DESCRIPTION/PURPOSE
The Preliminary Stormwater Management, Vegetated Mulch and Dust Suppression calculations were performed to support the permit process of the proposed Ivanpah Solar Power Plant. Ivanpah Solar Power consists of (3) individual sites; Ivanpah 1, Ivanpah 2, and Ivanpah 3.

METHOD OF ANALYSIS
Use the SCS Method to estimate peak runoff from each of the (3) post development site conditions. The preliminary stormwater calculations analysis’s runoff from post developed site conditions. The following storm events were analyzed: 100 year-24hr, 100 year-6 hour, 10 year-24hour and a 10 year-6 hour storm events for each of the individual sites. See Attachments E and Attachment F for the method of analysis for the assumptions in the Vegetated Mulch and Dust Suppression calculations.

CODES AND STANDARDS
None applicable.

INFORMATION SOURCES

ASSUMPTIONS
Assumptions will be included with the calculations.

CONCLUSIONS OR RESULTS
See pipe summary for piping design of the Runoff detention basin modifications.

<table>
<thead>
<tr>
<th>REV</th>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>PAGES REVISED</th>
<th>PAGES ADDED</th>
<th>PAGES DELETED</th>
<th>BY/DATE</th>
<th>REV/DATE</th>
<th>LDE/DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>07/30/07</td>
<td>ORIGINAL ISSUE</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CALCULATION CRITERIA

The calculation shall consist of the following:

1. The volume of mulch estimated based on assumptions listed in Attachment E.
2. Calculate the peak runoff for the preliminary post development sites, Ivanpah 1, Ivanpah 2, and Ivanpah 3.
3. The volume of water estimated based on assumptions listed in Attachment F.

SITE CONDITIONS

Site topographic conditions are an undisturbed desert environment. The future site will have +/-5 square miles of Solar Heliostat Fields with associated Power Blocks and interconnecting road system. The proposed grade has a west to east slope of an approximate 4-6% grade and will be similar to existing throughout the site except with in the Power Block area and Receiving Towers.

CALCULATIONS

General Approach: Use the SCS Method to estimate peak runoff from each of the (3) post development site conditions. The preliminary stormwater calculations analysis’s runoff from only the Power Block areas and how it is routed into a runoff infiltration and evaporation collection basin. Haestad PondPack was used to determine the estimated amount of runoff from the site. (2) Calculate an estimated volume of vegetation to be mulched on site due to the clearing of the existing site to for the future Power Blocks, Heliostat Fields and associated road arteries. Preliminary assumptions were used to estimate the volume of vegetative mulch within the disturbed areas and to estimate the volume of water for pre construction dust control. (3) The estimate volume of water to be distributed across disturbed areas for dust control during construction.

CONCLUSION

These preliminary calculations are for submittal to the California Energy Commission (CEC) submittal only.
<table>
<thead>
<tr>
<th>ATTACHMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTACHMENT A</td>
</tr>
<tr>
<td>ATTACHMENT B</td>
</tr>
<tr>
<td>ATTACHMENT C</td>
</tr>
<tr>
<td>ATTACHMENT D</td>
</tr>
<tr>
<td>ATTACHMENT E</td>
</tr>
<tr>
<td>ATTACHMENT F</td>
</tr>
<tr>
<td>ATTACHMENT G</td>
</tr>
<tr>
<td>REVISION</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>ORIGINATOR:</td>
</tr>
<tr>
<td>REVIEWER:</td>
</tr>
<tr>
<td>DATE:</td>
</tr>
</tbody>
</table>

ATTACHMENT A

100 year – 24 hour runoff
Ivanpah 3.1 → Tc Post 3 → Ivanpah 3

Ivanpah 2.1 → Tc Post 2 → Ivan 2

Ivan 1.1 → Tc Post 1 → Ivan 1
Project Date: 8/1/2007
Project Engineer: Brian Gilbert
Project Title: Post Development Flow
Project Comments:
MASTER SUMMARY

Watershed... Master Network Summary .......... 1.01

DESIGN STORMS SUMMARY

Ivan TP40...... Design Storms ................. 2.01

RAINFALL DATA

TypeII 24hr.... Dev100
Synthetic Curve ................. 3.01

TC CALCULATIONS

IVAN 1.1...... Tc Calcs ........................ 4.01
IVANPAH 2.1.... Tc Calcs ........................ 4.03
IVANPAH 3.1.... Tc Calcs ........................ 4.05

CN CALCULATIONS

IVAN 1.1...... Runoff CN-Area .................. 5.01
IVANPAH 2.1.... Runoff CN-Area ................ 5.02
IVANPAH 3.1.... Runoff CN-Area ................ 5.03
### MASTER DESIGN STORM SUMMARY

Network Storm Collection: Ivan TP40

<table>
<thead>
<tr>
<th>Return Event</th>
<th>Total Depth in</th>
<th>Rainfall Type</th>
<th>RNF ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dev100</td>
<td>3.2800</td>
<td>Synthetic Curve</td>
<td>TypeII 24hr</td>
</tr>
</tbody>
</table>

### MASTER NETWORK SUMMARY

SCS Unit Hydrograph Method

(*Node=Outlet; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

<table>
<thead>
<tr>
<th>Node ID</th>
<th>Type</th>
<th>Return Event</th>
<th>HYG Vol ac-ft</th>
<th>Trun</th>
<th>Qpeak hrs</th>
<th>Qpeak cfs</th>
<th>Max WSEL ft</th>
<th>Max Pond Storage ac-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>*IVAN 1</td>
<td>JCT</td>
<td>100</td>
<td>94.068</td>
<td></td>
<td>12.0000</td>
<td>541.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVAN 1.1</td>
<td>AREA</td>
<td>100</td>
<td>94.068</td>
<td></td>
<td>12.0000</td>
<td>541.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVAN 2</td>
<td>JCT</td>
<td>100</td>
<td>94.122</td>
<td></td>
<td>12.5000</td>
<td>538.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 2.1</td>
<td>AREA</td>
<td>100</td>
<td>94.122</td>
<td></td>
<td>12.5000</td>
<td>538.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVANPAH 3</td>
<td>JCT</td>
<td>100</td>
<td>173.357</td>
<td></td>
<td>12.5000</td>
<td>1182.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 3.1</td>
<td>AREA</td>
<td>100</td>
<td>173.357</td>
<td></td>
<td>12.5000</td>
<td>1182.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TITLE: Preliminary Stormwater Management,
Vegetated Mulch Dust Suppression Calculations
CALC NO.: 5200320-0-DC-531-C-002

DESIGN STORMS SUMMARY

Design Storm File, ID = Ivan TP40

Storm Tag Name = Dev100

Data Type, File, ID = Synthetic Storm TypeII 24 hr
Storm Frequency = 100 yr
Total Rainfall Depth = 3.2800 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time = .0000 hrs Step = .1000 hrs End = 24.0000 hrs
<table>
<thead>
<tr>
<th>Time hrs</th>
<th>Time on left represents time for first value in each row.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0000</td>
<td>.000 .001 .002 .003 .004</td>
</tr>
<tr>
<td>0.5000</td>
<td>.005 .006 .007 .008 .009</td>
</tr>
<tr>
<td>1.0000</td>
<td>.011 .012 .013 .014 .015</td>
</tr>
<tr>
<td>1.5000</td>
<td>.016 .017 .018 .020 .021</td>
</tr>
<tr>
<td>2.0000</td>
<td>.022 .023 .024 .026 .027</td>
</tr>
<tr>
<td>2.5000</td>
<td>.028 .029 .031 .032 .033</td>
</tr>
<tr>
<td>3.0000</td>
<td>.035 .036 .037 .038 .040</td>
</tr>
<tr>
<td>3.5000</td>
<td>.041 .042 .044 .045 .047</td>
</tr>
<tr>
<td>4.0000</td>
<td>.048 .049 .051 .052 .054</td>
</tr>
<tr>
<td>4.5000</td>
<td>.055 .057 .058 .060 .061</td>
</tr>
<tr>
<td>5.0000</td>
<td>.063 .065 .066 .068 .070</td>
</tr>
<tr>
<td>5.5000</td>
<td>.071 .073 .075 .076 .078</td>
</tr>
<tr>
<td>6.0000</td>
<td>.080 .082 .084 .085 .087</td>
</tr>
<tr>
<td>6.5000</td>
<td>.089 .091 .093 .095 .097</td>
</tr>
<tr>
<td>7.0000</td>
<td>.099 .101 .103 .105 .107</td>
</tr>
<tr>
<td>7.5000</td>
<td>.109 .111 .113 .116 .118</td>
</tr>
<tr>
<td>8.0000</td>
<td>.120 .122 .125 .127 .130</td>
</tr>
<tr>
<td>8.5000</td>
<td>.132 .135 .138 .141 .144</td>
</tr>
<tr>
<td>9.0000</td>
<td>.147 .150 .153 .157 .160</td>
</tr>
<tr>
<td>9.5000</td>
<td>.163 .166 .170 .173 .177</td>
</tr>
<tr>
<td>10.0000</td>
<td>.181 .185 .189 .194 .199</td>
</tr>
<tr>
<td>10.5000</td>
<td>.204 .209 .215 .221 .228</td>
</tr>
<tr>
<td>11.0000</td>
<td>.235 .243 .251 .261 .271</td>
</tr>
<tr>
<td>11.5000</td>
<td>.283 .307 .354 .431 .568</td>
</tr>
<tr>
<td>12.0000</td>
<td>.663 .682 .699 .713 .725</td>
</tr>
<tr>
<td>12.5000</td>
<td>.735 .743 .751 .759 .766</td>
</tr>
<tr>
<td>13.0000</td>
<td>.772 .778 .784 .789 .794</td>
</tr>
<tr>
<td>13.5000</td>
<td>.799 .804 .808 .812 .816</td>
</tr>
<tr>
<td>14.0000</td>
<td>.820 .824 .827 .831 .834</td>
</tr>
<tr>
<td>14.5000</td>
<td>.838 .841 .844 .847 .850</td>
</tr>
<tr>
<td>15.0000</td>
<td>.854 .856 .859 .862 .865</td>
</tr>
<tr>
<td>15.5000</td>
<td>.868 .870 .873 .875 .878</td>
</tr>
<tr>
<td>16.0000</td>
<td>.880 .882 .885 .887 .889</td>
</tr>
<tr>
<td>16.5000</td>
<td>.891 .893 .895 .898 .900</td>
</tr>
<tr>
<td>17.0000</td>
<td>.902 .904 .906 .908 .910</td>
</tr>
<tr>
<td>17.5000</td>
<td>.912 .914 .915 .917 .919</td>
</tr>
<tr>
<td>18.0000</td>
<td>.921 .923 .925 .926 .928</td>
</tr>
<tr>
<td>18.5000</td>
<td>.930 .931 .933 .935 .936</td>
</tr>
<tr>
<td>19.0000</td>
<td>.938 .939 .941 .942 .944</td>
</tr>
<tr>
<td>19.5000</td>
<td>.945 .947 .948 .949 .951</td>
</tr>
<tr>
<td>20.0000</td>
<td>.952 .953 .955 .956 .957</td>
</tr>
<tr>
<td>20.5000</td>
<td>.958 .960 .961 .962 .964</td>
</tr>
<tr>
<td>21.0000</td>
<td>.965 .966 .967 .968 .970</td>
</tr>
<tr>
<td>21.5000</td>
<td>.971 .972 .973 .975 .976</td>
</tr>
</tbody>
</table>
### CUMULATIVE RAINFALL FRACTIONS

<table>
<thead>
<tr>
<th>Time (hrs)</th>
<th>0.977</th>
<th>0.978</th>
<th>0.979</th>
<th>0.981</th>
<th>0.982</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.5000</td>
<td>0.983</td>
<td>0.984</td>
<td>0.985</td>
<td>0.986</td>
<td>0.988</td>
</tr>
<tr>
<td>23.0000</td>
<td>0.989</td>
<td>0.990</td>
<td>0.991</td>
<td>0.992</td>
<td>0.993</td>
</tr>
<tr>
<td>23.5000</td>
<td>0.994</td>
<td>0.996</td>
<td>0.997</td>
<td>0.998</td>
<td>0.999</td>
</tr>
<tr>
<td>24.0000</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Output Time increment = .1000 hrs

Time on left represents time for first value in each row.

---

**TITLE:** Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

**CALC NO.:** 52003201-0-DC-531-C-002

**PAGE:** Λ of ΔΔΔΔ

---

Bentley PondPack (10.00.023.00) 10:08 AM

Bentley Systems, Inc. 8/10/2007
TIME OF CONCENTRATION CALCULATOR

---

Segment #1: Tc: TR-55 Sheet

- Mannings n: 0.0200
- Hydraulic Length: 300.00 ft
- 2yr, 24hr P: 1.1400 in
- Slope: 0.050000 ft/ft
- Avg. Velocity: 0.91 ft/sec

Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow

- Hydraulic Length: 6010.28 ft
- Slope: 0.060000 ft/ft
- Unpaved
- Avg. Velocity: 3.95 ft/sec

Segment #2 Time: 0.4224 hrs

---

Total Tc: 0.5135 hrs
Tc Equations used...

SCS TR-55 Sheet Flow

\[
Tc = \left(0.007 \times ((n \times Lf)^{0.8})) / ((P^{0.5}) \times (Sf^{0.4}))\right)
\]

Where:
- \(Tc\) = Time of concentration, hrs
- \(n\) = Mannings \(n\)
- \(Lf\) = Flow length, ft
- \(P\) = 2yr, 24hr Rain depth, inches
- \(Sf\) = Slope, \%

SCS TR-55 Shallow Concentrated Flow

Unpaved surface:
\[
V = 16.1345 \times (Sf^{0.5})
\]

Paved surface:
\[
V = 20.3282 \times (Sf^{0.5})
\]

\[
Tc = (Lf / V) / (3600\text{sec/hr})
\]

Where:
- \(V\) = Velocity, ft/sec
- \(Sf\) = Slope, ft/ft
- \(Tc\) = Time of concentration, hrs
- \(Lf\) = Flow length, ft
Segment #1: Tc: TR-55 Sheet

Mannings n 0.0200
Hydraulic Length 300.00 ft
2yr, 24hr P 1.1400 in
Slope 0.050000 ft/ft
Avg. Velocity 0.91 ft/sec

Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length 6219.48 ft
Slope 0.060000 ft/ft
Unpaved

Avg. Velocity 3.95 ft/sec

Segment #2 Time: 0.4371 hrs

Total Tc: 0.5283 hrs
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002
PAGE: A+2 of A+7

== SCS TR-55 Sheet Flow ===============================

\[ Tc = (0.007 \times ((n \times Lf)^{0.8})) / ((P^{0.5}) \times (Sf^{0.4})) \]

Where: 
- \( Tc \) = Time of concentration, hrs
- \( n \) = Manning's \( n \)
- \( Lf \) = Flow length, ft
- \( P \) = 2yr, 24hr Rain depth, inches
- \( Sf \) = Slope, \%

== SCS TR-55 Shallow Concentrated Flow ===============================

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = (Lf / V) / (3600 \text{sec/hr}) \]

Where: 
- \( V \) = Velocity, ft/sec
- \( Sf \) = Slope, ft/ft
- \( Tc \) = Time of concentration, hrs
- \( Lf \) = Flow length, ft

S/N:
Bentley PondPack (10.00.023.00) 10:08 AM
Bentley Systems, Inc. 8/10/2007
TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet
Mannings n 0.0200
Hydraulic Length 300.00 ft
2yr, 24hr P 1.1400 in
Slope 0.050000 ft/ft
Avg.Velocity 0.91 ft/sec
Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow
Hydraulic Length 8781.19 ft
Slope 0.060000 ft/ft
Unpaved
Avg.Velocity 3.95 ft/sec
Segment #2 Time: 0.6172 hrs

Total Tc: 0.7083 hrs
TITLE: Preliminary Stormwater Management,
Vegetated Muleh Dust Suppression Calculations

CALC NO.: 52003201-0-DC-531-C-002
Page: A/4 of A/7

Tc Equations used...

== SCS TR-55 Sheet Flow ==============================

\[ Tc = \frac{0.007 \times ((n \times Lf)^{0.8})}{((P^{0.5}) \times (Sf^{0.4}))} \]

Where: 
- \( Tc \) = Time of concentration, hrs
- \( n \) = Mannings n
- \( Lf \) = Flow length, ft
- \( P \) = 2yr, 24hr Rain depth, inches
- \( Sf \) = Slope, %

== SCS TR-55 Shallow Concentrated Flow ======================

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = \frac{(Lf / V)}{(3600 \text{sec/hr})} \]

Where: 
- \( V \) = Velocity, ft/sec
- \( Sf \) = Slope, ft/ft
- \( Tc \) = Time of concentration, hrs
- \( Lf \) = Flow length, ft
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area (acres)</th>
<th>Impervious Adjustment %C</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.330</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>886.893</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>0.867</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>13.710</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN --->** 908.800  
**77.05 (77)**
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>56.750</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>335.900</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.662</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>14.488</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN**

908.800 77.40 (77)
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious Adjustment $%$C</th>
<th>$%UC$</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.354</td>
<td></td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>1619.533</td>
<td></td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.799</td>
<td></td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>28.914</td>
<td></td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN ->** 1657.600  
77.03 (77)
---- I ----
IVAN 1.1... 4.01, 5.01
Ivan TP40... 2.01
IVANPAH 2.1... 4.03, 5.02
IVANPAH 3.1... 4.05, 5.03

---- T ----
TypeII 24hr Dev100... 3.01

---- W ----
Watershed... 1.01
### ATTACHMENT B

100 year – 6 hour runoff
Ivanpah 3.1  

Ivanpah 2.1  

Ivanpah 3  

Ivan 2  

Ivan 1.1  

Ivan 1
Project Date: 8/1/2007
Project Engineer: Brian Gilbert
Project Title: Post Development Flow
Project Comments:
MASTER SUMMARY

Watershed...... Master Network Summary ............  1.01

DESIGN STORMS SUMMARY

Ivan TP40....... Design Storms ..................  2.01

RAINFALL DATA

100yr, 6hr...... Dev100
                Time-Depth Curve ..................  3.01

TC CALCULATIONS

IVAN 1.1...... Tc Calcs  ..................  4.01
IVANPAH 2.1.... Tc Calcs ..................  4.03
IVANPAH 3.1.... Tc Calcs ..................  4.05

CN CALCULATIONS

IVAN 1.1....... Runoff CN-Area .................  5.01
IVANPAH 2.1..... Runoff CN-Area ...............  5.02
IVANPAH 3.1..... Runoff CN-Area ...............  5.03
MASTER DESIGN STORM SUMMARY

Network Storm Collection: Ivan TP40

<table>
<thead>
<tr>
<th>Return Event</th>
<th>Total Depth in</th>
<th>Rainfall Type</th>
<th>RNF ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dev100</td>
<td>2.8300</td>
<td>Time-Depth Curve</td>
<td>100yr, 6hr</td>
</tr>
</tbody>
</table>

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

<table>
<thead>
<tr>
<th>Node ID</th>
<th>Type</th>
<th>Return Event</th>
<th>HYG Vol ac-ft</th>
<th>Trun</th>
<th>Qpeak hrs</th>
<th>Qpeak cfs</th>
<th>Max WSEL ft</th>
<th>Max Pond Storage ac-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>*IVAN 1</td>
<td>JCT</td>
<td>100</td>
<td>72.013</td>
<td></td>
<td>6.0000</td>
<td>278.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVAN 1.1</td>
<td>AREA</td>
<td>100</td>
<td>72.013</td>
<td></td>
<td>6.0000</td>
<td>278.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVAN 2</td>
<td>JCT</td>
<td>100</td>
<td>72.042</td>
<td></td>
<td>6.0000</td>
<td>278.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 2.1</td>
<td>AREA</td>
<td>100</td>
<td>72.042</td>
<td></td>
<td>6.0000</td>
<td>278.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVANPAH 3</td>
<td>JCT</td>
<td>100</td>
<td>131.696</td>
<td></td>
<td>6.0000</td>
<td>499.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 3.1</td>
<td>AREA</td>
<td>100</td>
<td>131.696</td>
<td></td>
<td>6.0000</td>
<td>499.31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Title: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002
PAGE: D of 3

DESIGN STORMS SUMMARY
Design Storm File, ID = Ivan T240

Storm Tag Name = Dev100

Data Type, File, ID = Time-Depth Curve  100yr, 6hr
Storm Frequency = 100 yr
Total Rainfall Depth = 2.8300 in
Duration Multiplier = 1
Resulting Duration = 6.0000 hrs
Resulting Start Time = .0000 hrs  Step = 1.0000 hrs  End = 6.0000 hrs
<table>
<thead>
<tr>
<th>Time (hrs)</th>
<th>Synthetic Cumulative Rainfall (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>5.000</td>
<td>2.3580</td>
</tr>
</tbody>
</table>

Output Time increment = 1.0000 hrs
Time on left represents time for first value in each row.

TITLE: Preliminary Stormwater Management,
Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002
PAGE: 27 of 27

S/N: Bentley PondPack (10.00.023.00) 9:56 AM
Bentley Systems, Inc. 8/10/2007
Segment #1: Tc: TR-55 Sheet

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannings n</td>
<td>0.0200</td>
</tr>
<tr>
<td>Hydraulic Length</td>
<td>300.00 ft</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
<td>1.1400 in</td>
</tr>
<tr>
<td>Slope</td>
<td>0.050000 ft/ft</td>
</tr>
<tr>
<td>Avg. Velocity</td>
<td>0.91 ft/sec</td>
</tr>
</tbody>
</table>

Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Length</td>
<td>6010.28 ft</td>
</tr>
<tr>
<td>Slope</td>
<td>0.060000 ft/ft</td>
</tr>
<tr>
<td>Unpaved</td>
<td></td>
</tr>
<tr>
<td>Avg. Velocity</td>
<td>3.95 ft/sec</td>
</tr>
</tbody>
</table>

Segment #2 Time: 0.4224 hrs

Total Tc: 0.5135 hrs
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002

**SCS TR-55 Sheet Flow**

\[ Tc = \frac{0.007 \times ((n \times Lf)^{0.8})}{((P^{*0.5}) \times (Sf^{*0.4}))} \]

Where:
- \( Tc \) = Time of concentration, hrs
- \( n \) = Mannings n
- \( Lf \) = Flow length, ft
- \( P \) = 2yr, 24hr Rain depth, inches
- \( Sf \) = Slope, %

**SCS TR-55 Shallow Concentrated Flow**

Unpaved surface:
\[ V = 16.1345 \times (Sf^{*0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{*0.5}) \]

\[ Tc = \frac{Lf / V}{(3600 \text{sec/hr})} \]

Where:
- \( V \) = Velocity, ft/sec
- \( Sf \) = Slope, ft/ft
- \( Tc \) = Time of concentration, hrs
- \( Lf \) = Flow length, ft
TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet
Mannings n = 0.0200
Hydraulic Length = 300.00 ft
2yr, 24hr P = 1.1400 in
Slope = 0.050000 ft/ft
Avg. Velocity = 0.91 ft/sec
Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow
Hydraulic Length = 6219.48 ft
Slope = 0.060000 ft/ft
Unpaved
Avg. Velocity = 3.95 ft/sec
Segment #2 Time: 0.4371 hrs

Total Tc: 0.5283 hrs
Tc Equations used...

==== SCS TR-55 Sheet Flow

Tc = (.007 * ((n * Lf)**0.8)) / (((P**.5) * (Sf**.4))

Where:
Tc = Time of concentration, hrs
n = Mananns n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:
V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft
TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n 0.0200
Hydraulic Length 300.00 ft
2yr, 24hr P 1.1400 in
Slope 0.050000 ft/ft
Avg. Velocity 0.91 ft/sec

Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length 8781.19 ft
Slope 0.060000 ft/ft
Unpaved
Avg. Velocity 3.95 ft/sec

Segment #2 Time: 0.6172 hrs

Total Tc: 0.7083 hrs
--- SCS TR-55 Sheet Flow ----------------------------------------

\[
T_c = \left(\frac{.007 \times ((n \times L_f)^{0.8})}{((P^{*0.5}) \times (S_f^{*0.4}))}\right)
\]

Where:  
- \(T_c\) = Time of concentration, hrs  
- \(n\) = Mannings n  
- \(L_f\) = Flow length, ft  
- \(P\) = 2yr, 24hr Rain depth, inches  
- \(S_f\) = Slope, %

--- SCS TR-55 Shallow Concentrated Flow -----------------------------

Unpaved surface:
\[
V = 16.1345 \times (S_f^{*0.5})
\]

Paved surface:
\[
V = 20.3282 \times (S_f^{*0.5})
\]

\[
T_c = \frac{L_f}{V} \times \left(\frac{3600}{\text{sec/hr}}\right)
\]

Where:  
- \(V\) = Velocity, ft/sec  
- \(S_f\) = Slope, ft/ft  
- \(T_c\) = Time of concentration, hrs  
- \(L_f\) = Flow length, ft
RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious Adjustment</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.330</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>886.893</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>.967</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>13.710</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN --->  908.800  77.05 (77)
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area</th>
<th>Impervious</th>
<th>Adjusted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>%C</td>
<td>%UC</td>
</tr>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>56.750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>835.900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.662</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>14.488</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN --->** 908.800  77.40 (77)
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area</th>
<th>Impervious Adjustment %C</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.354</td>
<td>83.00</td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>1619.533</td>
<td>77.00</td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.799</td>
<td>98.00</td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>28.914</td>
<td>76.00</td>
<td>76.00</td>
</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN ---> 1657.600 77.03 (77)
----- 1 ----
100yr, 6hr Dev100... 3.01

----- I ----
IVAN 1.1... 4.01, 5.01
Ivan TP40... 2.01
IVANPAH 2.1... 4.03, 5.02
IVANPAH 3.1... 4.05, 5.03

----- W ----
Watershed... 1.01
ATTACHMENT C

10 year - 24 hour runoff
TITLE: Preliminary Stormwater Management,
Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002

Project Date: 8/1/2007
Project Engineer: Brian Gilbert
Project Title: Post Development Flow
Project Comments:
MASTER SUMMARY

Watershed...... Master Network Summary ............ 1.01

DESIGN STORMS SUMMARY

Ivan TP40....... Design Storms ..................... 2.01

RAINFALL DATA

TypeII 24hr.... Dev 10
    Synthetic Curve ....................... 3.01

TC CALCULATIONS

IVAN 1.1....... Tc Calcs ............................ 4.01
IVANPAH 2.1.... Tc Calcs ........................... 4.03
IVANPAH 3.1.... Tc Calcs ........................... 4.05

CN CALCULATIONS

IVAN 1.1....... Runoff CN-Area ...................... 5.01
IVANPAH 2.1.... Runoff CN-Area .................... 5.02
IVANPAH 3.1.... Runoff CN-Area .................... 5.03
### MASTER DESIGN STORM SUMMARY

Network Storm Collection: Ivan TP40

<table>
<thead>
<tr>
<th>Return Event</th>
<th>Total Depth in</th>
<th>Rainfall Type</th>
<th>RNF ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dev 10</td>
<td>1.9200</td>
<td>Synthetic Curve</td>
<td>TypeII 24hr</td>
</tr>
</tbody>
</table>

### MASTER NETWORK SUMMARY

SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)

(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

<table>
<thead>
<tr>
<th>Node ID</th>
<th>Type</th>
<th>Return Event</th>
<th>HYG Vol ac-ft</th>
<th>Trun</th>
<th>Qpeak hrs</th>
<th>Qpeak cfs</th>
<th>Max WSEL ft</th>
<th>Max Pond Storage ac-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>*IVAN 1</td>
<td>JCT</td>
<td>10</td>
<td>29.790</td>
<td></td>
<td>12.5000</td>
<td>161.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVAN 1.1</td>
<td>AREA</td>
<td>10</td>
<td>29.790</td>
<td></td>
<td>12.5000</td>
<td>161.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVAN 2</td>
<td>JCT</td>
<td>10</td>
<td>29.849</td>
<td></td>
<td>12.5000</td>
<td>164.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 2.1</td>
<td>AREA</td>
<td>10</td>
<td>29.849</td>
<td></td>
<td>12.5000</td>
<td>164.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVANPAH 3</td>
<td>JCT</td>
<td>10</td>
<td>55.372</td>
<td></td>
<td>12.5000</td>
<td>336.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 3.1</td>
<td>AREA</td>
<td>10</td>
<td>55.372</td>
<td></td>
<td>12.5000</td>
<td>336.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DESIGN STORMS SUMMARY

Design Storm File; ID = Ivan TP40

Storm Tag Name = Dev 10

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth = 1.9200 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time = .0000 hrs Step = .1000 hrs End = 24.0000 hrs
<table>
<thead>
<tr>
<th>Time hrs</th>
<th>Output Time Increment</th>
<th>Time on left represents time for first value in each row.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>.0000</td>
</tr>
<tr>
<td>0.500</td>
<td>0.005</td>
<td>.0050</td>
</tr>
<tr>
<td>1.000</td>
<td>0.011</td>
<td>.0110</td>
</tr>
<tr>
<td>1.500</td>
<td>0.016</td>
<td>.0160</td>
</tr>
<tr>
<td>2.000</td>
<td>0.022</td>
<td>.0220</td>
</tr>
<tr>
<td>2.500</td>
<td>0.028</td>
<td>.0280</td>
</tr>
<tr>
<td>3.000</td>
<td>0.035</td>
<td>.0350</td>
</tr>
<tr>
<td>3.500</td>
<td>0.041</td>
<td>.0410</td>
</tr>
<tr>
<td>4.000</td>
<td>0.048</td>
<td>.0480</td>
</tr>
<tr>
<td>4.500</td>
<td>0.055</td>
<td>.0550</td>
</tr>
<tr>
<td>5.000</td>
<td>0.063</td>
<td>.0630</td>
</tr>
<tr>
<td>5.500</td>
<td>0.071</td>
<td>.0710</td>
</tr>
<tr>
<td>6.000</td>
<td>0.080</td>
<td>.0800</td>
</tr>
<tr>
<td>6.500</td>
<td>0.089</td>
<td>.0890</td>
</tr>
<tr>
<td>7.000</td>
<td>0.099</td>
<td>.0990</td>
</tr>
<tr>
<td>7.500</td>
<td>0.109</td>
<td>.1090</td>
</tr>
<tr>
<td>8.000</td>
<td>0.120</td>
<td>.1200</td>
</tr>
<tr>
<td>8.500</td>
<td>0.132</td>
<td>.1320</td>
</tr>
<tr>
<td>9.000</td>
<td>0.147</td>
<td>.1470</td>
</tr>
<tr>
<td>9.500</td>
<td>0.163</td>
<td>.1630</td>
</tr>
<tr>
<td>10.000</td>
<td>0.181</td>
<td>.1810</td>
</tr>
<tr>
<td>10.500</td>
<td>0.204</td>
<td>.2040</td>
</tr>
<tr>
<td>11.000</td>
<td>0.235</td>
<td>.2350</td>
</tr>
<tr>
<td>11.500</td>
<td>0.283</td>
<td>.2830</td>
</tr>
<tr>
<td>12.000</td>
<td>0.663</td>
<td>.6630</td>
</tr>
<tr>
<td>12.500</td>
<td>0.735</td>
<td>.7350</td>
</tr>
<tr>
<td>13.000</td>
<td>0.772</td>
<td>.7720</td>
</tr>
<tr>
<td>13.500</td>
<td>0.799</td>
<td>.7990</td>
</tr>
<tr>
<td>14.000</td>
<td>0.820</td>
<td>.8200</td>
</tr>
<tr>
<td>14.500</td>
<td>0.838</td>
<td>.8380</td>
</tr>
<tr>
<td>15.000</td>
<td>0.854</td>
<td>.8540</td>
</tr>
<tr>
<td>15.500</td>
<td>0.868</td>
<td>.8680</td>
</tr>
<tr>
<td>16.000</td>
<td>0.880</td>
<td>.8800</td>
</tr>
<tr>
<td>16.500</td>
<td>0.891</td>
<td>.8910</td>
</tr>
<tr>
<td>17.000</td>
<td>0.902</td>
<td>.9020</td>
</tr>
<tr>
<td>17.500</td>
<td>0.912</td>
<td>.9120</td>
</tr>
<tr>
<td>18.000</td>
<td>0.921</td>
<td>.9210</td>
</tr>
<tr>
<td>18.500</td>
<td>0.930</td>
<td>.9300</td>
</tr>
<tr>
<td>19.000</td>
<td>0.938</td>
<td>.9380</td>
</tr>
<tr>
<td>19.500</td>
<td>0.945</td>
<td>.9450</td>
</tr>
<tr>
<td>20.000</td>
<td>0.952</td>
<td>.9520</td>
</tr>
<tr>
<td>20.500</td>
<td>0.958</td>
<td>.9580</td>
</tr>
<tr>
<td>21.000</td>
<td>0.965</td>
<td>.9650</td>
</tr>
<tr>
<td>21.500</td>
<td>0.971</td>
<td>.9710</td>
</tr>
<tr>
<td>Time hrs</td>
<td>Cumulative Rainfall Fractions</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------</td>
<td></td>
</tr>
<tr>
<td>Output Time increment = .1000 hrs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time hrs</th>
<th>.977</th>
<th>.978</th>
<th>.979</th>
<th>.981</th>
<th>.982</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.5000</td>
<td>.983</td>
<td>.984</td>
<td>.985</td>
<td>.986</td>
<td>.988</td>
</tr>
<tr>
<td>23.0000</td>
<td>.989</td>
<td>.990</td>
<td>.991</td>
<td>.992</td>
<td>.993</td>
</tr>
<tr>
<td>23.5000</td>
<td>.994</td>
<td>.996</td>
<td>.997</td>
<td>.998</td>
<td>.999</td>
</tr>
<tr>
<td>24.0000</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet
Mannings n .0200
Hydraulic Length 300.00 ft
2yr, 24hr P 1.1400 in
Slope .050000 ft/ft
Avg. Velocity .91 ft/sec
Segment #1 Time: .0911 hrs

Segment #2: Tc: TR-55 Shallow
Hydraulic Length 6010.28 ft
Slope .060000 ft/ft
Unpaved
Avg. Velocity 3.95 ft/sec
Segment #2 Time: .4224 hrs

Total Tc: .5135 hrs
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002
PAGE: 40 of 47

======== SCS TR-55 Sheet Flow ========================

\[ T_c = 0.007 \times ((n \times Lf)^{0.8}) \times (P^{0.5}) \times (Sf^{0.4}) \]

Where:
- \( T_c \) - Time of concentration, hrs
- \( n \) - Manning's n
- \( Lf \) - Flow length, ft
- \( P \) - 2yr, 24hr Rain depth, inches
- \( Sf \) - Slope, %

======== SCS TR-55 Shallow Concentrated Flow ========================

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ T_c = (Lf / V) / (3600\text{sec/hr}) \]

Where:
- \( V \) - Velocity, ft/sec
- \( Sf \) - Slope, ft/ft
- \( T_c \) - Time of concentration, hrs
- \( Lf \) - Flow length, ft
TIME OF CONCENTRATION CALCULATOR

**Segment #1: Tc: TR-55 Sheet**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannings n</td>
<td>0.0200</td>
</tr>
<tr>
<td>Hydraulic Length</td>
<td>300.00 ft</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
<td>1.1400 in</td>
</tr>
<tr>
<td>Slope</td>
<td>0.050000 ft/ft</td>
</tr>
<tr>
<td>Avg. Velocity</td>
<td>0.91 ft/sec</td>
</tr>
</tbody>
</table>

Segment #1 Time: 0.0911 hrs

**Segment #2: Tc: TR-55 Shallow**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Length</td>
<td>6219.48 ft</td>
</tr>
<tr>
<td>Slope</td>
<td>0.060000 ft/ft</td>
</tr>
<tr>
<td>Unpaved</td>
<td></td>
</tr>
<tr>
<td>Avg. Velocity</td>
<td>3.95 ft/sec</td>
</tr>
</tbody>
</table>

Segment #2 Time: 0.4371 hrs

Total Tc: 0.5283 hrs
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

Tc Equations used...

==== SCS TR-55 Sheet Flow ==================================

\[ Tc = \frac{(.007 \times (n \times Lf)^{.8})}{((P^{.5}) \times (Sf^{.4}))} \]

Where: 
- \( Tc \) = Time of concentration, hrs
- \( n \) = Mannings n
- \( Lf \) = Flow length, ft
- \( P \) = 2yr, 24hr Rain depth, inches
- \( Sf \) = Slope, \%

==== SCS TR-55 Shallow Concentrated Flow ====================

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = \frac{(Lf / V)}{(3600\text{sec/hr})} \]

Where:
- \( V \) = Velocity, ft/sec
- \( Sf \) = Slope, ft/ft
- \( Tc \) = Time of concentration, hrs
- \( Lf \) = Flow length, ft
TIME OF CONCENTRATION CALCULATOR

<table>
<thead>
<tr>
<th>Segment #1: Tc: TR-55 Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mannings n</td>
</tr>
<tr>
<td>Hydraulic Length</td>
</tr>
<tr>
<td>2yr, 24hr P</td>
</tr>
<tr>
<td>Slope</td>
</tr>
<tr>
<td>Avg.Velocity</td>
</tr>
</tbody>
</table>

Segment #1 Time: .0911 hrs

<table>
<thead>
<tr>
<th>Segment #2: Tc: TR-55 Shallow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Length</td>
</tr>
<tr>
<td>Slope</td>
</tr>
<tr>
<td>Unpaved</td>
</tr>
<tr>
<td>Avg.Velocity</td>
</tr>
</tbody>
</table>

Segment #2 Time: .6172 hrs

Total Tc: .7083 hrs
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

CALC NO.: 52003201-0-DC-531-C-002

PAGE: 54 of 61

== SCS TR-55 Sheet Flow =========================================

\[ Tc = (0.007 \times ((n \times Lf)^{0.8})) / ((P^{0.5}) \times (Sf^{0.4})) \]

Where:  
Tc = Time of concentration, hrs  
n = Mannings n  
Lf = Flow length, ft  
P = 2yr, 24hr Rain depth, inches  
Sf = Slope, %

== SCS TR-55 Shallow Concentrated Flow =============================

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = (Lf / V) / (3600sec/hr) \]

Where:  
V = Velocity, ft/sec  
Sf = Slope, ft/ft  
Tc = Time of concentration, hrs  
Lf = Flow length, ft
## Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

**CALC NO.:** 52003201-0-DC-531-C-002  
**PAGE: 53 of 57**

### Runoff Curve Number Data

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area (acres)</th>
<th>Impervious Adjustment %</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.330</td>
<td>83.00</td>
<td></td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>806.893</td>
<td>77.00</td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>.867</td>
<td>98.00</td>
<td></td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>13.710</td>
<td>76.00</td>
<td></td>
</tr>
</tbody>
</table>

**Composite Area & Weighted CN**  
908.800  
77.05 (77)
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious Adjustment %C</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>56.750</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>835.900</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.662</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>14.488</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN --->**  
908.800  
77.40 (77)

---

**S/N:**  
Bentley PondPack (10.00.023.00)  
10:10 AM  
Bentley Systems, Inc.  
8/10/2007
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area (acres)</th>
<th>Impervious Adjustment %C</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.354</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>1619.533</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.799</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>28.914</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN ——> 1657.600  77.03 (77)
ATTACHMENT D

10 year – 6 hour runoff
Ivanpah 3.1 → Ivanpah 3

Ivanpah 2.1 → Ivan 2

Ivan 1.1 → Ivan 1
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

CALC NO.: 52003201-0-DC-534-C-002

PAGE: 59 of 83
MASTER SUMMARY

Watershed...... Master Network Summary

DESIGN STORMS SUMMARY

Ivan TP40....... Design Storms ...................... 2.01

RAINFALL DATA

10yr, 6hr....... Dev 10
Time-Depth Curve ...................... 3.01

TC CALCULATIONS

IVAN 1.1...... Tc Calcs ............................. 4.01
IVANPAH 2.1.... Tc Calcs .......................... 4.03
IVANPAH 3.1.... Tc Calcs .......................... 4.05

CN CALCULATIONS

IVAN 1.1...... Runoff CN-Area ...................... 5.01
IVANPAH 2.1.... Runoff CN-Area .................... 5.02
IVANPAH 3.1.... Runoff CN-Area .................... 5.03
Table of Contents

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Ivan TP40

<table>
<thead>
<tr>
<th>Return Event</th>
<th>Total Depth</th>
<th>Rainfall Type</th>
<th>RNF ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dev 10</td>
<td>1.6000</td>
<td>Time-Depth Curve</td>
<td>10yr, 6hr</td>
</tr>
</tbody>
</table>

MASTER NETWORK SUMMARY

SCS Unit Hydrograph Method

(*Node=Outlet; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

<table>
<thead>
<tr>
<th>Node ID</th>
<th>Type</th>
<th>Return Event</th>
<th>HYG Vol ac-ft</th>
<th>Trun</th>
<th>Qpeak hrs</th>
<th>Qpeak cfs</th>
<th>Max WSEL ft</th>
<th>Pond Storage ac-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>*IVAN 1</td>
<td>JCT</td>
<td>10</td>
<td>18.968</td>
<td></td>
<td>6.0000</td>
<td>99.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVAN 1.1</td>
<td>AREA</td>
<td>10</td>
<td>18.968</td>
<td></td>
<td>6.0000</td>
<td>99.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVAN 2</td>
<td>JCT</td>
<td>10</td>
<td>18.977</td>
<td></td>
<td>6.0000</td>
<td>99.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 2.1</td>
<td>AREA</td>
<td>10</td>
<td>18.977</td>
<td></td>
<td>6.0000</td>
<td>99.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*IVANPAH 3</td>
<td>JCT</td>
<td>10</td>
<td>34.726</td>
<td></td>
<td>6.0000</td>
<td>174.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVANPAH 3.1</td>
<td>AREA</td>
<td>10</td>
<td>34.726</td>
<td></td>
<td>6.0000</td>
<td>174.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Title... Project Date: 8/1/2007
Project Engineer: Brian Gilbert
Project Title: Post Development Flow
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Ivan TP40

Storm Tag Name = Dev 10
Data Type, File, ID = Time-Depth Curve 10yr, 6hr
Storm Frequency = 10 yr
Total Rainfall Depth= 1.6000 in
Duration Multiplier = 1
Resulting Duration = 6.0000 hrs
Resulting Start Time = 0.0000 hrs Step= 1.0000 hrs End= 6.0000 hrs
SYNTHETIC CUMULATIVE RAINFALL (in)

<table>
<thead>
<tr>
<th>Time</th>
<th>Output Time increment = 1.0000 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>hrs</td>
<td>Time on left represents time for first value in each row.</td>
</tr>
<tr>
<td>.0000</td>
<td>.0000</td>
</tr>
<tr>
<td>5.0000</td>
<td>1.3333</td>
</tr>
</tbody>
</table>

TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations
CALC NO.: 52003201-0-DC-531-C-002
PAGE: D7 of D77

\[\text{Date: 63}\]
TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet
Mannings n 0.0200
Hydraulic Length 300.00 ft
2yr, 24hr P 1.1400 in
Slope 0.050000 ft/ft
Avg. Velocity 0.91 ft/sec

Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow
Hydraulic Length 6010.28 ft
Slope 0.060000 ft/ft
Unpaved
Avg. Velocity 3.95 ft/sec

Segment #2 Time: 0.4224 hrs

Total Tc: 0.5135 hrs
Tc Equations used...

==== SCS TR-55 Sheet Flow =======================================

\[ T_c = \frac{(0.007 \times ((n \times Lf)^{0.8}))}{((P^{0.5}) \times (Sf^{0.4}))} \]

Where:  
- \( T_c \) = Time of concentration, hrs  
- \( n \) = Mannings n  
- \( Lf \) = Flow length, ft  
- \( P \) = 2yr, 24hr Rain depth, inches  
- \( Sf \) = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ========================

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ T_c = \frac{(Lf)}{(V)} \times (3600 \text{sec/hr}) \]

Where:  
- \( V \) = Velocity, ft/sec  
- \( Sf \) = Slope, ft/ft  
- \( T_c \) = Time of concentration, hrs  
- \( Lf \) = Flow length, ft
TITLE: Preliminary Stormwater Management
Vegetated Mulch Dust Suppression Calculations
TIME OF CONCENTRATION CALCULATOR
CALC NO.: 52003201-0-DC-531-C-002
PAGE: D10 of D17

Segment #1: Tc: TR-55 Sheet

Mannings n  .0200
Hydraulic Length  300.00 ft
2yr, 24hr P  1.1400 in
Slope  .050000 ft/ft
Avg.Velocity  .91 ft/sec

Segment #1 Time:  .0911 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length  6219.48 ft
Slope  .060000 ft/ft
Unpaved
Avg.Velocity  3.95 ft/sec

Segment #2 Time:  .4371 hrs

Total Tc:  .5283 hrs
TITLE: Preliminary Stormwater Management,
Vegetated Mulch Dust Suppression Calculations

--- SCS TR-55 Sheet Flow ----------------------------------------------

\[ Tc = \left( \frac{0.007 \times \left((n \times Lf)^{0.8}\right)}{((P^{*0.5}) \times (Sf^{*0.4}))} \right) \]

Where:  
\( Tc \) = Time of concentration, hrs  
\( n \) = Mannings n  
\( Lf \) = Flow length, ft  
\( P \) = 2yr, 24hr Rain depth, inches  
\( Sf \) = Slope, %

--- SCS TR-55 Shallow Concentrated Flow --------------------------------

Unpaved surface:
\[ V = 16.1345 \times (Sf^{*0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{*0.5}) \]

\[ Tc = \left( \frac{Lf}{V} \right) / (3600 \text{sec/hr}) \]

Where:  
\( V \) = Velocity, ft/sec  
\( Sf \) = Slope, ft/ft  
\( Tc \) = Time of concentration, hrs  
\( Lf \) = Flow length, ft
TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet
Mannings n: 0.0200
Hydraulic Length: 300.00 ft
2yr, 24hr P: 1.1400 in
Slope: 0.050000 ft/ft
Avg. Velocity: 0.91 ft/sec
Segment #1 Time: 0.0911 hrs

Segment #2: Tc: TR-55 Shallow
Hydraulic Length: 8781.19 ft
Slope: 0.060000 ft/ft
Unpaved
Avg. Velocity: 3.95 ft/sec
Segment #2 Time: 0.6172 hrs

Total Tc: 0.7083 hrs
TITLE: Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

CALC NO.: 5200320-0-DC-531-C-002

--- SCS TR-55 Sheet Flow ----------------------------------------

\[ Tc = \left( 0.007 \times \frac{(n \times Lf)^{0.8}}{((P^{*}.5)} \times (Sf^{0.4}) \right) \]

Where: 
- Tc = Time of concentration, hrs
- n = Mannings n
- Lf = Flow length, ft
- P = 2yr, 24hr Rain depth, inches
- Sf = Slope, %

--- SCS TR-55 Shallow Concentrated Flow --------------------------

Unpaved surface:
\[ V = 16.1345 \times (Sf^{0.5}) \]

Paved surface:
\[ V = 20.3282 \times (Sf^{0.5}) \]

\[ Tc = \left( \frac{Lf}{V} \right) \times \left( \frac{3600 \text{sec/hr}}{3600 \text{sec/hr}} \right) \]

Where: 
- V = Velocity, ft/sec
- Sf = Slope, ft/ft
- Tc = Time of concentration, hrs
- Lf = Flow length, ft
### RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious (%)</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.330</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>886.893</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>.867</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>13.710</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

**COMPOSITE AREA & WEIGHTED CN -->**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>908.800</td>
<td>77.05 (77)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**RUNOFF CURVE NUMBER DATA**

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area</th>
<th>Impervious</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>93</td>
<td>56.75</td>
<td>83.00</td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>835.90</td>
<td>77.00</td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.662</td>
<td>98.00</td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>14.488</td>
<td>76.00</td>
<td>76.00</td>
</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN ---> 908.800 77.40 (77)

---

**TITLE:** Preliminary Stormwater Management, Vegetated Mulch Dust Suppression Calculations

**CALC NO.: 520003201-0-DC-531-C-002**

**PAGE:** 5 of 47

---

---
RUNOFF CURVE NUMBER DATA

<table>
<thead>
<tr>
<th>Soil/Surface Description</th>
<th>CN</th>
<th>Area acres</th>
<th>Impervious Adjustment %C</th>
<th>Adjusted CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Road</td>
<td>83</td>
<td>7.354</td>
<td></td>
<td>83.00</td>
</tr>
<tr>
<td>Graded Desert Landscape</td>
<td>77</td>
<td>1619.533</td>
<td></td>
<td>77.00</td>
</tr>
<tr>
<td>Buildings</td>
<td>98</td>
<td>1.799</td>
<td></td>
<td>98.00</td>
</tr>
<tr>
<td>Gravel Roads</td>
<td>76</td>
<td>28.914</td>
<td></td>
<td>76.00</td>
</tr>
</tbody>
</table>

COMPOSITE AREA & WEIGHTED CN ---> 1657.600 77.03 (77)
----- I ----- 
10yr, 6hr Dev 10... 3.01
----- I ----- 
IVAN 1.1... 4.01, 5.01
Ivan TP40... 2.01
IVANPAH 2.1... 4.03, 5.02
IVANPAH 3.1... 4.05, 5.03

----- W ----- 
Watershed... 1.01

TITLE: Preliminary Stormwater Management, 
Vegetated Mulch Dust Suppression Calculations 
CALC NO.: 52003201-0-DC-531-C-002 
PAGE: D17 of D47

S/N: Bentley PondPack (10.00.023.00) 10:03 AM
Bentley Systems, Inc. 8/10/2007
ATTACHMENT E

Volume of Vegetated Mulch
Given: Provide an estimate of the total mass to be burned/mulched onsite.

Debris assumptions:

a) Entire site will be disturbed.
b) All 3 areas (north, south, & middle) total approximately 4 (sq mi).
c) Roots will require little disturbance. Each 100 (ft²) area will create an average row of debris of 2 (ft) diameter by 3 (ft) long, approximately 10 (ft³) or 0.37 (cu yd/100 (ft²)). This will be mulched into a 2 (ft³) volume (i.e. 2 (ft³/100 (ft²))).

Calculation

Pre-mulched Debris pile:
4 (sq mi) x 640 (ac/sq mi) x 43560 (ft²/acre) / 100 (ft²) x 0.37 (cu yd/100 (ft²)) = 412600 (cu yd)

Mulch:
4 (sq mi) x 640 (ac/sq mi) x 43560 (ft²/acre) / 100 (ft²) x 2 (cu ft) / 27 (ft³/cu yd) = 82602 (cu yd)
### ATTACHMENT F

Volume of Water for Dust Suppression
Given: Provide an estimate of the total water requirements for dust control.

Water assumptions:
   a) 0.05 ft$^3$ of water will be required over entire site.

Calculation

$$4 \text{ (sq mi)} \times 640 \text{ (ac/\text{sq mi})} \times 43560 \text{ (\text{ft}^2/\text{ac})} \times 0.05 \text{ (ft)} \times 7.48 \text{ (\text{ft}^3/\text{gal})} = 41,706,086 \text{ (gal)}$$
ATTACHMENT G

Reference Information
## Precipitation Frequency Estimates (inches)

<table>
<thead>
<tr>
<th>AEP* (1-in-Y)</th>
<th>5 min</th>
<th>10 min</th>
<th>15 min</th>
<th>30 min</th>
<th>60 min</th>
<th>120 min</th>
<th>3 hr</th>
<th>6 hr</th>
<th>12 hr</th>
<th>24 hr</th>
<th>48 hr</th>
<th>7 day</th>
<th>10 day</th>
<th>20 day</th>
<th>30 day</th>
<th>45 day</th>
<th>60 day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.15</td>
<td>0.23</td>
<td>0.29</td>
<td>0.39</td>
<td>0.48</td>
<td>0.60</td>
<td>0.68</td>
<td>0.84</td>
<td>1.01</td>
<td>1.02</td>
<td>1.11</td>
<td>1.12</td>
<td>1.26</td>
<td>1.40</td>
<td>1.52</td>
<td>1.76</td>
<td>2.04</td>
</tr>
<tr>
<td>5</td>
<td>0.24</td>
<td>0.37</td>
<td>0.46</td>
<td>0.62</td>
<td>0.76</td>
<td>0.93</td>
<td>1.04</td>
<td>1.28</td>
<td>1.53</td>
<td>1.55</td>
<td>1.65</td>
<td>1.67</td>
<td>1.87</td>
<td>2.06</td>
<td>2.25</td>
<td>2.63</td>
<td>3.08</td>
</tr>
<tr>
<td>10</td>
<td>0.31</td>
<td>0.47</td>
<td>0.59</td>
<td>0.79</td>
<td>0.98</td>
<td>1.19</td>
<td>1.32</td>
<td>1.60</td>
<td>1.90</td>
<td>1.92</td>
<td>2.04</td>
<td>2.29</td>
<td>2.49</td>
<td>2.71</td>
<td>3.20</td>
<td>3.75</td>
<td>4.27</td>
</tr>
<tr>
<td>25</td>
<td>0.41</td>
<td>0.62</td>
<td>0.77</td>
<td>1.04</td>
<td>1.28</td>
<td>1.56</td>
<td>1.70</td>
<td>2.05</td>
<td>2.41</td>
<td>2.44</td>
<td>2.56</td>
<td>2.84</td>
<td>3.03</td>
<td>3.28</td>
<td>3.89</td>
<td>4.58</td>
<td>5.24</td>
</tr>
<tr>
<td>50</td>
<td>0.49</td>
<td>0.75</td>
<td>0.92</td>
<td>1.25</td>
<td>1.54</td>
<td>1.89</td>
<td>2.03</td>
<td>2.42</td>
<td>2.82</td>
<td>2.84</td>
<td>2.97</td>
<td>3.26</td>
<td>3.43</td>
<td>3.70</td>
<td>4.39</td>
<td>5.17</td>
<td>5.94</td>
</tr>
<tr>
<td>100</td>
<td>0.58</td>
<td>0.89</td>
<td>1.10</td>
<td>1.48</td>
<td>1.83</td>
<td>2.26</td>
<td>2.40</td>
<td>2.83</td>
<td>3.24</td>
<td>3.28</td>
<td>3.42</td>
<td>3.70</td>
<td>3.83</td>
<td>4.10</td>
<td>4.88</td>
<td>5.76</td>
<td>6.63</td>
</tr>
<tr>
<td>200</td>
<td>0.68</td>
<td>1.04</td>
<td>1.29</td>
<td>1.74</td>
<td>2.15</td>
<td>2.68</td>
<td>2.83</td>
<td>3.28</td>
<td>3.70</td>
<td>3.74</td>
<td>3.89</td>
<td>4.15</td>
<td>4.27</td>
<td>4.50</td>
<td>5.36</td>
<td>6.32</td>
<td>7.29</td>
</tr>
<tr>
<td>500</td>
<td>0.84</td>
<td>1.28</td>
<td>1.59</td>
<td>2.14</td>
<td>2.65</td>
<td>3.33</td>
<td>3.49</td>
<td>3.98</td>
<td>4.38</td>
<td>4.43</td>
<td>4.56</td>
<td>4.80</td>
<td>4.89</td>
<td>5.07</td>
<td>5.98</td>
<td>7.05</td>
<td>8.14</td>
</tr>
<tr>
<td>1000</td>
<td>0.98</td>
<td>1.50</td>
<td>1.86</td>
<td>2.50</td>
<td>3.09</td>
<td>3.91</td>
<td>4.09</td>
<td>4.59</td>
<td>4.98</td>
<td>5.03</td>
<td>5.12</td>
<td>5.37</td>
<td>5.43</td>
<td>5.60</td>
<td>6.44</td>
<td>7.58</td>
<td>8.75</td>
</tr>
</tbody>
</table>

*These precipitation frequency estimates are based on an annual maxima series. AEP is the Annual Exceedence Probability. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.