rdh_sum =
          3.41446888099168
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 33
dh =
          5.66453954551342
rdh_sum =
          3.84379821136296
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 44
dh =
          4.10266454551342
rdh_sum =
          4.08852215773557
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 45
dh =
          4.03861454551342
rdh_sum =
          4.32633313641215
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 60
dh =
         0.716464545513425
rdh_sum =
          4.33447774023632
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 61
dh =
         0.718214545513424
rdh_sum =
          4.34266207081192
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 62
dh =
         0.719939545513425
rdh_sum =
          4.35088565442187
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 63
dh =
         0.721639545513424
rdh_sum =
          4.35914801329253
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 72
dh =
        -0.569610454486575
rdh_sum =
          4.36571220061653
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 73
dh =
        -0.597610454486576
rdh_sum =
          4.37293599643225
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 74
dh =
        -0.605235454486575
rdh_sum =
          4.38034484770878
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 75
dh =
        -0.592485454486576
rdh_sum =
          4.38744556768572
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 76
dh =
        -0.584710454486576
rdh_sum =
          4.39436157742504
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 77
dh =
        -0.581910454486575
rdh_sum =
```

```
          4.40121165973634
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 82
dh =
         -1.05048545448658
rdh_sum =
           4.4234200057881
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 83
dh =
         -1.10383545448657
rdh_sum =
          4.44792230976563
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 88
dh =
         -1.89333545448658
rdh_sum =
          4.51886133336414
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 89
dh =
         -1.93178545448658
rdh_sum =
          4.59263714648905
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 94
dh =
         -2.39768545448658
rdh_sum =
          4.70474130202309
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 95
dh =
         -2.45383545448658
rdh_sum =
          4.82193982616538
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 96
dh =
         -2.48993545448658
rdh_sum =
          4.94246540315579
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 97
dh =
         -2.50598545448658
rdh_sum =
          5.06448308336729
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 98
dh =
         -2.54166045448657
rdh_sum =
          5.18984556159912
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 99
dh =
         -2.59696045448658
rdh_sum =
          5.32046913167688
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 100
dh =
         -2.65703545448658
rdh_sum =
          5.45691184915817
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 101
dh =
         -2.72188545448658
rdh_sum =
          5.59975562600399
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 102
dh =
         -2.78673545448658
rdh_sum =
          5.74912227796662
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 103
dh =
         -2.85158545448658
rdh_sum =
          5.90513139603257
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 104
dh =
         -2.91396045448658
rdh_sum =
```

```
          6.06764019234921
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 105
dh =
         -2.97386045448658
rdh_sum =
          6.23649102556178
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 106
dh =
         -3.03341045448658
rdh_sum =
           6.4117423610563
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 107
dh =
         -3.09261045448658
rdh_sum =
          6.59344916036403
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 108
dh =
         -3.14551045448658
rdh_sum =
          6.78100103519435
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 109
dh =
         -3.19211045448658
rdh_sum =
          6.97376067124052
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 110
dh =
         -3.23113545448658
rdh_sum =
          7.17092319802868
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 111
dh =
         -3.26258545448658
rdh_sum =
          7.37166123106984
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 112
dh =
         -3.29383545448658
rdh_sum =
          7.57597581116739
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 113
dh =
         -3.32488545448658
rdh_sum =
          7.78386724348411
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 114
dh =
         -3.36333545448658
rdh_sum =
          7.99621960550084
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 115
dh =
         -3.40918545448658
rdh_sum =
          8.21393647741063
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 118
dh =
         -3.60403545448658
rdh_sum =
          8.45497671070661
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 119
dh =
         -3.62728545448658
rdh_sum =
          8.69885461721066
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 120
dh =
         -3.64426045448658
rdh_sum =
          8.94481142921035
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 121
dh =
         -3.65496045448658
rdh_sum =
```

```
          9.19208170955222
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 126
dh =
         -4.12838545448658
rdh_sum =
          9.49963631911347
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 127
dh =
         -4.18293545448658
rdh_sum =
          9.81438300846251
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 128
dh =
         -4.21903545448658
rdh_sum =
          10.1339139506523
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 129
dh =
         -4.23668545448658
rdh_sum =
          10.4557909823054
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 130
dh =
         -4.25831045448658
rdh_sum =
          10.7805486007158
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 131
dh =
         -4.28391045448658
rdh_sum =
           11.108724883622
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 132
dh =
         -4.31266045448658
rdh_sum =
          11.4407513655541
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 133
dh =
         -4.34456045448658
rdh_sum =
          11.7770630618941
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 138
dh =
         -4.79738545448658
rdh_sum =
          12.1754911765547
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 139
dh =
         -4.84253545448658
rdh_sum =
          12.5802225080298
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 140
dh =
         -4.86608545448658
rdh_sum =
          12.9882478802201
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 141
dh =
         -4.86803545448658
rdh_sum =
          13.3965461948655
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 142
dh =
         -4.89063545448658
rdh_sum =
          13.8080098841127
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 143
dh =
         -4.93388545448658
rdh_sum =
           14.225541317633
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 146
dh =
         -5.13698545448658
rdh_sum =
```

```
          14.6717187024969
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 147
dh =
         -5.19413545448658
rdh_sum =
          15.1259933362586
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 148
dh =
         -5.23781045448658
rdh_sum =
          15.5864643038269
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 149
dh =
         -5.26801045448657
rdh_sum =
          16.0512234910058
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 154
dh =
         -5.69873545448658
rdh_sum =
          16.5772738844109
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 155
dh =
         -5.67618545448657
rdh_sum =
          17.1001171602999
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 172
dh =
         -6.91756045448658
rdh_sum =
          17.7944711216148
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 173
dh =
         -6.93326045448658
rdh_sum =
          18.4908829013787
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 178
dh =
         -7.37643545448658
rdh_sum =
          19.2436107649237
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 179
dh =
         -7.40228545448657
rdh_sum =
          19.9995077913618
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 180
dh =
         -7.44433545448658
rdh_sum =
          20.7605303665284
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 181
dh =
         -7.50258545448658
rdh_sum =
          21.5285911409164
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 184
dh =
         -7.70038545448658
rdh_sum =
          22.3199896757852
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 185
dh =
         -7.72573545448657
rdh_sum =
          23.1143138684938
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 186
dh =
         -7.76693545448658
rdh_sum =
          23.9133601842364
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 187
dh =
         -7.82398545448658
rdh_sum =
```

```
          24.7188771564981
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 194
dh =
         -8.59431045448657
rdh_sum =
          25.6032072516073
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 195
dh =
         -8.64211045448658
rdh_sum =
           26.491855359235
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 204
dh =
         -9.83591045448658
rdh_sum =
          27.4631556133794
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 205
dh =
         -9.86051045448658
rdh_sum =
          28.4356139792809
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 206
dh =
         -9.86938545448658
rdh_sum =
          29.4084844709152
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 207
dh =
         -9.86253545448658
rdh_sum =
          30.3810371369921
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 208
dh =
         -9.86646045448658
rdh_sum =
          31.3537721348715
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 209
dh =
         -9.88116045448658
rdh_sum =
          32.3271847556094
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 214
dh =
         -10.3572104544866
rdh_sum =
          33.3179967502946
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 215
dh =
         -10.4098104544866
rdh_sum =
          34.3101828837403
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 216
dh =
         -10.4557854544866
rdh_sum =
          35.3034796405385
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 217
dh =
         -10.4951354544866
rdh_sum =
          36.2976598235765
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 218
dh =
         -10.5365604544866
rdh_sum =
          37.2927029611055
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 219
dh =
         -10.5800604544866
rdh_sum =
          38.2885781168196
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 220
dh =
         -10.6233604544866
rdh_sum =
```

```
          39.2852058898539
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 221
dh =
         -10.6664604544866
rdh_sum =
          40.2825078104902
ans =
!------- End Berm Factor Calculation, Iter: 5 ---------!
berm_width =
    96
rB =
         0.422298260249909
rdh_mean =
         0.419609456359273
gamma_berm =
         0.754902083155022
slope =
         0.157646213774078
Irb =
          1.32648073111597
gamma_berm =
         0.754902083155022
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
     1
gamma =
         0.754902083155022
ans =
!!! - - Iribaren number:   1.00 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:6.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          11.0362817164741
R2del =
       0.00488001828766471
Z2 =
          20.1482712619876
top_sta =
          222.996786529693
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
          20.1482712619876
diary off
-1.000000e+00
-1.000000e+00
```

_____
PART 5: RUNUP2

for transect: CM-139

Station locations shifted by: -0.04 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

_____RUNUP2 INPUT CONVERSIONS_____
for transect: CM-139

Incident significant wave height: 5.61 feet

Peak wave period: 10.45 seconds

Mean wave height: 3.51 feet

Local Depth below SWEL: 32.88 feet

Mean wave height deshoaled using Hunt approximation for
celerity assuming constant wave energy flux.
References: R.G. Dean and R.A. Dalrymple. 2000. Water

Wave Mechanics for Engineers and Scientists. World
Scientific Publishing Company, River Edge New Jersy

USACE (1985), Direct Methods for Calculating Wavelength, CETN-1-17
US Army Engineer Waterways Experiment Station Coastel Engineering
Research Center, Vicksburg, MS

also see Coastal Engineering Manual Part II-3
for discussion of shoaling coefficient

Depth, D = 32.88
Period, T = 8.88
Waveheight, H = 3.51
Deep water wavelength, L0 (ft)
L0 = g*T*T/twopi
L0 = 32.17*8.88*8.88/6.28 = 403.69
Deep water wave celerity, C0 (ft/s)
C0 = L0/T
C0 = 403.69/8.88 = 45.47
Angular frequency, sigma (rad/s)
sigma = twopi/T
sigma = 6.28/8.88 = 0.71
Hunts (1979) approximation for Celerity C1H (ft/s) at Depth D (ft)
y = sigma.*sigma.*D./g
y = 0.71*0.71*32.88/32.17 = 0.51
C1H = sqrt(g.*D./(y+1./(1 + 0.6522.*y + 0.4622.*y.^2 + 0.0864.*y.^4 +0.0675.*y.^5)))
C1H = 29.75
Shoaling Coefficient KsH
KsH = sqrt(C0/C1H)
KsH = sqrt(45.47/29.75) = 1.24
Deepwater Wave Height H0_H (ft)
H0_H = H/KsH
H0_H = 3.51/1.24 = 2.84

Deepwater mean wave height: 2.84 feet

_____END RUNUP2 CONVERSIONS_____

_____RUNUP2 RESULTS_____
for transect: CM-139

RUNUP2 SWEL:
8.80
8.80
8.80
8.80

8.80
8.80
8.80
8.80
8.80

RUNUP2 deepwater mean wave heights:
2.70
2.70
2.70
2.84
2.84
2.84
2.98
2.98
2.98

RUNUP2 mean wave periods:
8.43
8.88
9.32
8.43
8.88
9.32
8.43
8.88
9.32

RUNUP2 runup above SWEL:
3.59
3.69
3.87
3.67
3.83
3.94
3.75
3.92
4.06

RUNUP2 Mean runup height above SWEL: 3.81 feet

RUNUP2 2-percent runup height above SWEL: 8.39 feet

RUNUP2 2-percent runup elevation: 17.19 feet-NAVD88

RUNUP2 Messages:
Nonfatal Error, Check Output

_____END RUNUP2 RESULTS_____

_____ACES BEACH RUNUP_____

Incident significant wave height: 5.61 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 3.98 feet

Peak wave period: 10.45 seconds

Average beach Slope: 1:13.57 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 6.72 feet

ACES Beach 2-percent runup elevation: 15.52 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____

```
  FEMA                                                  sjh           job 2
  RUNUP2 transect: CM-139                                               1
17.0
  -24.08 -396.0 1.0
  -23.70 -390.0 1.0
  -15.66 -320.0 1.0
  -14.05 -284.0 1.0
  -4.98 -282.0 1.0
  -4.53 -178.0 1.0
  -4.53 -40.0  1.0
  3.47  32.0   1.0
  8.07  56.0   1.0
  11.31 90.0   1.0
  14.40 148.0  1.0
  16.96 186.0  1.0
  18.94 202.0  1.0
  22.30 260.0  1.0
  28.25 318.0  1.0
  29.04 342.0  1.0
  31.83 380.0  1.0
  35.84 426.0  1.0
  38.75 448.0  1.0
1 41.95 500.0  1.0
 8.8   2.70  8.43
 8.8   2.70  8.88
 8.8   2.70  9.32
 8.8   2.84  8.43
 8.8   2.84  8.88
 8.8   2.84  9.32
 8.8   2.98  8.43
 8.8   2.98  8.88
 8.8   2.98  9.32
```

****

CROSS SECTION PROFILE

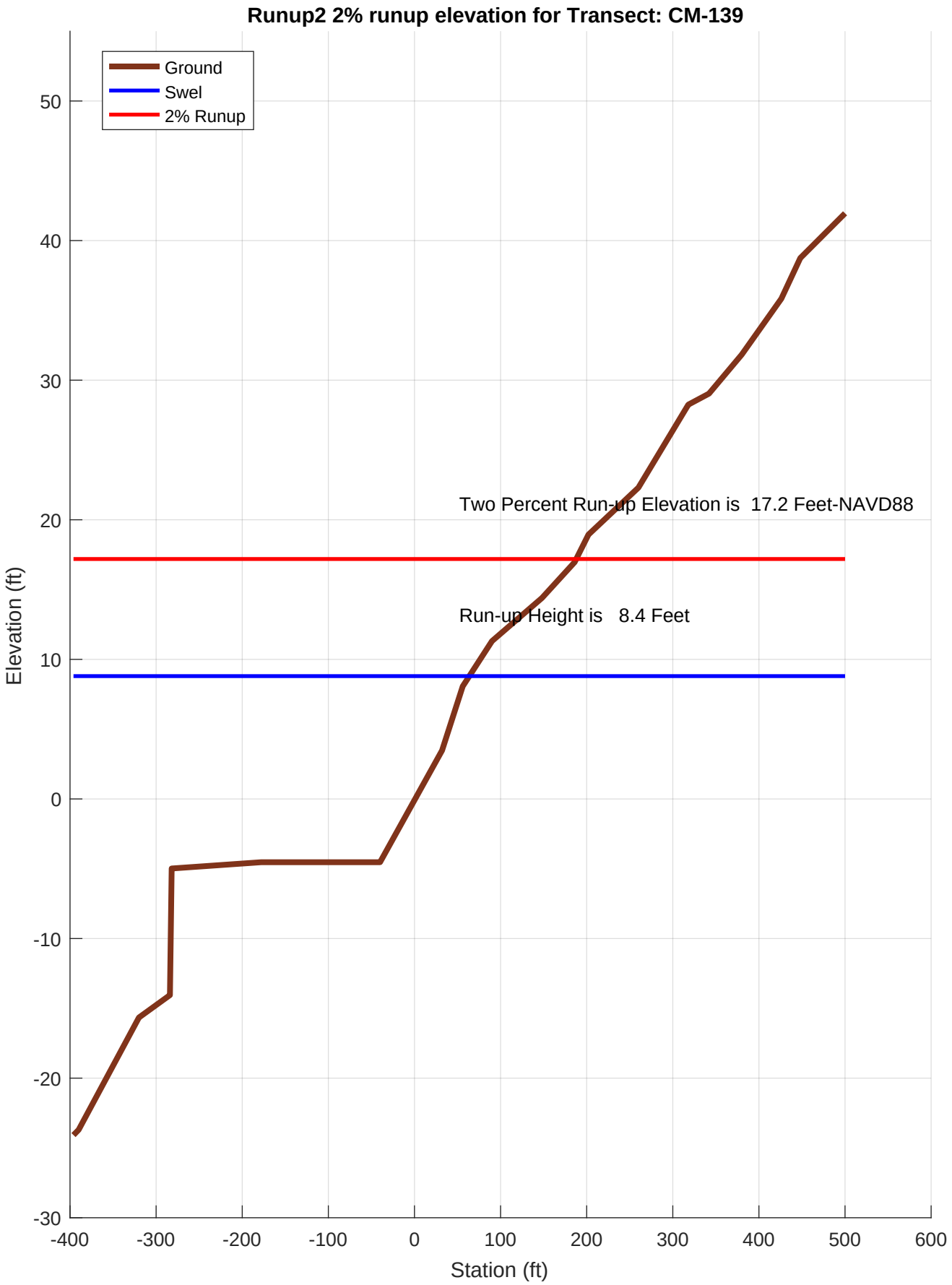
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-396.0	-24.0		
			.00	1.00
2	-390.0	-23.7		
			8.64	1.00
3	-320.0	-15.6		
			22.50	1.00
4	-284.0	-14.0		
			.22	1.00
5	-282.0	-5.0		
			231.11	1.00
6	-178.0	-4.5		
			FLAT	1.00
7	-40.0	-4.5		
			9.00	1.00
8	32.0	3.5		
			5.22	1.00
9	56.0	8.1		
			10.49	1.00
10	90.0	11.3		
			18.77	1.00
11	148.0	14.4		
			14.84	1.00
12	186.0	17.0		
			8.08	1.00
13	202.0	19.0		
			17.26	1.00
14	260.0	22.3		
			9.75	1.00
15	318.0	28.3		
			30.38	1.00
16	342.0	29.0		
			13.62	1.00
17	380.0	31.8		
			11.47	1.00
18	426.0	35.8		
			7.56	1.00
19	448.0	38.8		
			16.25	1.00
20	500.0	42.0		

LAST SLOPE 17.00 LAST ROUGHNESS 1.00

****

OUTPUT TABLE

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	WAVE PERIOD (SEC.)	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
8.80	2.70	8.43	8	10	3.59	4.10
8.80	2.70	8.88	8	10	3.69	4.19
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						
8.80	2.70	9.32	8	10	3.87	4.27
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						
8.80	2.84	8.43	8	10	3.67	4.27
8.80	2.84	8.88	8	10	3.83	4.36
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						
8.80	2.84	9.32	8	10	3.94	4.45
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						
8.80	2.98	8.43	8	10	3.75	4.45
8.80	2.98	8.88	8	10	3.92	4.53
8.80	2.98	9.32	8	10	4.06	4.62
COMPOSITE SLOPE USED BUT WAVE MAY REFLECT, NOT BREAK						


Runup2 2% runup elevation for Transect: CM-139
Ground
Swel
2% Runup
Two Percent Run-up Elevation is 17.2 Feet-NAVD88
Run-up Height is 8.4 Feet
Elevation (ft)
Station (ft)
50
40
30
20
10
0
-10
-20
-30
-400
-300
-200
-100
0
100
200
300
400
500
600