

\*\*\*\*\* WinDAM C Example datasets 2024 \*\*\*\*\*

WinDAM C software Earthen Embankment Overtopping Software for dams  
Created by USDA-ARS/USDA-NRCS/Kansas State University  
<http://www.damsafety.info>

These files listed below are example input files for WinDAM C Version 1.1.15:

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Example 01 - Existing Dam 202409

Typical Design for PS routing with drawdown.

Std single stage riser, 36" dia conduit

PS crest: 604.0'

Start Routing: 604.1'

AS crest: 609.0'

AS bottom width: 40'

Dam crest: 613.0'

NRCS PSH 1-day/10-day runoff distribution inflow

Inflow Peak: 4,700 cfs @ 121 hrs

10 day (240 hr) drawdown check - 15% volume remaining

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Example 02 - Existing Dam 202409

Stability Check of earthen aux spillway

Std single stage riser, 36" dia conduit

PS crest: 604.0'

Start Routing: 604.1'

AS crest: 609.0'

AS bottom width: 40'

Dam crest: 613.0'

NRCS 6-hr SDH inflow hydrograph

SDH Inflow Peak: 18,000 cfs @ 2.9 hrs

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Example 03 - Existing Dam 202409

Typical Design for checking integrity.

OVERTOPPING for breach analysis-Temple\Hanson energy model

Std single stage riser, 36" dia conduit

PS crest: 604.0'

Start Routing: 604.1'

AS crest: 609.0'

AS bottom width: 40'

Dam crest: 613.0'

Dam face Maintenance Code: 1 (uniform surface & cover)

Spillway Maintenance Code: 1 (uniform surface & cover)

24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr

Embankment of dam overtops, but does not breach

Aux Spwy does not erode

Example 04 - Existing Dam 202409  
Typical Design for checking integrity.  
OVERTOPPING breach analysis - Hanson/Robinson stress model  
Std single stage riser, 36" dia conduit  
PS crest: 604.0'  
Start Routing: 604.1'  
AS crest: 609.0'  
AS bottom width: 40'  
Dam crest: 613.0'  
Dam face Maintenance Code - 2 (minor discontinuities)  
Aux Spwy Maintenance Code - 2 (minor discontinuities)  
24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
Embankment of dam overtops and breaches  
Aux Spwy erodes, but does not breach

Example 05 - Existing Dam 202409  
Typical Design for integrity.  
OVERTOPPING for breach analysis  
Hanson/Robinson Stress model  
Std single stage riser, 36" dia conduit  
PS crest: 604.0'  
Start Routing: 604.1'  
AS crest: 609.0'  
AS bottom width: 40'  
Dam crest: 613.0'  
Dam face Maintenance Code - 3 (major discontinuities)  
Aux Spwy Maintenance Code - 2 (minor discontinuities)  
24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
Embankment overtops and breaches  
Aux Spwy does not erode

Example 06 - Existing Dam 202409  
Typical Design for integrity.  
OVERTOPPING for breach analysis  
Temple/Hanson Energy model  
Std single stage riser, 36" dia conduit  
PS crest: 604.0'  
Start Routing: 604.1'  
AS crest: 609.0'  
AS bottom width: 40'  
Dam crest: 613.0'  
Dam face Maintenance Code - 3 (major discontinuities)  
Aux Spwy Maintenance Code - 2 (minor discontinuities)  
24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
Embankment overtops and breaches  
Aux Spwy erodes, but does not breach

Example 07 - Proposed Dam 202409

Typical Design for AS integrity.

OVERTOPPING for breach analysis

Temple/Hanson Energy model

Std single stage riser, 36" dia conduit

PS crest: 604.0'

Start Routing: 604.1'

AS crest: 609.0'

AS bottom width: 100' widened

Dam crest: 614.0' raised

Dam face Maintenance Code - 2 (minor discontinuities)

Aux Spwy Maintenance Code - 2 (minor discontinuities)

24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr

Dam embankment not overtopped

Aux Spwy erodes, but does not breach

Example 08 - Proposed Dam 202409

Typical Design for AS integrity with barrier.

OVERTOPPING for breach analysis

Temple/Hanson Energy model

Std single stage riser, 36" dia conduit

PS crest: 604.0'

Start Routing: 604.1'

AS crest: 609.0'

AS bottom width: 100' widened

Dam crest: 614.0' raised

Dam face Maintenance Code - 2 (minor discontinuities)

Aux Spwy Maintenance Code - 2 (minor discontinuities)

24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr

Dam embankment not overtopped

Aux Spwy Barrier stops erosion, does not

Example 09 - Proposed Dam 202409

Typical Design for AS integrity, no barrier included

Sandy material in aux spillway

Std single stage riser, 36" dia conduit

PS crest: 604.0'

Start Routing: 604.1'

AS crest: 609.0'

AS bottom width: 100' widened

Dam crest: 614.0' raised

Dam face Maintenance Code - 2 (minor discontinuities)

Aux Spwy Maintenance Code - 2 (minor discontinuities)

24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr

Dam embankment not overtopped

Aux Spwy erodes sandy mat'l and breaches

Example 10 - Proposed Dam 202409

Typical Design for AS integrity with 2 spillways  
Std single stage riser, 36" conduit  
Two identical 50' wide earthen auxilary spillways  
PS crest: 604.0'  
Start Routing: 604.1'  
AS1 crest: 609.0'  
AS2 crest: 609.0'  
AS1 bottom width:50'  
AS2 bottom width:50'  
Dam crest: 614.0' raised  
Dam face Maintenance Code - 2 (minor discontinuities)  
Aux Spwy Maintenance Code - 2 (minor discontinuities)  
24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
Dam embankment not overtopped  
Aux Spwy 1 erodes, but does not breach  
Aux Spwy 2 erodes, but does not breach

Example 11 - Proposed Dam 202409

Typical Design for AS integrity with 2 spillways  
Tailwater rating table for high tailwater  
Std single stage riser, 36" conduit  
Two identical 50' wide earthen auxilary spillways  
PS crest: 604.0'  
Start Routing: 604.1'  
AS1 crest: 609.0'  
AS2 crest: 609.0'  
AS1 bottom width:50'  
AS2 bottom width:50'  
Dam crest: 614.0' raised  
Dam face Maintenance Code - 2 (minor discontinuities)  
Aux Spwy Maintenance Code - 2 (minor discontinuities)  
24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
Dam embankment not overtopped  
Aux Spwy 1 erodes, but does not breach  
Aux Spwy 2 erodes, but does not breach

Example 12 - Proposed Dam 202409

Typical Design for AS integrity with 2 spillways:  
AS1) earthen, vegetated aux spillway Crest Elev 609'  
AS2) structural aux spillway Crest Elev 609'  
Std single stage riser, 36" conduit  
Two different 50' wide auxilary spillways  
PS crest: 604.0'  
Start Routing: 604.1'  
AS1 crest: 609.0' earthen  
AS2 crest: 609.0' structural (rating tbl)  
AS1 bottom width:50'  
AS2 bottom width:50'  
Dam crest: 614.0' raised  
Dam face Maintenance Code - 2 (minor discontinuities)  
Aux Spwy Maintenance Code - 2 (minor discontinuities)  
24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
Dam embankment not overtopped  
Aux Spwy 1 erodes, but does not breach  
Aux Spwy 2 is structural, has rating tbl  
no erosion estimated

Example 13 - Proposed Dam 202409  
 Internal Erosion Analysis - SLOW  
 Int Erosion Conduit elevation 590.0'  
 Conduit size: 0.5 ft x 0.5 ft  
 Kd @ low erosion rate: 0.05 ft/hr/psf  
 Critical shear: 0.8500 psf  
 Hanson/Robinson method  
 Std single stage riser, 36" conduit  
 1 x 100' wide auxilary spillway - structural, rating  
 Dam Base: 580.0'  
 IE Conduit: 590.0'  
 PS crest: 604.0'  
 Start Routing: 604.1'  
 AS1 crest: 609.0' structural (rating tbl)  
 AS1 bottom width: 100'  
 Dam crest: 614.0' raised  
 Dam face Maintenance Code - 2 (minor discontinuities)  
 Aux Spwy Maintenance Code - 2 (minor discontinuities)  
 24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
 Dam embankment not overtopped  
 Aux Spwy 1 is structural, has rating tbl  
 no erosion estimated

Example 14 - Proposed Dam 202409  
 Internal Erosion Analysis - MEDIUM  
 Int Erosion Conduit elevation 590.0'  
 Conduit size: 0.5 ft x 0.5 ft  
 Kd @ med erosion rate: 0.50 ft/hr/psf  
 Critical shear: 0.0080 psf  
 Hanson/Robinson method  
 Std single stage riser, 36" conduit  
 1 x 100' wide auxilary spillway - structural, rating  
 Dam Base: 580.0'  
 IE Conduit: 590.0'  
 PS crest: 604.0'  
 Start Routing: 604.1'  
 AS1 crest: 609.0' structural (rating tbl)  
 AS1 bottom width: 100'  
 Dam crest: 614.0' raised  
 Dam face Maintenance Code - 2 (minor discontinuities)  
 Aux Spwy Maintenance Code - 2 (minor discontinuities)  
 24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr  
 Dam embankment not overtopped  
 Aux Spwy 1 is structural, has rating tbl  
 no erosion estimated

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| Example 15 - Proposed Dam 202409
| Internal Erosion Analysis - FAST
|   Int Erosion Conduit elevation 590.0'
|   Conduit size: 0.5 ft x 0.5 ft
|   Kd @ fast erosion rate: 5.00 ft/hr/psf
|   Critical shear: 0.0001 psf
|   Hanson/Robinson method
| Std single stage riser, 36" conduit
| 1 x 100' wide auxilary spillway - structural, rating
| Dam Base:      580.0'
| IE Conduit:    590.0'
| PS crest:      604.0'
| Start Routing: 604.1'
| AS1 crest:     609.0' structural (rating tbl)
| AS1 bottom width:100'
| Dam crest:     614.0' raised
| Dam face Maintenance Code - 2 (minor discontinuities)
| Aux Spwy Maintenance Code - 2 (minor discontinuities)
| 24-hr FBH Inflow peak: 20,000 cfs @ 13.4 hr
| Dam embankment not overtopped
| Aux Spwy 1 is structural, has rating tbl
|               no erosion estimated
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\*\*\*\*\* How do I create and view WinDAM C output? \*\*\*\*\*

- 1) Download and install the WinDAM C software.
- 2) Run WinDAMB.exe.  
Picture of earth dam and reservoir appears.  
Screen title is: WinDAM C
- 3) Create a new project file for the examples.  
(File-->New Project--> browse and type in a new project name)
- 4) Import all the \*.wdc input files into the newly-created WinDAM C project.  
(File-->Import File--> browse and select \*.wdc example input files)
- 5) Run all the files.  
(Run-->Simulate All Files)
- 6) View the output summary  
(View-->Summary Table)
- 7) To view graphs or additional text output:  
Left-click a filename in summary table.  
Column becomes highlighted in blue.  
Click bottom-row buttons to View Graphs/View Text/View Aux Spillway #.

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