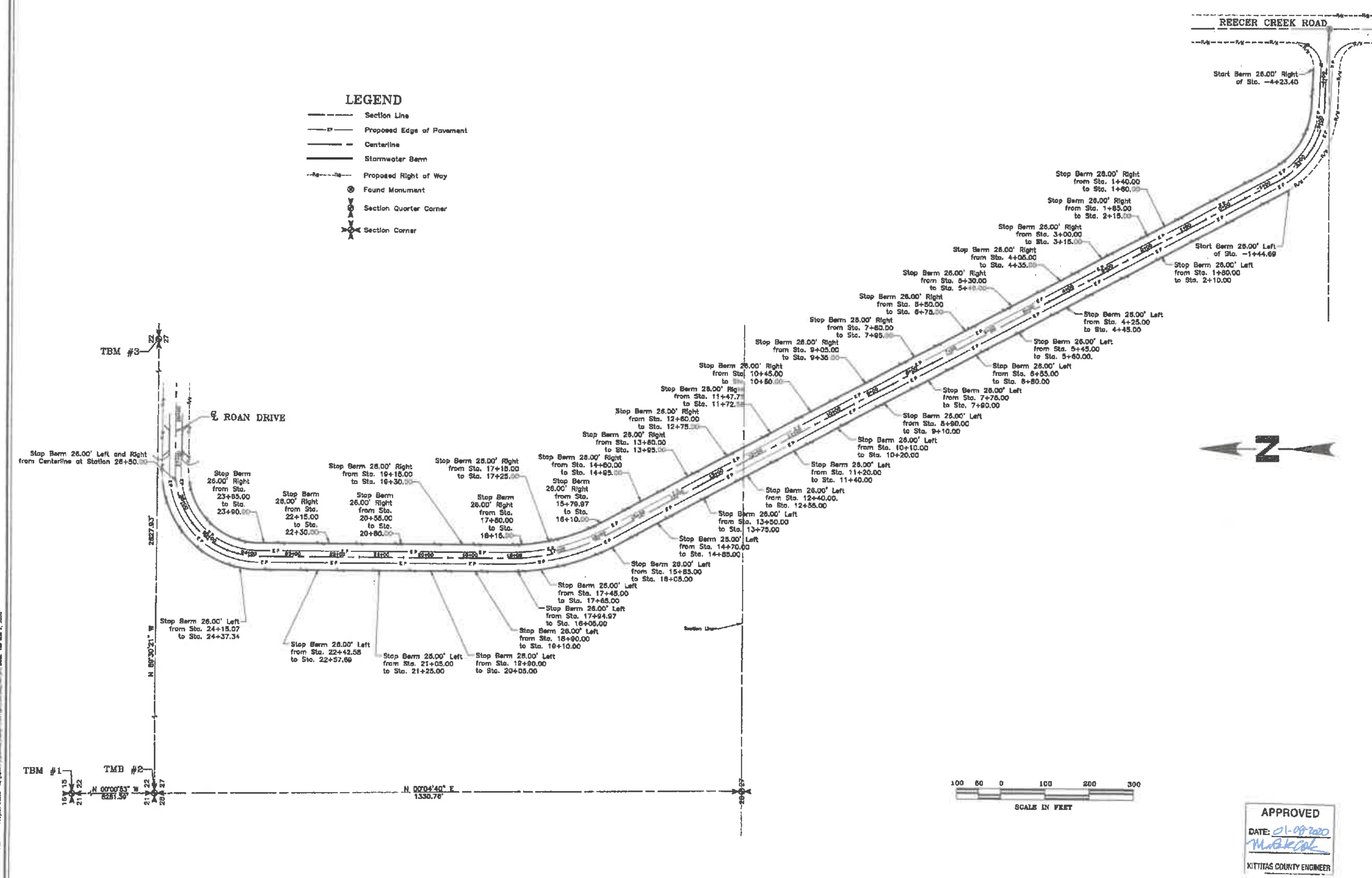
COUNTY ROAD NETWORK AMENDMENT FOR PALOMINO MAJOR PLAT


LEGEND
Section Line
Proposed Edge of Pavement
Centerline
Stormwater Berm
Proposed Right of Way
Found Monument
Section Quarter Corner
Section Corner
REECER CREEK ROAD
℄ ROAN DRIVE
TBM #1
TMB #2
TBM #3
Start Berm 26.00' Right of Sta. -4+23.40
Start Berm 26.00' Left of Sta. -1+44.69
Stop Berm 26.00' Right from Sta. 1+40.00 to Sta. 1+60.00
Stop Berm 26.00' Right from Sta. 1+85.00 to Sta. 2+15.00
Stop Berm 26.00' Right from Sta. 3+00.00 to Sta. 3+15.00
Stop Berm 26.00' Right from Sta. 4+05.00 to Sta. 4+35.00
Stop Berm 26.00' Right from Sta. 5+30.00 to Sta. 5+40.00
Stop Berm 26.00' Right from Sta. 5+50.00 to Sta. 6+75.00
Stop Berm 26.00' Right from Sta. 7+80.00 to Sta. 7+95.00
Stop Berm 26.00' Right from Sta. 9+05.00 to Sta. 9+35.00
Stop Berm 26.00' Right from Sta. 10+45.00 to Sta. 10+80.00
Stop Berm 26.00' Right from Sta. 11+47.77 to Sta. 11+72.76
Stop Berm 26.00' Right from Sta. 12+60.00 to Sta. 12+75.00
Stop Berm 26.00' Right from Sta. 13+80.00 to Sta. 13+95.00
Stop Berm 26.00' Right from Sta. 14+60.00 to Sta. 14+85.00
Stop Berm 26.00' Right from Sta. 15+79.97 to Sta. 16+10.00
Stop Berm 26.00' Right from Sta. 17+15.00 to Sta. 17+25.00
Stop Berm 26.00' Right from Sta. 17+80.00 to Sta. 18+15.00
Stop Berm 26.00' Right from Sta. 19+15.00 to Sta. 19+30.00
Stop Berm 26.00' Right from Sta. 20+55.00 to Sta. 20+80.00
Stop Berm 26.00' Right from Sta. 22+15.00 to Sta. 22+30.00
Stop Berm 26.00' Right from Sta. 23+85.00 to Sta. 23+90.00
Stop Berm 26.00' Left and Right from Centerline at Station 26+50.00
Stop Berm 26.00' Left from Sta. 1+80.00 to Sta. 2+10.00
Stop Berm 26.00' Left from Sta. 4+25.00 to Sta. 4+45.00
Stop Berm 26.00' Left from Sta. 5+45.00 to Sta. 5+60.00
Stop Berm 26.00' Left from Sta. 6+55.00 to Sta. 6+80.00
Stop Berm 26.00' Left from Sta. 7+75.00 to Sta. 7+90.00
Stop Berm 26.00' Left from Sta. 8+80.00 to Sta. 9+10.00
Stop Berm 26.00' Left from Sta. 10+10.00 to Sta. 10+20.00
Stop Berm 26.00' Left from Sta. 11+20.00 to Sta. 11+40.00
Stop Berm 26.00' Left from Sta. 12+40.00 to Sta. 12+55.00
Stop Berm 26.00' Left from Sta. 13+50.00 to Sta. 13+75.00
Stop Berm 26.00' Left from Sta. 14+70.00 to Sta. 14+85.00
Stop Berm 26.00' Left from Sta. 15+85.00 to Sta. 16+05.00
Stop Berm 26.00' Left from Sta. 17+45.00 to Sta. 17+65.00
Stop Berm 26.00' Left from Sta. 17+94.97 to Sta. 18+05.00
Stop Berm 26.00' Left from Sta. 18+90.00 to Sta. 19+10.00
Stop Berm 26.00' Left from Sta. 19+90.00 to Sta. 20+05.00
Stop Berm 26.00' Left from Sta. 21+05.00 to Sta. 21+25.00
Stop Berm 26.00' Left from Sta. 22+42.58 to Sta. 22+57.69
Stop Berm 26.00' Left from Sta. 24+15.07 to Sta. 24+37.34
N 89°30'21" W
2627.93'
N 00°04'40" E
1330.76'
N 00°00'53" W
5261.39'
Section Line
100 50 0 100 200 300
SCALE IN FEET
N

APPROVED
DATE: 01-09-2020
KITTITAS COUNTY ENGINEER

WESTERN PACIFIC ENGINEERING & SURVEY
A TERRA DEVELOPMENT SERVICES CORPORATION
1328 E. Hunter Place, Moses Lake, Washington
T:(509)765-1023 F:(509)765-1296
Services in Washington and Idaho

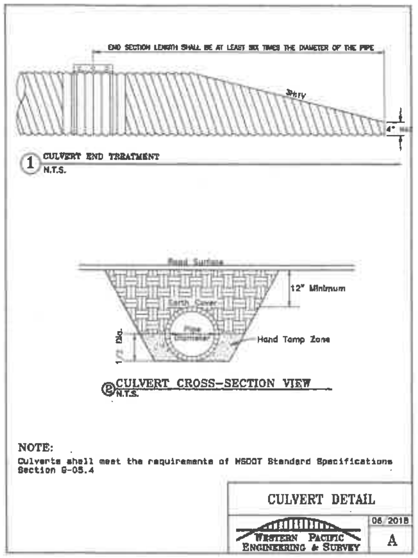
No.	Revision	Date	By

LCU, INC.
PALOMINO MAJOR PLAT, PHASE 2 & 3
ROAN DRIVE STORMWATER ALTERATIONS
Road Layout
Kittitas County — Washington

Designed by NDN
Drawn by NDN/TBL
Checked by NDN
Project No. 18415
Date: December 2019
Scale:
Hor. 1" = 100'
Vert. 1" = N/A
Sec 27, T 18 N, R 18 E

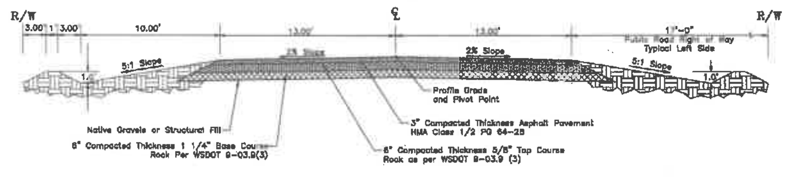
SHEET NO.
C1.1

181627



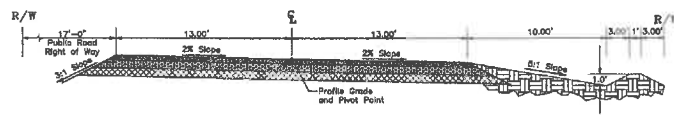
END SECTION LENGTH SHALL BE AT LEAST SIX TIMES THE DIAMETER OF THE PIPE
4"
1 CULVERT END TREATMENT
N.T.S.
Road Surface
12" Minimum
Earth Cover
Pipe Diameter
1/2 Dia.
Hand Tamp Zone
B CULVERT CROSS-SECTION VIEW
N.T.S.
NOTE:
Culverts shall meet the requirements of WSDOT Standard Specifications Section 9-05.4
CULVERT DETAIL
WESTERN PACIFIC ENGINEERING & SURVEY
06/2018
A

TYPICAL ROADWAY SECTION

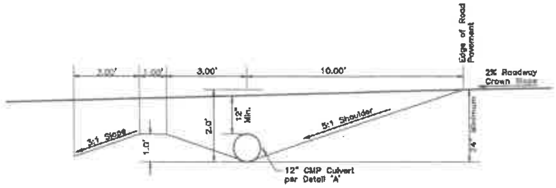


R/W
3.00'
1'
3.00'
10.00'
13.00'
13.00'
17'-0"
Public Road Right of Way
Typical Left Side
R/W
5:1 Slope
2% Slope
2% Slope
5:1 Slope
1.0'
Profile Grade and Pivot Point
Native Gravels or Structural Fill
8" Compacted Thickness 1 1/4" Base Course Rock Per WSDOT 9-03.9(3)
3" Compacted Thickness Asphalt Pavement HMA Class 1/2 PG 64-28
6" Compacted Thickness 5/8" Top Course Rock as per WSDOT 9-03.9 (3)

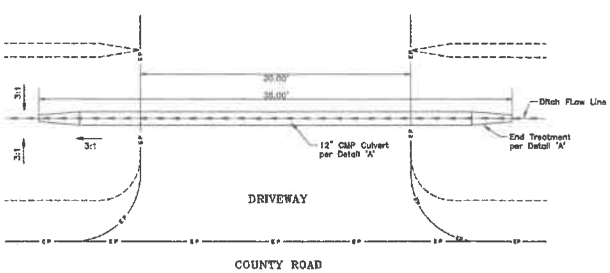
SUPER ROADWAY SECTION
Sta. -4+23.40 to Sta. -1+44.69



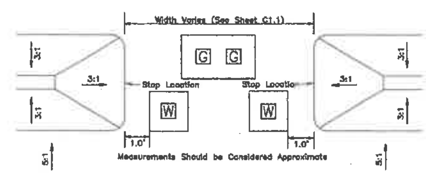
CALL 811 BEFORE YOU DIG



B TYPICAL DRIVEWAY PROFILE
Scale: 1" = 2'



C TYPICAL DRIVEWAY PLAN
Scale: 1" = 4'



D TYPICAL UTILITY BOX CUTOUT
Scale: 1" = 2'

APPROVED
DATE: 01-08-2020
KITTITAS COUNTY ENGINEER

WESTERN PACIFIC ENGINEERING & SURVEY
A TERRA DEVELOPMENT SERVICES CORPORATION
1328 E. Hunter Place, Moses Lake, Washington
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Services in Washington and Idaho

No.	Revision	Date	By

LCU, INC.
PALOMINO MAJOR PLAT, PHASE 2 & 3
ROAN DRIVE STORMWATE ALTERATIONS
Construction Details

Kittitas County — Washington

Designed by NDN
Drawn by Tml/TSL
Checked by NDN
Project No. 16418
Date: December 2019
Scale:
Hor. 1" = N/A
Vert. 1" = N/A
Sec 27, T 18 N, R 18 E

SHEET NO.
C2.1

181827

STORMWATER REPORT

PALOMINO MAJOR PLAT, PHASE II & III

LCU Inc.

Prepared by

WESTERN PACIFIC ENGINEERING and SURVEY
1328 E. Hunter Place
Moses Lake, Washington 98837
(509) 765-1023

WPES Project Number 18413
October 2019

ENGINEERS SPECIAL INSPECTORS PLANNERS SURVEYORS
WESTERN PACIFIC ENGINEERING & SURVEY
PIONEER WAY PROFESSIONAL CENTER
1328 E. HUNTER PLACE
MOSES LAKE, WASHINGTON 98837
OFFICE: (509) 765-1023
FAX: (509) 765-1298

October 18, 2019

LCU, Inc.
Attn: Pat Deneen
P.O. Box 394
Cle Elum, Washington 98922

SUBJECT: Revised Stormwater Report for Phase II and III of the Palomino Major Plat located in Ellensburg, WA
WPES Project No. 18413

Dear Mr. Deneen:

Please find the attached revised Stormwater Report for Phase II and III of the Palomino Major Plat in Ellensburg, Washington. This revised report incorporates the feedback and current construction conditions as they exist on-site today. As you know, you will be required to follow all Washington Department of Ecology and Kittitas County Stormwater Standards during construction.

Thank you for allowing us to serve your engineering needs. If you have any questions concerning the attached report, please feel free to contact our office.

Sincerely,

Nathaniel D. Nofziger, P.E.
WESTERN PACIFIC ENGINEERING & SURVEY
1328 E. Hunter Place
Moses Lake, Washington 98837
(509) 765-1023

10-18-19

Proposed Development and Existing Site Conditions

The original scope of this project included the development of approximately thirty-five hundred feet of private roadway network to serve thirty-six new single-family residences. Broken out into three phases, each phase would deal with a specific area of the development. This revised report specifically relates to the second and third phases of the overall project. This revision is required due to the reclassification of the roadway from a private road network to a public network and the presence of additional underground utilities.

Current project scope for phases two and three includes the extension of Roan Drive from its current location until it terminates at Reecer Creek Road. The development is located approximately three miles northwest of downtown Ellensburg, Washington. The site can be accessed to the northwest from Bowers Road or from the southeast by Reecer Creek Road. More specifically, the site is located in the Northwest quarter of Section 27, Township 18 North. Range 18 East, W.M., on Kittitas County's Tax Parcel No. 491033

During the preliminary phases of this project, it was determined that the site experienced extremely high-water levels during the summer months. As such, the installation of traditional ditches and swales would be unfeasible. Without the ability to excavate for stormwater collection and infiltration, an elevated roadbed is the most reasonable solution to allow for grading and stormwater management.

In raising the grade of the road, stormwater will be able to run off the roadway and collect in constructed ditches. To accommodate the runoff from the roadway, areas outside the asphalt and compacted gravel shoulder will be left uncompacted to allow maximum infiltration capability. By minimizing compacted areas and allowing plant growth in these infiltration areas, the stormwater runoff will be able to properly infiltrate into the ground.

In the original design, the roadway was intended to be a private road. With this classification, the runoff from the roadway, driveways, and structures placed on each lot would need to have a stormwater collection system. Changing to a county road allows for only the stormwater running off from the roadway itself to be collected and stored. Each property will maintain their runoff on-site.

On October 17th, 2014, Budinger & Associates performed two shallow depth bores to determine soil classification and layer thickness. These bores were located to the west of the existing Bowers Road, approximately 100' and 400' respectively. These locations serve as the primary location for the Phase I development. Results from these tests are included in the appendix. This data indicates that primarily sands and gravels are present on site with a standing water table of five and a half feet or less at the time of boring.

On June 5th, 2018, Western Pacific Engineering and Survey was on site to dig test pits and collect soil samples representative of the native material found on site. The test pits were located in the vicinity of the bridge abutments. The soil conditions, drainage characteristics, and pertinent soil design information was gathered and analyzed for use within this report. The soil analysis, as well as a map showing locations of the test pits, can be found in the appendix.

The proposed development is classified as a low-use site as defined by the 2019 Stormwater Management Manual for Eastern Washington (SWMMEW). Roan Drive is a county road with an average daily traffic (ADT) count of less than 7,500 vehicles, categorizing it as a low-use site according to Table 5.22: Pollutant Loading Classifications for Solids, Metals, and Oil in Stormwater Runoff Directed to UIC Wells.

The natural topography is generally uniform in grade, sloping downward to the southwest. The surface of property is covered in a variety of native grasses. Within the boundaries of Phase III of this project, there is an abandoned irrigation ditch that runs east to west. This irrigation ditch is no longer in use and portions of it will be filled in as necessary. Other important features to note are Currier Creek, the Town Ditch, and their proximity to the site. The Town Ditch borders the eastern portion of the site and Currier Creek is located to the west.

Basin Analysis

After placement of new roadway, the original drainage flow will be disrupted due to the elevated roadbed design. All stormwater that lands within the established Right of Way (ROW) will be collected and stored until it is able to infiltrate. The native soils are somewhat permeable, but will have limited infiltration prior to the soils becoming saturated due to the high-water table. For areas outside the ROW, runoff will be similar to pre-construction conditions.

For this development it is important that the stormwater runoff from the roadway does not directly flow into Currier Creek, due to the potential for contaminants. To protect Currier Creek, construction means and methods shall be consistent with the Stormwater Management Manual for Eastern Washington. For the purpose of this stormwater management document, only the stormwater that lands within the Right of Way will be considered.

General Calculation Procedure

When computing the required infiltration and storage areas for the site, a number of design assumptions were made. These assumptions include: each lot would have its own driveway, approximately twenty feet wide, Roan Drive will be approximately twenty-six feet wide for the 3,250 feet long roadway, approximately twenty linear feet would be subtracted from effective ditch length for each utility cluster, and the infiltration rate is assumed to be zero feet per second to account for the high groundwater table and inability for native soils to infiltrate stormwater.

By quantifying the type of ground cover present on site, a more accurate representation of infiltration and storage is possible. The impervious area, consisting of the roadway and individual driveways, covers approximately 2.2 acres. The pervious cover, consisting of the ditches and shoulders along the roadway, adds an additional 1.3 acres. In accordance with the Kittitas County Code, the rainfall intensity and time of concentration from a 25-year storm were used. A rainfall volume of 1.6 inches, along with Type 1A hydrograph were used to analyze the volume of stormwater expected from the site.

According to the United States Department of Agriculture's (USDA) Soil Survey, the soils in the area have a Hydraulic Soil Group rating of C/D or better. Runoff Curve Number (CN) values can be pulled directly from Table 4.5.2, found in the Stormwater Management Manual for Eastern Washington, published by the Washington State Department of Ecology. For the impervious paved areas, the CN value is 98. For the previous areas, the CN value of 87 for open spaces with less than 50% grassy cover was used. This CN value was chosen as the infiltration areas are designed to be seeded with low-irrigation plants and may not assist in the infiltration of stormwater.

Based on the Budinger & Associates soil exploration data, project soils are classified as poorly graded clean gravels or gravel-sand mix (GP) according to Unified Soils Classification System with a hydraulic permeability of 0.01 feet per minute.

Based on our own research and soil sampling, the soils most closely resemble silty sands or poorly graded sand-silt mix (SM) with a hydraulic permeability of 5×10^{-5} feet per minute within the first foot of depth. For the remainder of the tests, for depths greater than a foot, the soils present have a higher hydraulic conductivity than the initial layer. As such, the lowest value will be used for calculations as it is the limited factor in stormwater infiltration. The data gathered by Western Pacific Engineering & Survey has been included in the appendix.

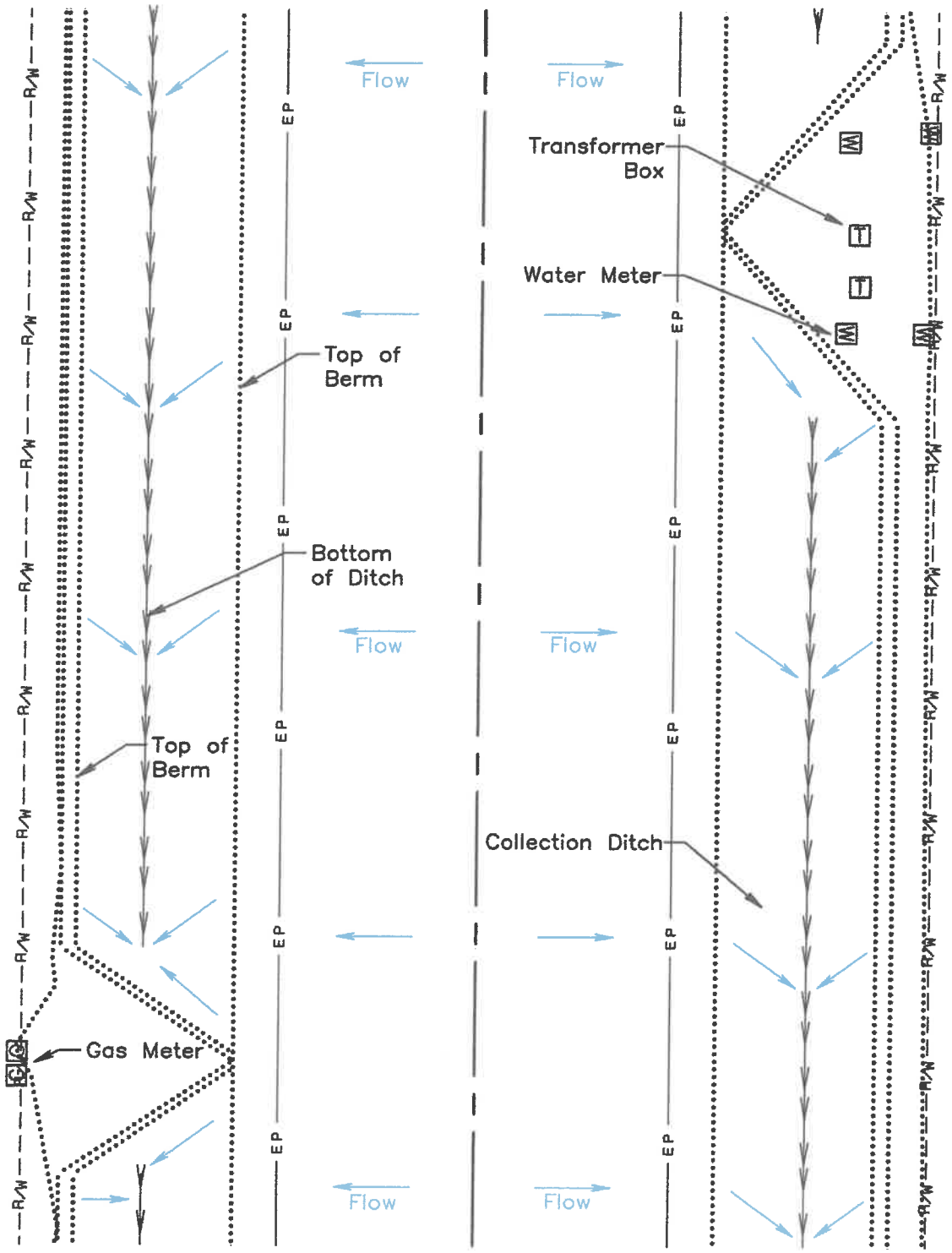
Lastly, by utilizing the United States Department of Agriculture's Web Soil Survey tool, a soil map encompassing the project site and the present soils with their respective engineering and physical properties was obtained. Using the median value for the topsoil infiltration rate returned a value of 0.0018 feet per second. Data sheets utilized to determine the soil type and infiltration rates are included in the appendix. To provide a factor of safety, an assumed infiltration rate of zero feet per second is used to determine the required 100-year storm storage capacity. As such, the required storage for a zero-infiltration scenario is the design standard.

Current earthwork design calls for a one-and-a-half-foot tall berm on the outside of the ditch and a two-foot berm on the inside of the ditch with a trough between them. This depression will contain the stormwater from the roadway. With a design infiltration value of zero feet per second, the required storage is 13,737 ft^3. This amount of water equates to approximately 7.5" and 6.5" of standing water in the left and right ditches, respectively. While the right ditch accepts more runoff, it also has a longer effective length due to the super-elevated roadway, thereby giving it a lower standing depth. With 100-year storm during frozen ground conditions, the stormwater collection system is capable of impounding all runoff without the need for any infiltration. During typical, non-frozen conditions, a storage depth of 2" or less should be expected based on median infiltration rates.

Taking all of the above information into consideration, it was determined that for an SCS Type 1A regional storm, the designed stormwater collection system is more than capable of handling the runoff from Roan Drive.

Appendices and Attachments

- Typical Layout Runoff Map
- Typical Roadway Cross-Section
- Budinger & Associates Soil Bore Data
- WPES Soil Classification
- USDA Soil Classification
- 25-Year Storm Map
- Stormwater Manual Hydrology Tables
- Infiltration Area Calculations
- Basin Runoff Calculations



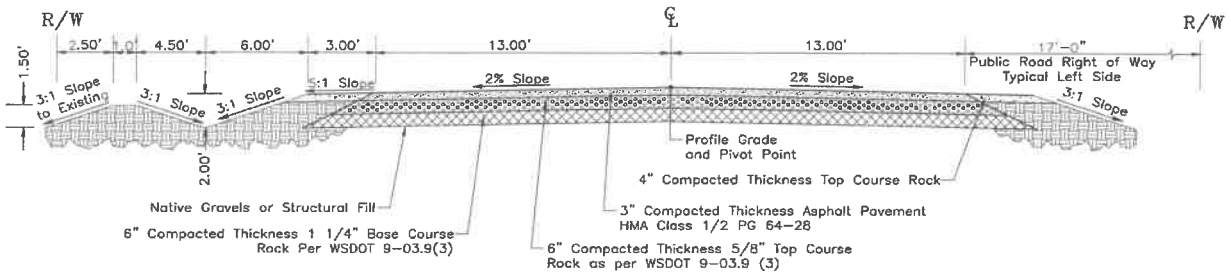
WESTERN PACIFIC ENGINEERING & SURVEY
A TERRA DEVELOPMENT SERVICES CORPORATION
1328 East Hunter Place
Moses Lake, WA
T:(509)765-1023
F:(509)765-1298

LCU, INC.

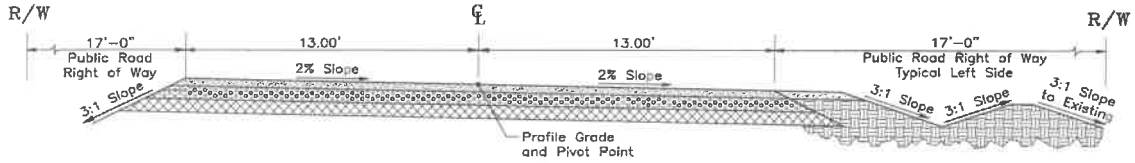
Palomino Flats Runoff Map
Typical Layout

DRAWN BY: TSL CHECKED BY: NDN	DATE: October 9, 2019	WPE PROJECT #: 18413	Scale: 1" = 10' PLATE NO.: 01

TYPICAL ROADWAY SECTION



SUPER ROADWAY SECTION
Sta. −4+23.40 to Sta. −1+44.69



WESTERN PACIFIC ENGINEERING & SURVEYING
A TERRA DEVELOPMENT SERVICES CORPORATION
1328 Hunter Place
Mossyrock, WA 98557
(360) 763-1023

No. Revision	Date	By

LCU, INC.
PALOMINO FLATS DRAINAGE
Typical Cross-Section
Kittitas County Washington

Designed by NDN
Drawn by TmL/TSL
Checked by NDN
Project No. 18413
Date: October, 2019
Scale:
Hor. 1" = N/A
Vert. 1" = N/A
Sec 27, T 18 N, R 18 E

SHEET NO.
1 of 1

DCPT LOCATION

TEST PIT LOCATION

N

SCALE: 1"=200'

0 100 200

Budinger & Associates

SITE PLAN	FIGURE 1
PALOMINO FIELDS PLAT ELLENSBURG, WASHINGTON	PROJECT NUMBER S14484
	DATE: 10/2014

TEST PIT 1

Date of Boring: 10-17-14
Driller: client
Type of Drill: Bobcat E42 Mini-excavator
Location: ~ 50 feet west of Reecer Creek Road at Bowers Road
Surface: sparse grass and weeds

Elevation: 100 ft
Logged by: T. Black
Size of hole: 5 ft by 10 ft

DEPTH	SAMPLES	RQD, BLOW COUNTS N (% RECOVERY) (blows/6" (italics))	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG
0			moist, dark brown to brown, loose	SAND with Silt and Organics (roots)	
			moist, brown to reddish brown, loose to medium dense	GRAVEL with Sand and Cobbles, occasional Boulders, coarse, rounded	
5			saturated, gray, loose to medium dense	(free groundwater at 5 feet) GRAVEL with Sand, occasional Cobbles and Boulders, coarse, rounded	
				End of Boring @ 5.5 ft	
10					

TEST RESULTS

ATTERBERG LIMITS
PL ⟷ LL
WATER CONTENT ○
STANDARD PEN TEST, N-VALUE (OBSERVED) ■
3" SPLIT SPOON PENETRATION, BLOWS/FT ■

10 20 30 40 50 60 70 80 90

TEST PIT LWWWT S14484 TEST PIT LOGS.GPJ BUDINGER.GDT 10/23/14

Budinger & Associates
3820 E. Broadway Ave.
Spokane, WA 99202

TEST PIT LOGS **FIGURE 3-1**

Project: Palomino Road Extension
Location: Ellensburg, WA
Number: S14484

TEST PIT 2

Date of Boring: 10-17-14
Driller: client
Type of Drill: Bobcat E42 Mini-excavator
Location: ~ 400 feet west of Reecer Creek Road at Bowers Road
Surface: sparse grass and weeds

Elevation: 95 ft
Logged by: T. Black
Size of hole: 5 ft by 10 ft

DEPTH	SAMPLES	RQD, BLOW COUNTS N (% RECOVERY) (blows/6" (italics))	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG
0			moist, dark brown to brown, loose	SAND with Silt and Organics (roots)	
			moist, brown to reddish brown, loose to medium dense	GRAVEL with Sand and Cobbles, occasional Boulders, coarse, rounded	
				(free groundwater at 4 feet)	
5			saturated, gray, loose to medium dense	GRAVEL with Sand, occasional Cobbles and Boulders, coarse, rounded	
				End of Boring @ 5 ft	
10					

TEST RESULTS

ATTERBERG LIMITS
PL ⊢——⊣ LL
WATER CONTENT ○
STANDARD PEN TEST, N-VALUE (OBSERVED) ■
3" SPLIT SPOON PENETRATION, BLOWS/FT ■

10 20 30 40 50 60 70 80 90

TEST PIT LWWWT S14484 TEST PIT LOGS.GPJ BUDINGER.GDT 10/23/14

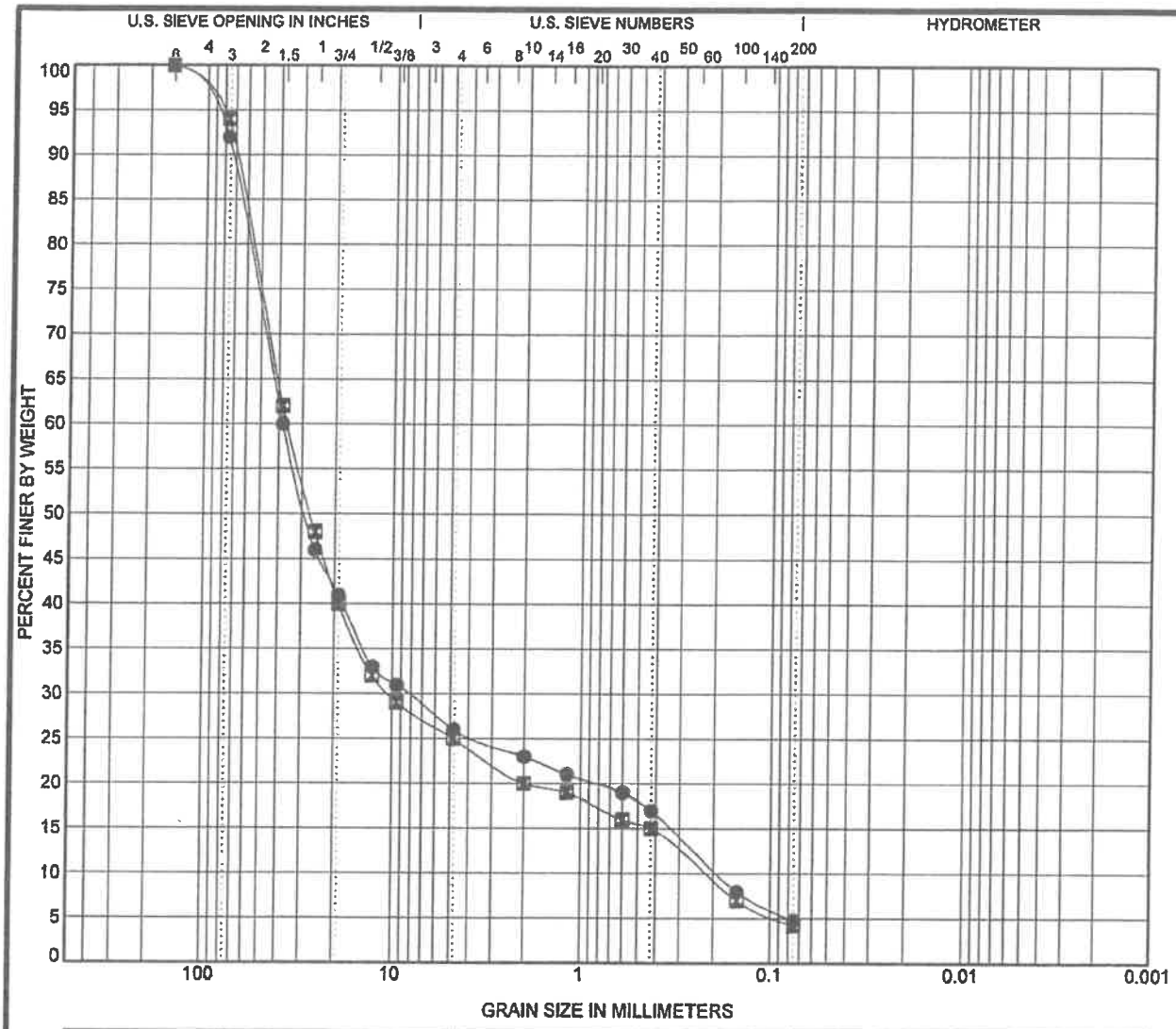
Budinger & Associates
3820 E. Broadway Ave.
Spokane, WA 99202

TEST PIT LOGS **FIGURE 3-2**

Project: Palomino Road Extension
Location: Ellensburg, WA
Number: S14484

SOIL MECHANICS
LABORATORY SUMMARY

LABORATORY NUMBER TEST PIT NUMBER			Units	Test Methods	1	2
DEPTH	TOP		feet		1.0	1
	BOTTOM		feet		3.0	3
SAMPLE TYPE					Bulk	Bulk
MOISTURE			%	ASTM D2216	6.5	6.0
LIQUID LIMIT			%	ASTM D 4318	27	28
PLASTIC LIMIT			%		24	18
PLASTICITY INDEX			%		3	10
UNIFIED CLASSIFICATION				ASTM D 2487	GP	GP
	6"			ASTM D 422	100	100
	3"				92	94
S	1½"		%		60	62
I	1"				46	48
E	3/4"	GRAVEL	P		41	40
V	1/2"		A		33	32
E	3/8"		S		31	29
	#4		S		26	25
S	#10		I		23	20
I	#16		N		21	19
Z	#30	SAND	G		19	16
E	#40				17	15
	#100				8	7
	#200				4.8	4.2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● 1	1.0					9.56	200.99
■ 2	1.0	POORLY GRADED GRAVEL with SAND(GP)				13.77	161.84

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 1	1.0	152.4	38	8.288	0.189	65.3	21.2	4.8	
■ 2	1.0	152.4	35.875	10.465	0.222	68.3	20.7	4.2	

Budinger & Associates
1101 North Fancher Road
Spokane Valley, WA 99212

GRAIN SIZE DISTRIBUTION RESULTS

Project: Palomino Road Extension

Location: Ellensburg, WA

Number: S14484

FIGURE 6

US_GRAIN_SIZE S14484 TEST PIT LOGS.GPJ BUDINGER.GDT 10/23/14

WESTERN PACIFIC ENGINEERING & SURVEY
1328 E. Hunter Place, Moses Lake, Washington
T: (509)765-1023 F: (509)765-1298

ACCREDITED #4142.01

SIEVE ANALYSIS REPORT

Report To: LCU, Inc.
Attn: Pat Deneen
P.O. Box 394
Cle Elum, WA 98922

Date Sampled: 06/05/18
Date Received: 06/05/18
Date Tested: 06/07/18
Sampled By: WPE
Sample Method: Test Pit

Project #: 18413
Sample #: 74
Source: On Site
Description: T.P. #1 @ 6 ft

Specifications: No Specs
Sample Meets Specs ? n/a

ASTM D-2487 Unified Soils Classification System
GP, Poorly graded Gravel

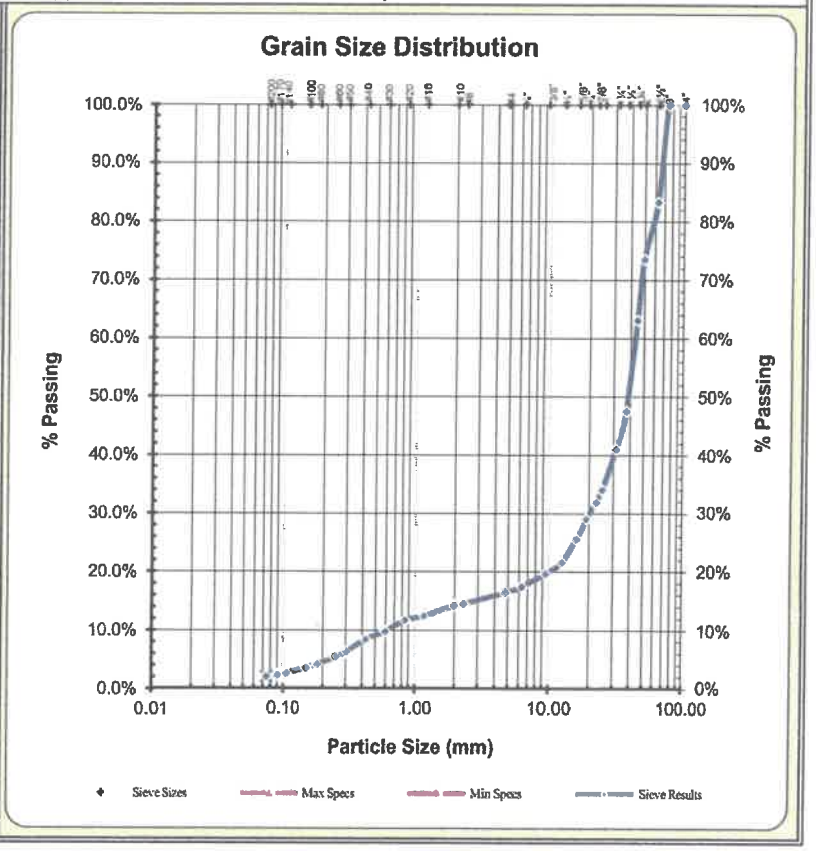
Procedure: ASTM C136

$D_{(10)}$= 0.623 mm
$D_{(30)}$= 20.135 mm
$D_{(60)}$= 43.489 mm

% Gravel = 83.5%
% Sand = 14.4%
% Silt & Clay = 2.1%

Coeff. of Curvature, C_C = 14.97
Coeff. of Uniformity, C_U = 69.81
Fineness Modulus= 7.41

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100%		
4.00"	100.00		100%		
3.00"	75.00		100%		
2.50"	63.00	83%	83%		
2.00"	50.00	74%	74%		
1.75"	45.00		63%		
1.50"	37.50	48%	48%		
1.25"	31.50	41%	41%		
1.00"	25.00	34%	34%		
7/8"	22.40		32%		
3/4"	19.00	29%	29%		
5/8"	16.00		26%		
1/2"	12.50	22%	22%		
3/8"	9.50	20%	20%		
1/4"	6.30	17%	17%		
#4	4.75	16%	16%		
#8	2.360		15%		
#10	2.000	14%	14%		
#16	1.180		12%		
#20	0.850	12%	12%		
#30	0.600		10%		
#40	0.425	8%	8%		
#50	0.300		6%		
#60	0.250		5%		
#80	0.180	4%	4%		
#100	0.150		4%		
#140	0.106		3%		
#170	0.090		2%		
#200	0.075	2.1%	2.1%		



Technician: Jack Demont
Engineer: Nathan Nofziger, P.E.

WESTERN PACIFIC ENGINEERING & SURVEY
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A2LA ACCREDITED #4142.01

SIEVE ANALYSIS REPORT

Report To: LCU, Inc
Attn: Pat Deneen
P.O. Box 394
Cle Elum, WA 98922

Date Sampled: 06/05/18
Date Received: 06/05/18
Date Tested: 06/08/18
Sampled By: WPE
Sample Method: Test Pit

Project #: 18413
Sample #: 75
Source: On Site
Description: T.P. #1 @ 4 ft

Specifications: No Specs
Sample Meets Specs ? n/a

ASTM D-2487 Unified Soils Classification System
GP-GM, Poorly graded Gravel with Silt and Sand

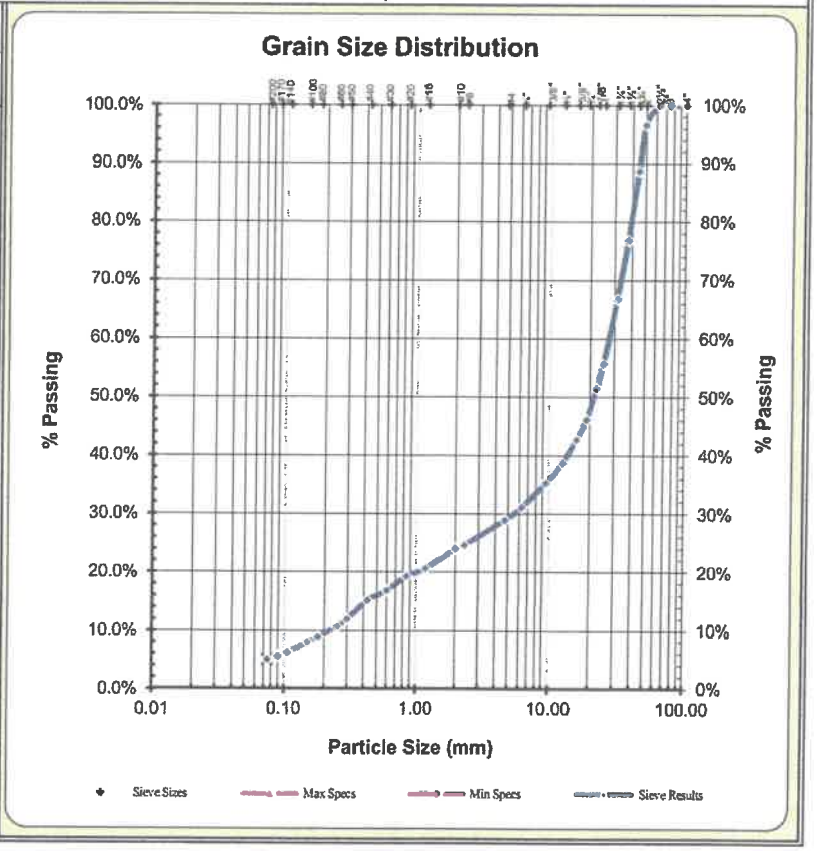
Procedure: ASTM C136

$D_{(10)}$= 0.223 mm
$D_{(30)}$= 5.501 mm
$D_{(60)}$= 27.549 mm

% Gravel = 71.1%
% Sand = 23.9%
% Silt & Clay = 5.1%

Coeff. of Curvature, C_C = 4.93
Coeff. of Uniformity, C_U = 123.76
Fineness Modulus= 6.31

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100%		
4.00"	100.00		100%		
3.00"	75.00		100%		
2.50"	63.00	100%	100%		
2.00"	50.00	97%	97%		
1.75"	45.00		89%		
1.50"	37.50	77%	77%		
1.25"	31.50	67%	67%		
1.00"	25.00	56%	56%		
7/8"	22.40		52%		
3/4"	19.00	46%	46%		
5/8"	16.00		43%		
1/2"	12.50	39%	39%		
3/8"	9.50	35%	35%		
1/4"	6.30	31%	31%		
#4	4.75	29%	29%		
#8	2.360		25%		
#10	2.000	24%	24%		
#16	1.180		21%		
#20	0.850	19%	19%		
#30	0.600		17%		
#40	0.425	15%	15%		
#50	0.300		12%		
#60	0.250		11%		
#80	0.180	9%	9%		
#100	0.150	8%	8%		
#140	0.106		6%		
#170	0.090		6%		
#200	0.075	5.1%	5.1%		



Technician: Jack Demont
Engineer: Nathan Nofziger, P.E.

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Report To: LCU, Inc.
Attn: Pat Deneen
P.O. Box 394
Cle Elum, Washington 98922

Date Sampled: 06/05/18
Date Received: 06/05/18
Date Tested: 06/08/18
Sampled By: WPE
Sample Method: Manual Native

Project #: 18413
Sample #: 76
Source: On-Site
Description: T.P.# 1 @ 12"

Specifications: No Specs
Sample Meets Specs ? n/a

ASTM D-2487 Unified Soils Classification System
SM, Silty Sand

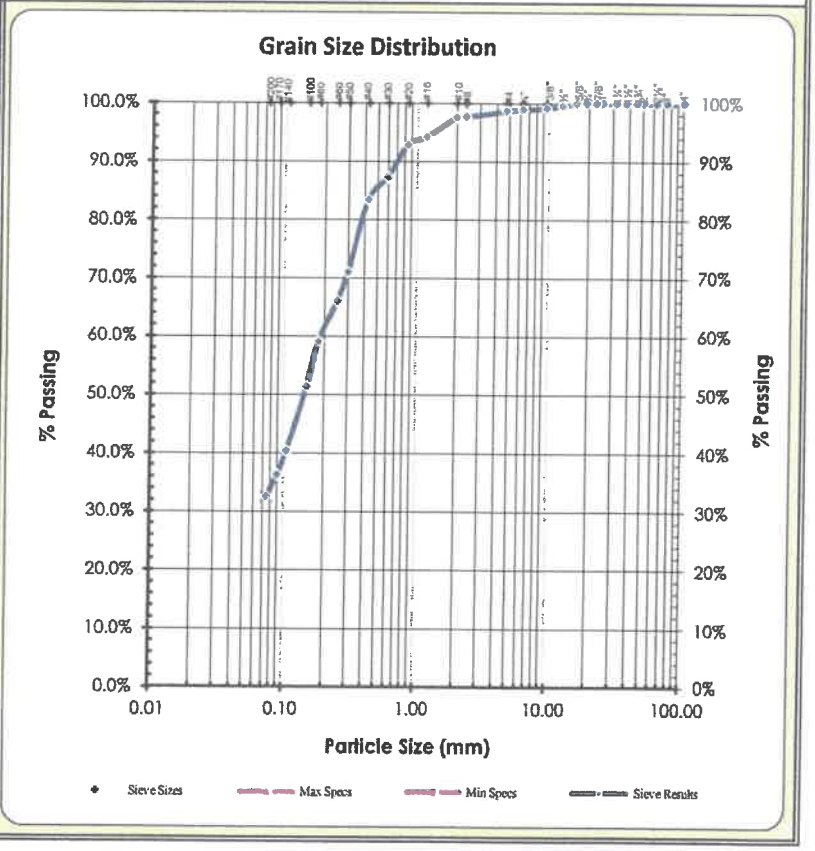
Procedure: ASTM C117 Method B

$D_{(10)}$= 0.023 mm
$D_{(30)}$= 0.069 mm
$D_{(60)}$= 0.189 mm

% Gravel = 1.4%
% Sand = 66.1%
% Silt & Clay = 32.5%

Coeff. of Curvature, C_c = 1.10
Coeff. of Uniformity, C_u = 8.20
Fineness Modulus= 1.01

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100%		
4.00"	100.00		100%		
3.00"	75.00		100%		
2.50"	63.00		100%		
2.00"	50.00		100%		
1.75"	45.00		100%		
1.50"	37.50		100%		
1.25"	31.50		100%		
1.00"	25.00		100%		
7/8"	22.40		100%		
3/4"	19.00		100%		
5/8"	16.00	100%	100%		
1/2"	12.50	100%	100%		
3/8"	9.50	99%	99%		
1/4"	6.30	99%	99%		
#4	4.75	99%	99%		
#8	2.360		98%		
#10	2.000	98%	98%		
#16	1.180		94%		
#20	0.850	93%	93%		
#30	0.600		87%		
#40	0.425	83%	83%		
#50	0.300		71%		
#60	0.250		66%		
#80	0.180	59%	59%		
#100	0.150		52%		
#140	0.106		40%		
#170	0.090		36%		
#200	0.075	32.5%	32.5%		



Technician: Jack Demont
Engineer: Nathan Nofziger, P.E.

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SIEVE ANALYSIS REPORT

Report To: LCU, Inc.
Attn: Pat Deneen
P.O. Box 394
Cle Elum, WA 98922

Date Sampled: 06/05/18
Date Received: 06/05/18
Date Tested: 06/06/18
Sampled By: WPE
Sample Method: Test Pit

Project #: 18413
Sample #: 77
Source: On Site
Description: T.P. #2 @ 6"

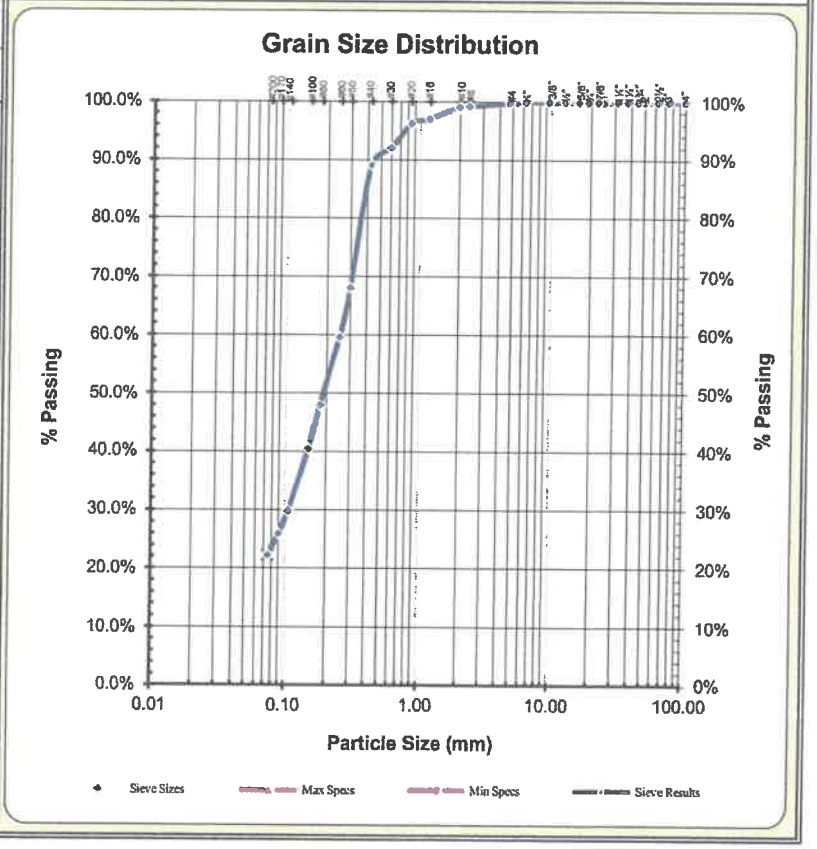
Specifications: No Specs
Sample Meets Specs ? n/a

ASTM D-2487 Unified Soils Classification System
SM, Silty Sand

Procedure: ASTM C136

$D_{(10)}$= 0.034 mm | % Gravel = 0.2% | Coeff. of Curvature, C_C = 1.34
$D_{(30)}$= 0.107 mm | % Sand = 77.5% | Coeff. of Uniformity, C_U = 7.49
$D_{(60)}$= 0.252 mm | % Silt & Clay = 22.3% | Fineness Modulus= 1.03

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100%		
4.00"	100.00		100%		
3.00"	75.00		100%		
2.50"	63.00		100%		
2.00"	50.00		100%		
1.75"	45.00		100%		
1.50"	37.50		100%		
1.25"	31.50		100%		
1.00"	25.00		100%		
7/8"	22.40		100%		
3/4"	19.00		100%		
5/8"	16.00		100%		
1/2"	12.50		100%		
3/8"	9.50		100%		
1/4"	6.30	100%	100%		
#4	4.75	100%	100%		
#8	2.360		99%		
#10	2.000	99%	99%		
#16	1.180		97%		
#20	0.850	96%	96%		
#30	0.600		92%		
#40	0.425	89%	89%		
#50	0.300		68%		
#60	0.250		60%		
#80	0.180	48%	48%		
#100	0.150		41%		
#140	0.106		30%		
#170	0.090		26%		
#200	0.075	22.3%	22.3%		



Technician: Jack Demont
Engineer: Nathan Nofziger, P.E.

These test results relate only to the items tested, and were obtained in-lab unless otherwise specified.
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SIEVE ANALYSIS REPORT

Report To: LCU, Inc.
Attn: Pat Deneen
P.O. Box 394
Cle Elum, WA 98922

Date Sampled: 06/05/18
Date Received: 06/05/18
Date Tested: 06/08/18
Sampled By: WPE
Sample Method: Test Pit

Project #: 18413
Sample #: 78
Source: On Site
Description: T.P. #2 @ 3 ft

Specifications: No Specs
Sample Meets Specs ? n/a

ASTM D-2487 Unified Soils Classification System
GM, Silty Gravel with Sand

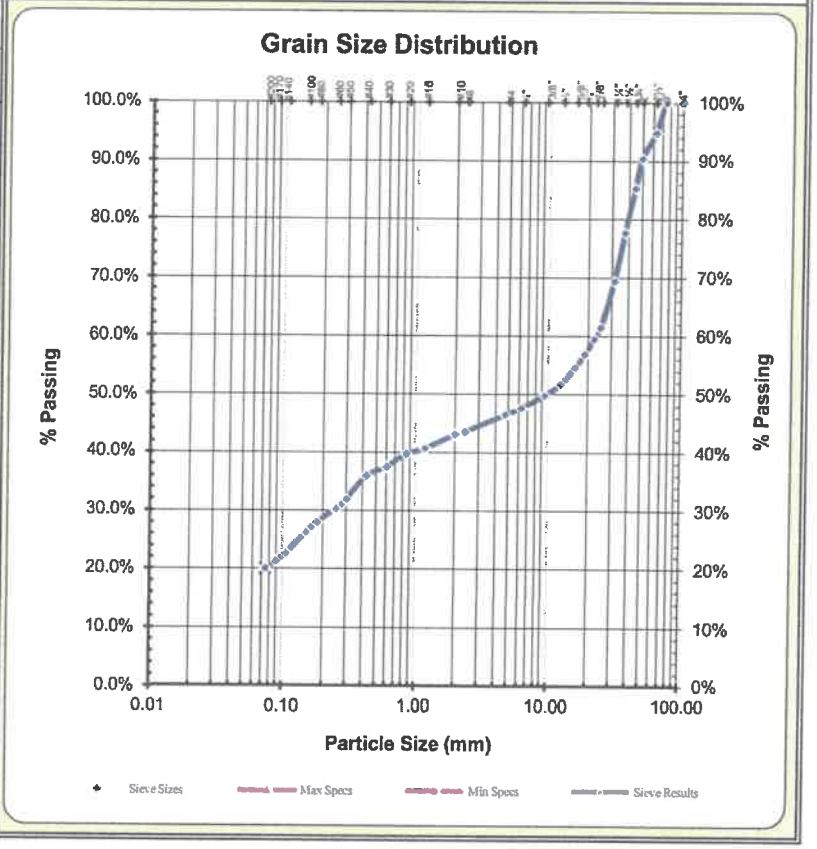
Procedure: ASTM C117 Method B

$D_{(10)}$= 0.037 mm
$D_{(30)}$= 0.243 mm
$D_{(60)}$= 23.057 mm

% Gravel = 53.5%
% Sand = 26.5%
% Silt & Clay = 20.0%

Coeff. of Curvature, C_C = 0.07
Coeff. of Uniformity, C_U = 616.12
Fineness Modulus= 4.89

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100%		
4.00"	100.00		100%		
3.00"	75.00	100%	100%		
2.50"	63.00	95%	95%		
2.00"	50.00	90%	90%		
1.75"	45.00		85%		
1.50"	37.50	78%	78%		
1.25"	31.50	69%	69%		
1.00"	25.00	61%	61%		
7/8"	22.40		60%		
3/4"	19.00	57%	57%		
5/8"	16.00		55%		
1/2"	12.50	52%	52%		
3/8"	9.50	50%	50%		
1/4"	6.30	48%	48%		
#4	4.75	47%	47%		
#8	2.360		44%		
#10	2.000	43%	43%		
#16	1.180		41%		
#20	0.850	40%	40%		
#30	0.600		37%		
#40	0.425	36%	36%		
#50	0.300		32%		
#60	0.250		30%		
#80	0.180	28%	28%		
#100	0.150	26%	26%		
#140	0.106		23%		
#170	0.090		21%		
#200	0.075	20.0%	20.0%		



Technician: Jack Demont
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Cle Elum, WA 98922

Date Sampled: 06/05/18
Date Received: 06/05/18
Date Tested: 06/08/18
Sampled By: WPE
Sample Method: Tset Pit

Project #: 18413
Sample #: 79
Source: On Site
Description: T.P. #2 @ 7 ft

Specifications: No Specs
Sample Meets Specs ? n/a

ASTM D-2487 Unified Soils Classification System
GW, Well-graded Gravel with Sand

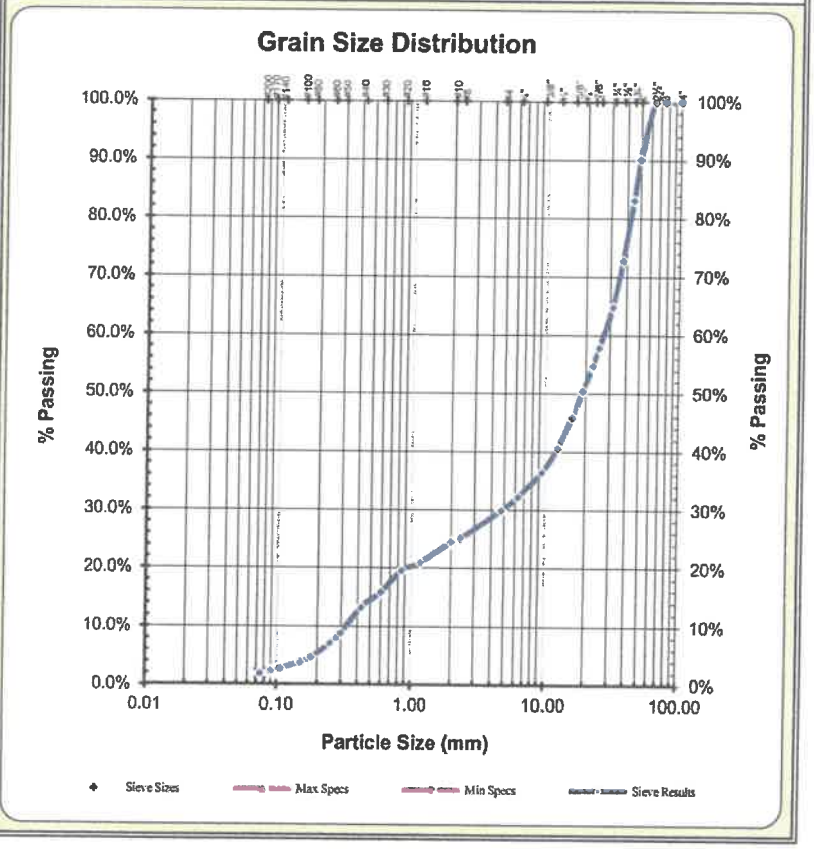
Procedure: ASTM C136

$D_{(10)}$= 0.333 mm
$D_{(30)}$= 4.819 mm
$D_{(60)}$= 26.996 mm

% Gravel = 70.1%
% Sand = 28.0%
% Silt & Clay = 1.9%

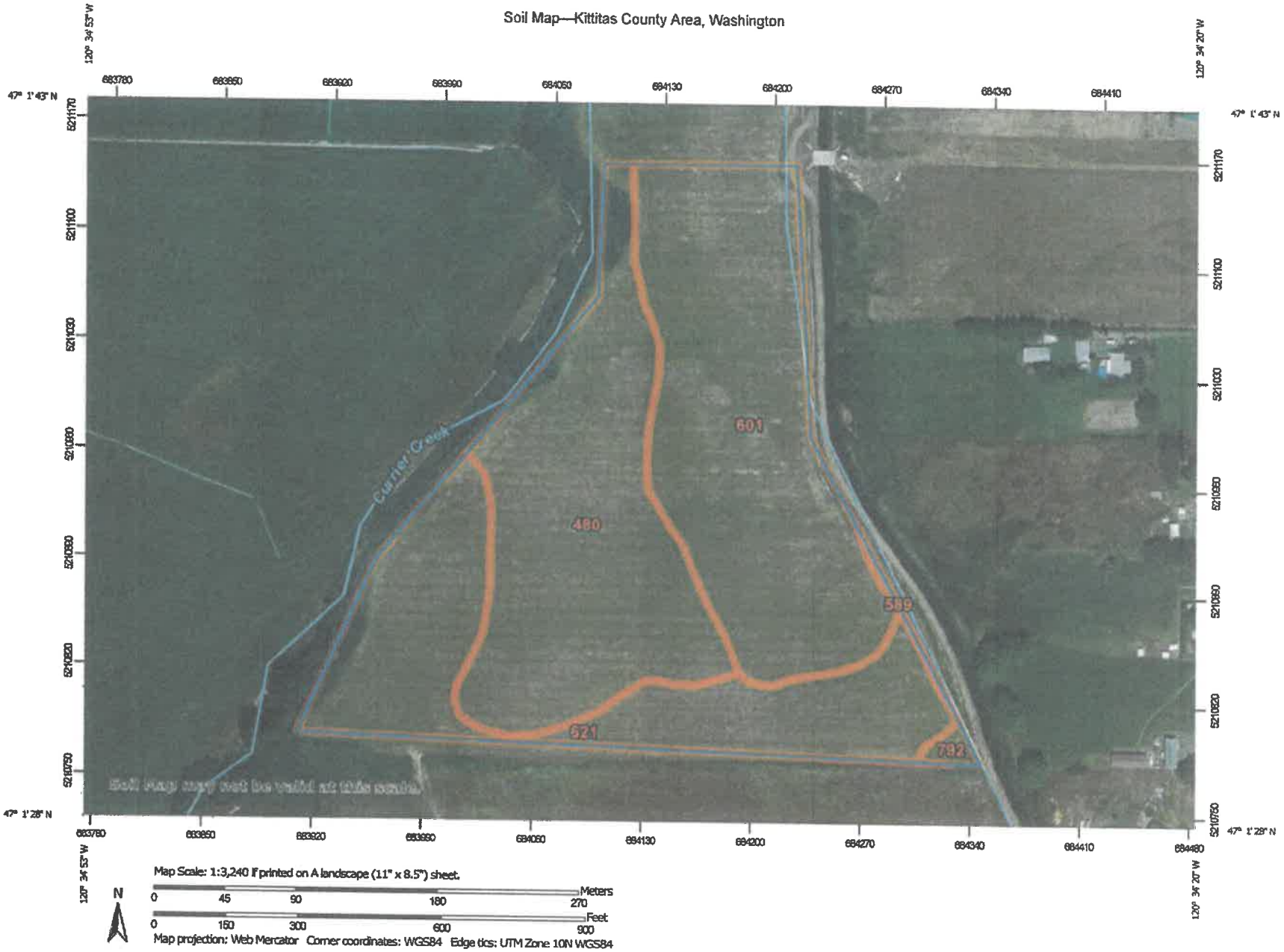
Coeff. of Curvature, C_C = 2.59
Coeff. of Uniformity, C_U = 81.19
Fineness Modulus= 6.36

Sieve Size US	Sieve Size Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100%		
4.00"	100.00		100%		
3.00"	75.00		100%		
2.50"	63.00		100%		
2.00"	50.00	90%	90%		
1.75"	45.00		83%		
1.50"	37.50	73%	73%		
1.25"	31.50	65%	65%		
1.00"	25.00	58%	58%		
7/8"	22.40		55%		
3/4"	19.00	50%	50%		
5/8"	16.00		46%		
1/2"	12.50	41%	41%		
3/8"	9.50	36%	36%		
1/4"	6.30	32%	32%		
#4	4.75	30%	30%		
#8	2.360		25%		
#10	2.000	24%	24%		
#16	1.180		21%		
#20	0.850	20%	20%		
#30	0.600		16%		
#40	0.425	13%	13%		
#50	0.300		9%		
#60	0.250		7%		
#80	0.180	5%	5%		
#100	0.150		4%		
#140	0.106		3%		
#170	0.090		2%		
#200	0.075	1.9%	1.9%		



Technician: Jack Demont
Engineer: Nathan Nofziger, P.E.

Soil Map—Kittitas County Area, Washington



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 10, Sep 7, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 3, 2014—Sep 21, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
480	Nanum ashy loam, 0 to 2 percent slopes	7.9	34.5%
589	Nack-Brickmill complex, 0 to 5 percent slopes	0.1	0.2%
601	Brickmill gravelly ashy loam, 0 to 2 percent slopes	8.7	37.8%
621	Mitta ashy silt loam, flooded, 0 to 2 percent slopes	6.1	26.8%
792	Brickmill gravelly ashy loam, 0 to 5 percent slopes	0.2	0.7%
Totals for Area of Interest		22.9	100.0%

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties–Kittitas County Area, Washington														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
480—Nanum ashy loam, 0 to 2 percent slopes														
Nanum	0-8	-39-	-37-	22-25- 27	1.15-1.28 -1.40	4.00-9.00-14.00	0.17-0.19-0. 20	0.0- 1.5- 2.9	2.0- 3.5- 5.0	.24	.24	3	5	56
	8-15	-38-	-36-	25-26- 33	1.15-1.28 -1.40	1.40-3.00-4.00	0.17-0.19-0. 20	3.0- 4.5- 5.9	2.0- 3.5- 5.0	.28	.28			
	15-28	-35-	-34-	27-31- 35	1.15-1.28 -1.40	1.40-3.00-4.00	0.15-0.18-0. 20	3.0- 4.5- 5.9	1.0- 1.5- 2.0	.28	.28			
	28-35	-35-	-34-	27-31- 35	1.25-1.33 -1.40	1.40-3.00-4.00	0.08-0.10-0. 11	3.0- 4.5- 5.9	1.0- 1.5- 2.0	.10	.28			
	35-60	-55-	-14-	27-31- 35	1.25-1.33 -1.40	1.40-3.00-4.00	0.07-0.09-0. 10	3.0- 4.5- 5.9	0.0- 1.0- 2.0	.02	.20			

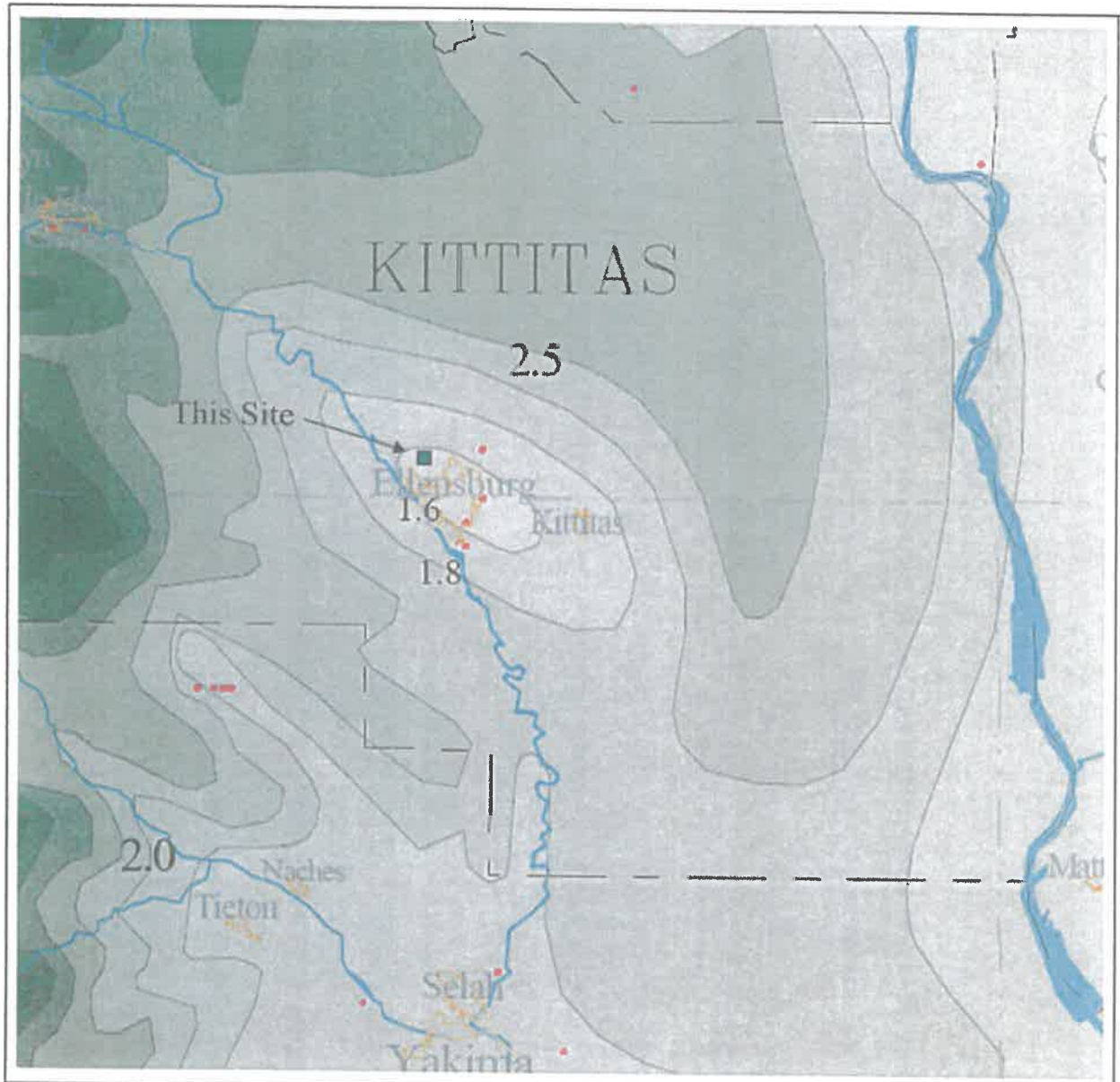
Physical Soil Properties–Kittitas County Area, Washington														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
589—Nack-Brickmill complex, 0 to 5 percent slopes														
Nack	0-6	-41-	-37-	18-22- 25	1.15-1.28 -1.40	4.00-9.00-14.00	0.11-0.13-0. 15	0.0- 1.5- 2.9	2.0- 3.0- 4.0	.15	.24	2	6	48
	6-15	-35-	-38-	25-28- 30	1.15-1.28 -1.40	1.40-3.00-4.00	0.11-0.14-0. 16	3.0- 4.5- 5.9	1.0- 2.0- 3.0	.32	.32			
	15-60	-53-	-12-	25-35- 40	1.30-1.40 -1.50	1.40-3.00-4.00	0.04-0.06-0. 08	3.0- 4.5- 5.9	1.0- 1.5- 2.0	.02	.17			
Brickmill	0-12	-43-	-40-	15-18- 20	1.15-1.28 -1.40	4.00-9.00-14.00	0.07-0.09-0. 11	0.0- 1.5- 2.9	1.0- 2.0- 3.0	.15	.28	3	5	56
	12-28	-67-	-15-	15-18- 20	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0. 11	0.0- 1.5- 2.9	0.5- 1.3- 2.0	.05	.20			
	28-38	-66-	-15-	15-19- 25	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.02	.20			
	38-49	-67-	-20-	12-14- 15	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.05	.24			
	49-60	-84-	-11-	0- 5- 10	1.40-1.48 -1.55	42.00-92.00-14 1.00	0.03-0.04-0. 04	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.15			

Physical Soil Properties–Kittitas County Area, Washington														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
601—Brickmill gravelly ashy loam, 0 to 2 percent slopes														
Brickmill	0-12	-43-	-40-	15-18- 20	1.15-1.28 -1.40	4.00-9.00-14.00	0.07-0.09-0. 11	0.0- 1.5- 2.9	1.0- 2.0- 3.0	.15	.28	3	5	56
	12-28	-67-	-15-	15-18- 20	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0. 11	0.0- 1.5- 2.9	0.5- 1.3- 2.0	.05	.20			
	28-38	-66-	-15-	15-19- 25	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.02	.20			
	38-49	-67-	-20-	12-14- 15	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0. 10	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.05	.24			
	49-60	-84-	-11-	0- 5- 10	1.40-1.48 -1.55	42.00-92.00-14 1.00	0.03-0.04-0. 04	0.0- 1.5- 2.9	0.0- 0.3- 0.5	.02	.15			
621—Mitta ashy silt loam, flooded, 0 to 2 percent slopes														
Mitta, flooded	0-6	- 7-	-70-	19-23- 25	1.00-1.15 -1.30	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	3.0- 4.0- 5.0	.32	.32	5	5	56
	6-15	- 7-	-70-	19-23- 25	1.00-1.15 -1.30	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	2.0- 3.5- 5.0	.37	.37			
	15-34	- 7-	-70-	19-23- 25	1.00-1.15 -1.30	4.00-9.00-14.00	0.19-0.20-0. 21	0.0- 1.5- 2.9	1.0- 1.5- 2.0	.49	.49			
	34-49	- 9-	-64-	25-28- 30	1.15-1.28 -1.40	1.40-3.00-4.00	0.17-0.19-0. 21	3.0- 4.5- 5.9	0.5- 1.3- 2.0	.43	.43			
	49-60	- 9-	-64-	25-28- 30	1.25-1.33 -1.40	1.40-3.00-4.00	0.17-0.19-0. 21	3.0- 4.5- 5.9	0.0- 0.3- 0.5	.49	.49			

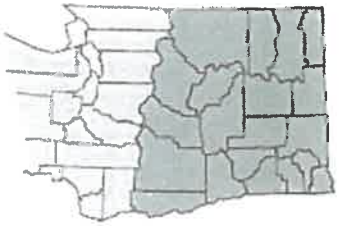
Physical Soil Properties–Kittitas County Area, Washington														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
792—Brickmill gravelly ashy loam, 0 to 5 percent slopes														
Brickmill	0-12	-43-	-40-	15-18-20	1.15-1.28 -1.40	4.00-9.00-14.00	0.07-0.09-0.11	0.0-1.5-2.9	1.0-2.0-3.0	.15	.28	3	5	56
	12-28	-67-	-15-	15-18-20	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0.11	0.0-1.5-2.9	0.5-1.3-2.0	.05	.20			
	28-38	-66-	-15-	15-19-25	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0.10	0.0-1.5-2.9	0.5-0.8-1.0	.02	.20			
	38-49	-67-	-20-	12-14-15	1.30-1.40 -1.50	4.00-9.00-14.00	0.05-0.08-0.10	0.0-1.5-2.9	0.5-0.8-1.0	.05	.24			
	49-60	-84-	-11-	0-5-10	1.40-1.48 -1.55	42.00-92.00-141.00	0.03-0.04-0.04	0.0-1.5-2.9	0.0-0.3-0.5	.02	.15			

Data Source Information

Soil Survey Area: Kittitas County Area, Washington
Survey Area Data: Version 10, Sep 7, 2017



Eastern Washington Stormwater Manual



25-Year 24-Hour Isopluvials
Source: NOAA Atlas 2, Volume IX, 1973
Precipitation in inches

County(2003, 1:24,000)
City(2003, 1:24,000)
Latitude/Longitude(1/10 degree)
Isopluvial(1973, 1:2,000,000)
NOAA/NWS Station(1931-1998)

Water Quality Program

ECOLOGY

GIS Technical Service:
02/25/04
Figure_4.3.5

High ground water or shallow bedrock can cause a significant increase in runoff. If either of these conditions exists, it needs to be addressed by the designer. For a more complete discussion of computing weighted CN values, see *Urban Hydrology for Small Watersheds* (USDA, 1986).

Table 4.14: Runoff Curve Numbers (CNs) for Selected Agricultural, Suburban, and Urban Areas

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, landscaping, etc.)[a]				
Poor condition (grass cover <50% of the area)	68	79	86	89
Fair condition (grass cover on 50% to 75% of the area)	49	69	79	84
Good condition (grass cover on >75% of the area)	39	61	74	80
Impervious areas				
Open water bodies: lakes, wetlands, ponds etc.	100	100	100	100
Paved parking lots, roofs, driveways, etc. (excluding right-of-way) .	98	98	98	98
Permeable pavers and permeable interlocking concrete (assumed as 85% impervious and 15% lawn)				
Fair lawn condition (weighted average CNs)	95	96	97	97
Gravel (including right-of-way)	76	85	89	91
Dirt (including right-of-way)	72	82	87	89
Pasture, grassland, or range-continuous forage for grazing				
Poor condition (ground cover <50% or heavily grazed with no mulch)	68	79	86	89
Fair condition (ground cover 50% to 75% and not heavily grazed)	49	69	79	84
Good condition (ground cover >75% and lightly or only occasionally grazed)	39	61	74	80
Cultivated agricultural lands				
Row Crops (good) e.g., corn, sugar beets, soy beans	64	75	82	85
Small Grain (good) e.g., wheat, barley, flax	60	72	80	84
Meadow				
Continuous grass, protected from grazing and generally mowed for hay	30	58	71	78
Brush (brush-weed-grass mixture with brush the major element)				

Table 4.14: Runoff Curve Numbers (CNs) for Selected Agricultural, Suburban, and Urban Areas (continued)

Cover type and hydrologic condition	CNs for hydrologic soil group			
	A	B	C	D
Poor (<50% ground cover)	48	67	77	83
Fair (50% to 75% ground cover)	35	56	70	77
Good (>75% ground cover)	30[b]	48	65	73
Woods-grass combination (orchard or tree farm)[c]				
Poor	57	73	82	86
Fair	43	65	76	82
Good	32	58	72	79
Woods				
Poor (Forest litter, small trees, and brush destroyed by heavy grazing or regular burning)	45	66	77	83
Fair (Woods are grazed but not burned, and some forest litter covers the soil)	36	60	73	79
Good (Woods are protected from grazing, and litter and brush adequately cover the soil)	30	55	70	77
Herbaceous (mixture of grass, weeds, and low-growing brush, with brush the minor element)				
Poor (<30% ground cover)	n/a[d]	80	87	93
Fair (30% to 70% ground cover)		71	81	89
Good (>70% ground cover)		62	74	85
Sagebrush with grass understory				
Poor (<30% ground cover)	n/a[d]	67	80	85
Fair (30% to 70% ground cover)		51	63	70
Good (>70% ground cover)		35	47	55

[a]Composite CNs may be computed for other combinations of open space cover type.

[b]Actual CN is < 30; use CN = 30 for runoff computations.

[c]The indicated CNs were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

[d]CNs have not been developed for hydrologic soil group A.

Stormwater Area Calcs - Left Ditch

Length of Roadway	3250	ft
Width of Roadway	13	ft
Lots Left	24	units
Width of Driveway	20	ft
Left Ditch Length	2110.0	ft
Shoulder Width	3	ft
Ditch Right Width	6	ft
Ditch Left Width	4.5	ft

Impervious Area	48730	sq. ft.	1.118	ac
Pervious Area	28485	sq. ft.	0.654	ac
Total Area	77215	sq. ft.	1.772	ac

Infiltration Area	6330	sq. ft.
Storage Volume	527.5	cu. ft.
Assumed Depth	2	inches

Stormwater Area Calcs - Right Ditch

Length of Roadway	3250	ft
Width of Roadway	13	ft
Lots Right	22	units
Width of Driveway	20	ft
Right Ditch Length	2410.0	ft
Shoulder Width	3	ft
Ditch Right Width	6	ft
Ditch Left Width	4.5	ft

Impervious Area	48190	sq. ft.	1.106	ac
Pervious Area	32535	sq. ft.	0.747	ac
Total Area	80725	sq. ft.	1.852	ac

Infiltration Area	7230	sq. ft.
Storage Volume	602.5	cu. ft.
Assumed Depth	2	inches

SCS Type 1A Regional Storm - Central Basin

Stormwater Runoff Area - Left Ditch

Area (acres) = 1.772 | P (inches) = 1.6 | d_t (min) = 6 | Tc (min) = 5 | Infiltration Area (ft²) = 6330.0

W= 0.375 | Max Storage (cu. ft.)= 556.6

Pervious Area (acres) = 0.654 | CN = 87 | S = 1.49 | 0.2S = 0.30 | Infiltration Rate (cf/min/ft^2) = 0.0018

Impervious Area (acres) = 1.118 | CN = 98 | S = 0.20 | 0.2S = 0.04 | Total Disp= 68.364000

1 Time Increment	2.0 Time Hours	2 Time (min)	3 Rainfall Distribution (Fraction)	4 Incremental Rainfall (inches)	5 Accum. Rainfall (inches)	6 Pervious Acc. Run (inches)	7 Pervious Inc. Run (inches)	8 Impervious Acc. Run (inches)	9 Impervious Inc. Run (inches)	10 Total Runoff (inches)	11 Instant Flow (inches)	12 Design Flow Rate (cfs)	13 Incremental Flow (cf)	14 Drywell Disp. Volume (cf)	15 Accum. Storage (cf)
1	0.0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
2	0.1	6	0.002	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
3	0.2	12	0.002	0.003	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
4	0.3	18	0.002	0.003	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
5	0.4	24	0.002	0.003	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
6	0.5	30	0.002	0.003	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
7	0.6	36	0.002	0.003	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
8	0.7	42	0.002	0.003	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
9	0.8	48	0.002	0.003	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
10	0.9	54	0.002	0.003	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
11	1.0	60	0.002	0.003	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
12	1.1	66	0.003	0.005	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
13	1.2	72	0.003	0.005	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
14	1.3	78	0.003	0.005	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0046	0.0
15	1.4	84	0.003	0.005	0.051	0.000	0.000	0.001	0.000	0.000	0.002	0.001	0.2	0.2274	0.0
16	1.5	90	0.003	0.005	0.056	0.000	0.000	0.001	0.001	0.000	0.004	0.002	0.8	0.8174	0.0
17	1.6	96	0.003	0.005	0.061	0.000	0.000	0.002	0.001	0.000	0.006	0.004	1.6	1.5782	0.0
18	1.7	102	0.003	0.005	0.066	0.000	0.000	0.003	0.001	0.001	0.008	0.007	2.3	2.3419	0.0
19	1.8	108	0.003	0.005	0.070	0.000	0.000	0.004	0.001	0.001	0.010	0.009	3.1	3.0697	0.0
20	1.9	114	0.003	0.005	0.075	0.000	0.000	0.005	0.001	0.001	0.012	0.010	3.8	3.7552	0.0
21	2.0	120	0.003	0.005	0.080	0.000	0.000	0.006	0.001	0.001	0.014	0.012	4.4	4.3994	0.0
22	2.1	126	0.003	0.005	0.085	0.000	0.000	0.008	0.001	0.001	0.015	0.014	5.0	5.0049	0.0
23	2.2	132	0.003	0.005	0.090	0.000	0.000	0.009	0.002	0.001	0.017	0.015	5.6	5.5748	0.0
24	2.3	138	0.004	0.006	0.096	0.000	0.000	0.012	0.002	0.001	0.018	0.017	6.1	6.1116	0.0
25	2.4	144	0.003	0.005	0.101	0.000	0.000	0.014	0.002	0.001	0.026	0.021	7.5	7.5348	0.0
26	2.5	150	0.003	0.005	0.106	0.000	0.000	0.016	0.002	0.001	0.021	0.023	8.3	8.2970	0.0
27	2.6	156	0.003	0.005	0.110	0.000	0.000	0.018	0.002	0.001	0.022	0.022	8.0	7.9550	0.0
28	2.7	162	0.003	0.005	0.115	0.000	0.000	0.020	0.002	0.001	0.023	0.023	8.2	8.1785	0.0
29	2.8	168	0.004	0.006	0.122	0.000	0.000	0.023	0.003	0.002	0.025	0.024	8.5	8.5272	0.0
30	2.9	174	0.003	0.005	0.126	0.000	0.000	0.025	0.002	0.001	0.034	0.028	10.1	10.0704	0.0
31	3.0	180	0.003	0.005	0.131	0.000	0.000	0.028	0.002	0.002	0.027	0.030	10.8	10.7615	0.0
32	3.1	186	0.003	0.005	0.136	0.000	0.000	0.030	0.003	0.002	0.028	0.028	10.0	10.0463	0.0
33	3.2	192	0.003	0.005	0.141	0.000	0.000	0.033	0.003	0.002	0.029	0.028	10.1	10.1021	0.0
34	3.3	198	0.003	0.005	0.146	0.000	0.000	0.036	0.003	0.002	0.029	0.029	10.3	10.3395	0.0
35	3.4	204	0.004	0.006	0.152	0.000	0.000	0.039	0.004	0.002	0.030	0.029	10.6	10.6118	0.0
36	3.5	210	0.003	0.005	0.157	0.000	0.000	0.042	0.003	0.002	0.041	0.034	12.3	12.2923	0.0
37	3.6	216	0.003	0.005	0.162	0.000	0.000	0.045	0.003	0.002	0.032	0.036	12.9	12.9369	0.0
38	3.7	222	0.004	0.006	0.168	0.000	0.000	0.049	0.004	0.002	0.032	0.033	11.9	11.9030	0.0
39	3.8	228	0.004	0.006	0.174	0.000	0.000	0.053	0.004	0.002	0.044	0.037	13.3	13.3251	0.0
40	3.9	234	0.003	0.005	0.179	0.000	0.000	0.056	0.003	0.003	0.045	0.043	15.4	15.4151	0.0
41	4.0	240	0.004	0.006	0.186	0.000	0.000	0.060	0.004	0.002	0.035	0.041	14.6	14.6411	0.0
42	4.1	246	0.004	0.006	0.192	0.000	0.000	0.064	0.004	0.003	0.047	0.041	14.7	14.6789	0.0
43	4.2	252	0.003	0.005	0.197	0.000	0.000	0.068	0.003	0.003	0.048	0.046	16.5	16.4812	0.0
44	4.3	258	0.004	0.006	0.203	0.000	0.000	0.072	0.004	0.002	0.036	0.043	15.5	15.5138	0.0
45	4.4	264	0.004	0.006	0.210	0.000	0.000	0.076	0.004	0.003	0.049	0.043	15.5	15.4707	0.0
46	4.5	270	0.004	0.006	0.216	0.000	0.000	0.081	0.005	0.003	0.050	0.048	17.3	17.3045	0.0
47	4.6	276	0.004	0.006	0.222	0.000	0.000	0.085	0.005	0.003	0.051	0.050	18.0	17.9687	0.0
48	4.7	282	0.004	0.006	0.229	0.000	0.000	0.090	0.005	0.003	0.052	0.051	18.3	18.3302	0.0
49	4.8	288	0.004	0.006	0.235	0.000	0.000	0.095	0.005	0.003	0.052	0.052	18.6	18.6063	0.0
50	4.9	294	0.005	0.008	0.243	0.000	0.000	0.101	0.006	0.004	0.053	0.052	18.9	18.8521	0.0
51	5.0	300	0.004	0.006	0.250	0.000	0.000	0.106	0.005	0.003	0.067	0.058	20.9	20.9005	0.0
52	5.1	306	0.005	0.008	0.258	0.000	0.000	0.112	0.006	0.004	0.054	0.060	21.6	21.5920	0.0
53	5.2	312	0.004	0.006	0.264	0.000	0.000	0.117	0.005	0.003	0.069	0.061	22.0	21.9774	0.0
54	5.3	318	0.005	0.008	0.272	0.000	0.000	0.123	0.006	0.004	0.055	0.062	22.2	22.2352	0.0
55	5.4	324	0.005	0.008	0.280	0.000	0.000	0.129	0.006	0.004	0.070	0.062	22.5	22.4913	0.0
56	5.5	330	0.005	0.008	0.288	0.000	0.000	0.135	0.006	0.004	0.071	0.068	24.6	24.6180	0.0
57	5.6	336	0.005	0.008	0.296	0.000	0.000	0.142	0.006	0.004	0.071	0.070	25.3	25.3413	0.0
58	5.7	342	0.005	0.008	0.304	0.000	0.000	0.148	0.006	0.004	0.072	0.071	25.7	25.7036	0.0
59	5.8	348	0.005	0.008	0.312	0.000	0.000	0.155	0.006	0.004	0.073	0.072	26.0	25.9821	0.0
60	5.9	354	0.005	0.008	0.320	0.000	0.000	0.161	0.007	0.004	0.074	0.073	26.3	26.3014	0.0
61	6.0	360	0.006	0.010	0.330	0.001	0.000	0.169	0.008	0.005	0.075	0.074	26.7	26.6813	0.0
62	6.1	366	0.006	0.010	0.339	0.001	0.000	0.177	0.008	0.005	0.091	0.081	29.1	29.1427	0.0
63	6.2	372	0.006	0.010	0.349	0.002	0.001	0.185	0.008	0.005	0.093	0.089	32.2	32.1756	0.0
64	6.3	378	0.006	0.010	0.358	0.002	0.001	0.193	0.008	0.005	0.094	0.093	33.3	33.3283	0.0
65	6.4	384	0.007	0.011	0.370	0.003	0.001	0.203	0.010	0.006	0.096	0.094	34.0	33.9965	0.0
66	6.5	390	0.006	0.010	0.379	0.004	0.001	0.211	0.008	0.006	0.113	0.102	36.7	36.7314	0.0
67	6.6	396	0.006	0.010	0.389	0.005	0.001	0.219	0.008	0.006	0.099	0.105	37.8	37.7973	0.0
68	6.7	402	0.006	0.010	0.398	0.006	0.001	0.228	0.008	0.006	0.100	0.101	36.2	36.2318	0.0
69	6.8	408	0.006	0.010	0.408	0.007	0.001	0.236	0.008	0.006	0.101	0.100	36.2	36.1691	0.0
70	6.9	414	0.006	0.010	0.418	0.009	0.001	0.244	0.008	0.006	0.102	0.101	36.5	36.4715	0.0
71	7.0	420	0.007	0.011	0.429	0.010	0.002	0.254	0.010	0.007	0.103	0.102	36.9	36.8551	0.0
72	7.1	426	0.007	0.011	0.440	0.012	0.002	0.264	0.010	0.007	0.122	0.110	39.6	39.6120	0.0
73	7.2	432	0.008	0.013	0.453	0.014	0.002	0.276	0.011	0.008	0.123	0.119	43.0	43.0038	0.0
74	7.3	438	0.008	0.013	0.466	0.017	0.002	0.287	0.011	0.008	0.143	0.130	46.7	46.6509	0.0
75	7.4	444	0.009	0.014	0.480	0.020	0.003	0.300	0.013	0.009	0.144	0.140	50.4	50.4031	0.0
76	7.5	450	0.010	0.016	0.496	0.023	0.003	0.314	0.014	0.010	0.164	0.151	54.3	54.2808	0.0
77	7.6	456	0.021	0.034	0.530	0.031	0.008	0.345	0.031	0.022	0.185	0.169	60.7	60.7423	0.0
78	7.7	462	0.024	0.038	0.568	0.041	0.010	0.380	0.035	0.026	0.396	0.260	93.7	68.3640	25.3
79	7.8	468	0.024	0.038	0.606	0.052	0.011	0.416	0.036	0.027	0.465	0.388	139.6	68.3640	96.6
80	7.9	474	0.024	0.038	0.645	0.065	0.013	0.451	0.036	0.027	0.476	0.450	161.9	68.3640	190.1
81	8.0	480	0.022	0.035	0.680	0.077	0.012	0.484	0.033	0.025	0.487	0.473	170.4	68.3640	292.2
82	8.1	486	0.014	0.022	0.702	0.086	0.008	0.506	0.021	0.016	0.455	0.471	169.7	68.3640	393.5
83	8.2	492	0.013	0.021	0.723	0.094	0.008	0.525	0.020	0.015	0.293	0.398	143.4	68.3640	468.5
84	8.3	498	0.010	0.016	0.739	0.100	0.006	0.540	0.015	0.012	0.275	0.313	112.5	68.3640	512.6
											0.213	0.261	94.0	68.3640	538.3

85	8.4	504	0.010	0.016	0.755	0.107	0.007	0.556	0.015	0.012	0.214	0.226	81.2	68.3640	551.1
86	8.5	510	0.008	0.013	0.768	0.112	0.005	0.568	0.012	0.010	0.172	0.201	72.5	68.3640	555.3
87	8.6	516	0.009	0.014	0.782	0.118	0.006	0.582	0.014	0.011	0.195	0.188	67.7	67.7418	555.3
88	8.7	522	0.009	0.014	0.797	0.124	0.006	0.595	0.014	0.011	0.196	0.194	69.7	68.3640	556.6
89	8.8	528	0.007	0.011	0.808	0.129	0.005	0.606	0.011	0.009	0.153	0.179	64.6	64.5733	556.6
90	8.9	534	0.008	0.013	0.821	0.135	0.006	0.618	0.012	0.010	0.176	0.168	60.5	60.5474	556.6
91	9.0	540	0.007	0.011	0.832	0.140	0.005	0.629	0.011	0.009	0.154	0.166	59.7	59.7090	556.6
92	9.1	546	0.007	0.011	0.843	0.145	0.005	0.640	0.011	0.009	0.155	0.157	56.7	56.6926	556.6
93	9.2	552	0.006	0.010	0.853	0.150	0.004	0.649	0.009	0.007	0.133	0.147	53.1	53.0851	556.6
94	9.3	558	0.006	0.010	0.862	0.154	0.005	0.658	0.009	0.007	0.134	0.137	49.3	49.3077	556.6
95	9.4	564	0.006	0.010	0.872	0.159	0.005	0.667	0.009	0.008	0.134	0.135	48.5	48.4700	556.6
96	9.5	570	0.005	0.008	0.880	0.163	0.004	0.675	0.008	0.006	0.112	0.126	45.3	45.3369	556.6
97	9.6	576	0.006	0.010	0.890	0.167	0.005	0.684	0.009	0.008	0.135	0.124	44.6	44.6483	556.6
98	9.7	582	0.005	0.008	0.898	0.171	0.004	0.692	0.008	0.006	0.113	0.124	44.6	44.5538	556.6
99	9.8	588	0.006	0.010	0.907	0.176	0.005	0.701	0.009	0.008	0.135	0.124	44.6	44.6220	556.6
100	9.9	594	0.005	0.008	0.915	0.180	0.004	0.709	0.008	0.006	0.113	0.124	44.7	44.7145	556.6
101	10.0	600	0.005	0.008	0.923	0.184	0.004	0.717	0.008	0.006	0.113	0.116	41.8	41.7611	556.6
102	10.1	606	0.005	0.008	0.931	0.188	0.004	0.724	0.008	0.006	0.114	0.114	41.1	41.0894	556.6
103	10.2	612	0.005	0.008	0.939	0.192	0.004	0.732	0.008	0.006	0.114	0.114	41.0	40.9872	556.6
104	10.3	618	0.005	0.008	0.947	0.196	0.004	0.740	0.008	0.006	0.114	0.114	41.0	41.0265	556.6
105	10.4	624	0.004	0.006	0.954	0.199	0.003	0.746	0.006	0.005	0.091	0.106	38.0	38.0103	556.6
106	10.5	630	0.005	0.008	0.962	0.204	0.004	0.754	0.008	0.006	0.115	0.104	37.3	37.3131	556.6
107	10.6	636	0.005	0.008	0.970	0.208	0.004	0.761	0.008	0.006	0.115	0.112	40.3	40.2851	556.6
108	10.7	642	0.004	0.006	0.976	0.211	0.003	0.768	0.006	0.005	0.092	0.106	38.0	37.9825	556.6
109	10.8	648	0.005	0.008	0.984	0.215	0.004	0.775	0.008	0.006	0.115	0.104	37.5	37.4617	556.6
110	10.9	654	0.005	0.008	0.992	0.220	0.004	0.783	0.008	0.006	0.115	0.112	40.5	40.4930	556.6
111	11.0	660	0.004	0.006	0.998	0.223	0.003	0.789	0.006	0.005	0.092	0.106	38.2	38.1864	556.6
112	11.1	666	0.004	0.006	1.005	0.227	0.003	0.796	0.006	0.005	0.093	0.096	34.5	34.5340	556.6
113	11.2	672	0.005	0.008	1.013	0.231	0.004	0.803	0.008	0.006	0.116	0.102	36.8	36.7915	556.6
114	11.3	678	0.004	0.006	1.019	0.234	0.003	0.810	0.006	0.005	0.093	0.104	37.4	37.3973	556.6
115	11.4	684	0.004	0.006	1.026	0.238	0.003	0.816	0.006	0.005	0.093	0.096	34.5	34.4566	556.6
116	11.5	690	0.004	0.006	1.032	0.241	0.004	0.822	0.006	0.005	0.093	0.094	33.8	33.7574	556.6
117	11.6	696	0.004	0.006	1.038	0.245	0.004	0.828	0.006	0.005	0.093	0.093	33.6	33.6184	556.6
118	11.7	702	0.004	0.006	1.045	0.248	0.004	0.834	0.006	0.005	0.093	0.093	33.6	33.6190	556.6
119	11.8	708	0.004	0.006	1.051	0.252	0.004	0.841	0.006	0.005	0.094	0.093	33.7	33.6542	556.6
120	11.9	714	0.003	0.005	1.056	0.255	0.003	0.845	0.005	0.004	0.070	0.085	30.5	30.5334	556.6
121	12.0	720	0.004	0.006	1.062	0.258	0.004	0.851	0.006	0.005	0.094	0.083	29.8	29.7833	556.6
122	12.1	726	0.004	0.006	1.069	0.262	0.004	0.858	0.006	0.005	0.094	0.091	32.8	32.7899	556.6
123	12.2	732	0.003	0.005	1.074	0.265	0.003	0.862	0.005	0.004	0.071	0.084	30.4	30.3994	556.6
124	12.3	738	0.004	0.006	1.080	0.268	0.004	0.869	0.006	0.005	0.094	0.083	29.8	29.8311	556.6
125	12.4	744	0.004	0.006	1.086	0.272	0.004	0.875	0.006	0.005	0.094	0.091	32.9	32.8939	556.6
126	12.5	750	0.004	0.006	1.093	0.275	0.004	0.881	0.006	0.005	0.094	0.094	33.7	33.6925	556.6
127	12.6	756	0.004	0.006	1.099	0.279	0.004	0.887	0.006	0.005	0.095	0.094	33.9	33.9247	556.6
128	12.7	762	0.003	0.005	1.104	0.282	0.003	0.892	0.005	0.004	0.071	0.086	30.8	30.8198	556.6
129	12.8	768	0.004	0.006	1.110	0.286	0.004	0.898	0.006	0.005	0.095	0.084	30.1	30.0716	556.6
130	12.9	774	0.003	0.005	1.115	0.288	0.003	0.903	0.005	0.004	0.071	0.083	29.9	29.9054	556.6
131	13.0	780	0.004	0.006	1.122	0.292	0.004	0.909	0.006	0.005	0.095	0.083	29.9	29.8914	556.6
132	13.1	786	0.004	0.006	1.128	0.296	0.004	0.915	0.006	0.005	0.095	0.092	33.1	33.1173	556.6
133	13.2	792	0.003	0.005	1.133	0.299	0.003	0.920	0.005	0.004	0.071	0.085	30.7	30.7419	556.6
134	13.3	798	0.004	0.006	1.139	0.302	0.004	0.926	0.006	0.005	0.095	0.084	30.2	30.1749	556.6
135	13.4	804	0.004	0.006	1.146	0.306	0.004	0.933	0.006	0.005	0.095	0.092	33.3	33.2726	556.6
136	13.5	810	0.003	0.005	1.150	0.309	0.003	0.937	0.005	0.004	0.072	0.086	30.9	30.8540	556.6
137	13.6	816	0.003	0.005	1.155	0.312	0.003	0.942	0.005	0.004	0.072	0.075	27.0	27.0496	556.6
138	13.7	822	0.004	0.006	1.162	0.316	0.004	0.948	0.006	0.005	0.096	0.082	29.3	29.3439	556.6
139	13.8	828	0.003	0.005	1.166	0.319	0.003	0.953	0.005	0.004	0.072	0.083	29.9	29.9368	556.6
140	13.9	834	0.004	0.006	1.173	0.323	0.004	0.959	0.006	0.005	0.096	0.084	30.1	30.1106	556.6
141	14.0	840	0.003	0.005	1.178	0.325	0.003	0.964	0.005	0.004	0.072	0.084	30.2	30.1731	556.6
142	14.1	846	0.003	0.005	1.182	0.328	0.003	0.968	0.005	0.004	0.072	0.075	27.0	26.9726	556.6
143	14.2	852	0.004	0.006	1.189	0.332	0.004	0.975	0.006	0.005	0.096	0.082	29.4	29.4325	556.6
144	14.3	858	0.003	0.005	1.194	0.335	0.003	0.979	0.005	0.004	0.072	0.084	30.1	30.0661	556.6
145	14.4	864	0.003	0.005	1.198	0.338	0.003	0.984	0.005	0.004	0.072	0.075	27.0	26.9990	556.6
146	14.5	870	0.004	0.006	1.205	0.342	0.004	0.990	0.006	0.005	0.096	0.082	29.5	29.5007	556.6
147	14.6	876	0.003	0.005	1.210	0.345	0.003	0.995	0.005	0.004	0.072	0.084	30.1	30.1443	556.6
148	14.7	882	0.003	0.005	1.214	0.348	0.003	1.000	0.005	0.004	0.072	0.075	27.1	27.0705	556.6
149	14.8	888	0.004	0.006	1.221	0.352	0.004	1.006	0.006	0.005	0.097	0.082	29.6	29.5787	556.6
150	14.9	894	0.003	0.005	1.226	0.355	0.003	1.011	0.005	0.004	0.073	0.084	30.2	30.2236	556.6
151	15.0	900	0.003	0.005	1.230	0.358	0.003	1.015	0.005	0.004	0.073	0.075	27.1	27.1412	556.6
152	15.1	906	0.003	0.005	1.235	0.361	0.003	1.020	0.005	0.004	0.073	0.073	26.4	26.3857	556.6
153	15.2	912	0.004	0.006	1.242	0.365	0.004	1.026	0.006	0.005	0.097	0.082	29.5	29.4838	556.6
154	15.3	918	0.003	0.005	1.246	0.368	0.003	1.031	0.005	0.004	0.073	0.084	30.3	30.2757	556.6
155	15.4	924	0.003	0.005	1.251	0.371	0.003	1.036	0.005	0.004	0.073	0.076	27.2	27.2187	556.6
156	15.5	930	0.003	0.005	1.256	0.374	0.003	1.040	0.005	0.004	0.073	0.074	26.5	26.4691	556.6
157	15.6	936	0.003	0.005	1.261	0.377	0.003	1.045	0.005	0.004	0.073	0.073	26.3	26.2962	556.6
158	15.7	942	0.004	0.006	1.267	0.381	0.004	1.051	0.006	0.005	0.097	0.082	29.6	29.5524	556.6
159	15.8	948	0.003	0.005	1.272	0.384	0.003	1.056	0.005	0.004	0.073	0.084	30.4	30.3832	556.6
160	15.9	954	0.003	0.005	1.277	0.387	0.003	1.061	0.005	0.004	0.073	0.076	27.3	27.3225	556.6
161	16.0	960	0.003	0.005	1.282	0.390	0.003	1.066	0.005	0.004	0.073	0.074	26.6	26.5714	556.6
162	16.1	966	0.003	0.005	1.286	0.393	0.003	1.070	0.005	0.004	0.073	0.073	26.4	26.3977	556.6
163	16.2	972	0.003	0.005	1.291	0.396	0.003	1.075	0.005	0.004	0.073	0.073	26.4	26.3682	556.6
164	16.3	978	0.003	0.005	1.296	0.399	0.003	1.080	0.005	0.004	0.073	0.073	26.4	26.3747	556.6
165	16.4	984	0.003	0.005	1.301	0.402	0.003	1.084	0.005	0.004	0.073	0.073	26.4	26.3901	556.6
166	16.5	990	0.003	0.005	1.306	0.405	0.003	1.089	0.005	0.004	0.073	0.073	26.4	26.4076	556.6
167	16.6	996	0.003	0.005	1.310	0.408	0.003	1.094	0.005	0.004	0.073	0.073	26.4	26.4256	556.6
168	16.7	1002	0.003	0.005	1.315	0.411	0.003	1.098	0.005	0.004	0.073	0.073	26.4	26.4436	556.6
169	16.8	1008	0.003	0.005	1.320	0.415	0.003	1.103	0.005	0.004	0.074	0.074	26.5	26.4615	556.6
170	16.9	1014	0.003	0.005	1.325	0.418	0.003	1.108	0.005	0.004	0.074	0.074	26.5	26.4794	556.6
171	17.0	1020	0.003	0.005	1.330	0.421	0.003	1.113	0.005	0.004	0.074	0.074	26.5	26.4971	556.6
172	17.1	1026	0.003	0.005	1.334	0.424	0.003	1.117	0.005	0.004	0.074	0.074	26.5	26.5147	556.6
173	17.2	1032	0.003	0.005	1.339	0.427	0.003	1.122	0.005	0.004	0.074	0.074	26.5	26.5322	556.6
174	17.3	1038	0.003	0.005	1.344	0.430	0.003	1.127	0.005	0.004	0.074	0.074	26.5	26.5496	556.6
175	17.4	1044	0.003	0.005	1.349	0.433	0.003	1.131	0.005	0.004	0.074	0.074	26.6	26.5668	556.6
176	17.5	1050	0.003	0.005	1.354	0.436	0.003	1.136	0.005	0.004	0.074	0.074	26.6	26.5840	556.6
177	17.6	1056	0.003	0.005	1.358	0.440	0.003	1.141	0.005	0.004	0.074	0.074	26.6	26.6011	556.6
178	17.7	1062	0.002	0.003	1.362	0.442	0.002	1.144	0.003	0.003	0.049	0.065	23.3	23.2883	556.6
179	17.8	1068	0.003	0.005	1.366	0.445	0.003	1.149	0.005	0.004	0.074	0.062	22.5	22.4707	556.6
180	17.9	1074	0.003	0.005	1.371	0.448	0.003	1.153	0.005	0.004	0.074	0.071	25.6	25.6064	556.6
181	18.0	1080	0.003	0.005	1.376	0.451	0.003	1.158	0.005	0.004	0.074	0.073	26.4	26.4029	556.6
182	18.1	1086	0.003	0.005	1.381	0.454	0.003	1.163	0.005	0.004	0.074	0.074	26.6	26.6144	556.6

183	18.2	1092	0.002	0.003	1.384	0.457	0.002	1.166	0.003	0.003	0.049	0.065	23.3	23.3402	556.6
184	18.3	1098	0.003	0.005	1.389	0.460	0.003	1.171	0.005	0.004	0.074	0.063	22.5	22.5319	556.6
185	18.4	1104	0.003	0.005	1.394	0.463	0.003	1.175	0.005	0.004	0.074	0.071	25.7	25.6794	556.6
186	18.5	1110	0.003	0.005	1.398	0.466	0.003	1.180	0.005	0.004	0.074	0.074	26.5	26.4784	556.6
187	18.6	1116	0.002	0.003	1.402	0.468	0.002	1.183	0.003	0.003	0.050	0.065	23.3	23.3434	556.6
188	18.7	1122	0.003	0.005	1.406	0.471	0.003	1.188	0.005	0.004	0.074	0.063	22.6	22.5697	556.6
189	18.8	1128	0.003	0.005	1.411	0.475	0.003	1.193	0.005	0.004	0.074	0.071	25.7	25.7330	556.6
190	18.9	1134	0.002	0.003	1.414	0.477	0.002	1.196	0.003	0.003	0.050	0.064	23.2	23.1836	556.6
191	19.0	1140	0.003	0.005	1.419	0.480	0.003	1.201	0.005	0.004	0.075	0.063	22.6	22.5562	556.6
192	19.1	1146	0.003	0.005	1.424	0.483	0.003	1.205	0.005	0.004	0.075	0.072	25.8	25.7611	556.6
193	19.2	1152	0.002	0.003	1.427	0.485	0.002	1.208	0.003	0.003	0.050	0.064	23.2	23.2168	556.6
194	19.3	1158	0.003	0.005	1.432	0.489	0.003	1.213	0.005	0.004	0.075	0.063	22.6	22.5904	556.6
195	19.4	1164	0.002	0.003	1.435	0.491	0.002	1.216	0.003	0.003	0.050	0.062	22.4	22.4403	556.6
196	19.5	1170	0.003	0.005	1.440	0.494	0.003	1.221	0.005	0.004	0.075	0.062	22.4	22.4123	556.6
197	19.6	1176	0.003	0.005	1.445	0.497	0.003	1.226	0.005	0.004	0.075	0.072	25.8	25.7753	556.6
198	19.7	1182	0.002	0.003	1.448	0.500	0.002	1.229	0.003	0.003	0.050	0.065	23.3	23.2619	556.6
199	19.8	1188	0.003	0.005	1.453	0.503	0.003	1.234	0.005	0.004	0.075	0.063	22.6	22.6430	556.6
200	19.9	1194	0.002	0.003	1.456	0.505	0.002	1.237	0.003	0.003	0.050	0.062	22.5	22.4946	556.6
201	20.0	1200	0.003	0.005	1.461	0.508	0.003	1.242	0.005	0.004	0.075	0.062	22.5	22.4668	556.6
202	20.1	1206	0.002	0.003	1.464	0.510	0.002	1.245	0.003	0.003	0.050	0.062	22.5	22.4661	556.6
203	20.2	1212	0.003	0.005	1.469	0.514	0.003	1.249	0.005	0.004	0.075	0.062	22.5	22.4752	556.6
204	20.3	1218	0.002	0.003	1.472	0.516	0.002	1.253	0.003	0.003	0.050	0.062	22.5	22.4836	556.6
205	20.4	1224	0.002	0.003	1.475	0.518	0.002	1.256	0.003	0.003	0.050	0.053	19.1	19.1189	556.6
206	20.5	1230	0.003	0.005	1.480	0.521	0.003	1.260	0.005	0.004	0.075	0.060	21.7	21.6598	556.6
207	20.6	1236	0.002	0.003	1.483	0.524	0.002	1.264	0.003	0.003	0.050	0.062	22.3	22.3011	556.6
208	20.7	1242	0.003	0.005	1.488	0.527	0.003	1.268	0.005	0.004	0.075	0.062	22.5	22.4704	556.6
209	20.8	1248	0.002	0.003	1.491	0.529	0.002	1.271	0.003	0.003	0.050	0.063	22.5	22.5188	556.6
210	20.9	1254	0.002	0.003	1.494	0.531	0.002	1.275	0.003	0.003	0.050	0.053	19.2	19.1566	556.6
211	21.0	1260	0.003	0.005	1.499	0.535	0.003	1.279	0.005	0.004	0.075	0.060	21.7	21.7053	556.6
212	21.1	1266	0.002	0.003	1.502	0.537	0.002	1.283	0.003	0.003	0.050	0.062	22.3	22.3483	556.6
213	21.2	1272	0.002	0.003	1.506	0.539	0.002	1.286	0.003	0.003	0.050	0.053	19.1	19.1306	556.6
214	21.3	1278	0.003	0.005	1.510	0.542	0.003	1.290	0.005	0.004	0.075	0.060	21.7	21.7194	556.6
215	21.4	1284	0.002	0.003	1.514	0.545	0.002	1.294	0.003	0.003	0.050	0.062	22.4	22.3724	556.6
216	21.5	1290	0.002	0.003	1.517	0.547	0.002	1.297	0.003	0.003	0.050	0.053	19.2	19.1530	556.6
217	21.6	1296	0.003	0.005	1.522	0.550	0.003	1.301	0.005	0.004	0.075	0.060	21.7	21.7453	556.6
218	21.7	1302	0.002	0.003	1.525	0.553	0.002	1.305	0.003	0.003	0.050	0.062	22.4	22.3992	556.6
219	21.8	1308	0.002	0.003	1.528	0.555	0.002	1.308	0.003	0.003	0.050	0.053	19.2	19.1758	556.6
220	21.9	1314	0.002	0.003	1.531	0.557	0.002	1.311	0.003	0.003	0.050	0.051	18.4	18.3746	556.6
221	22.0	1320	0.002	0.003	1.534	0.559	0.002	1.314	0.003	0.003	0.050	0.050	18.2	18.1788	556.6
222	22.1	1326	0.003	0.005	1.539	0.563	0.003	1.319	0.005	0.004	0.076	0.060	21.5	21.5333	556.6
223	22.2	1332	0.002	0.003	1.542	0.565	0.002	1.322	0.003	0.003	0.050	0.062	22.4	22.3775	556.6
224	22.3	1338	0.002	0.003	1.546	0.567	0.002	1.325	0.003	0.003	0.050	0.053	19.2	19.1954	556.6
225	22.4	1344	0.002	0.003	1.549	0.569	0.002	1.328	0.003	0.003	0.050	0.051	18.4	18.4043	556.6
226	22.5	1350	0.002	0.003	1.552	0.572	0.002	1.331	0.003	0.003	0.050	0.051	18.2	18.2110	556.6
227	22.6	1356	0.002	0.003	1.555	0.574	0.002	1.335	0.003	0.003	0.050	0.050	18.2	18.1672	556.6
228	22.7	1362	0.002	0.003	1.558	0.576	0.002	1.338	0.003	0.003	0.050	0.050	18.2	18.1606	556.6
229	22.8	1368	0.002	0.003	1.562	0.578	0.002	1.341	0.003	0.003	0.050	0.050	18.2	18.1634	556.6
230	22.9	1374	0.002	0.003	1.565	0.581	0.002	1.344	0.003	0.003	0.050	0.050	18.2	18.1685	556.6
231	23.0	1380	0.002	0.003	1.568	0.583	0.002	1.347	0.003	0.003	0.050	0.050	18.2	18.1741	556.6
232	23.1	1386	0.002	0.003	1.571	0.585	0.002	1.350	0.003	0.003	0.051	0.050	18.2	18.1799	556.6
233	23.2	1392	0.002	0.003	1.574	0.587	0.002	1.353	0.003	0.003	0.051	0.051	18.2	18.1857	556.6
234	23.3	1398	0.002	0.003	1.578	0.590	0.002	1.357	0.003	0.003	0.051	0.051	18.2	18.1915	556.6
235	23.4	1404	0.002	0.003	1.581	0.592	0.002	1.360	0.003	0.003	0.051	0.051	18.2	18.1973	556.6
236	23.5	1410	0.002	0.003	1.584	0.594	0.002	1.363	0.003	0.003	0.051	0.051	18.2	18.2030	556.6
237	23.6	1416	0.002	0.003	1.587	0.597	0.002	1.366	0.003	0.003	0.051	0.051	18.2	18.2087	556.6
238	23.7	1422	0.002	0.003	1.590	0.599	0.002	1.369	0.003	0.003	0.051	0.051	18.2	18.2144	556.6
239	23.8	1428	0.002	0.003	1.594	0.601	0.002	1.372	0.003	0.003	0.051	0.051	18.2	18.2201	556.6
240	23.9	1434	0.002	0.003	1.597	0.603	0.002	1.376	0.003	0.003	0.051	0.051	18.2	18.2258	556.6
241	24.0	1440	0.002	0.003	1.600	0.606	0.002	1.379	0.003	0.003	0.051	0.051	18.2	18.2314	556.6
														Max Storage Req=	556.6 C.F.

SCS Type 1A Regional Storm - Central Basin

Stormwater Runoff Area - Right Ditch

Area (acres) = 1.852 | P (inches) = 1.6 | d_t(min)= 6 | Tc (min) = 5 | Infiltration Area (ft²)= 7230.0

W= 0.375 | Max Storage (cu. ft.)= 480.2

Pervious Area (acres) = 0.746 | CN = 87 | S = 1.49 | 0.2S = 0.30 | Infiltration Rate (cf/min/ft^2)= 0.0018

Impervious Area (acres) = 1.106 | CN = 98 | S = 0.20 | 0.2S = 0.04 | Total Disp= 78.084000

1 Time Increment	2.0 Time Hours	2 Time (min)	3 Rainfall Distribution (Fraction)	4 Incremental Rainfall (inches)	5 Accum. Rainfall (inches)	6 Pervious Acc. Run (inches)	7 Pervious Inc. Run (inches)	8 Impervious Acc. Run (inches)	9 Impervious Inc. Run (inches)	10 Total Runoff (inches)	11 Instant Flow (inches)	12 Design Flow Rate (cfs)	13 Incremental Flow (cf)	14 Drywell Disp. Volume (cf)	15 Accum. Storage (cf)
1	0.0	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
2	0.1	6	0.002	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
3	0.2	12	0.002	0.003	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
4	0.3	18	0.002	0.003	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
5	0.4	24	0.002	0.003	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
6	0.5	30	0.002	0.003	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
7	0.6	36	0.002	0.003	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
8	0.7	42	0.002	0.003	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
9	0.8	48	0.002	0.003	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
10	0.9	54	0.002	0.003	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
11	1.0	60	0.002	0.003	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
12	1.1	66	0.003	0.005	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0000	0.0
13	1.2	72	0.003	0.005	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0	0.0045	0.0
14	1.3	78	0.003	0.005	0.046	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.2	0.2250	0.0
15	1.4	84	0.003	0.005	0.051	0.000	0.000	0.001	0.000	0.000	0.004	0.002	0.8	0.8086	0.0
16	1.5	90	0.003	0.005	0.056	0.000	0.000	0.001	0.001	0.000	0.006	0.004	1.6	1.5613	0.0
17	1.6	96	0.003	0.005	0.061	0.000	0.000	0.002	0.001	0.000	0.008	0.006	2.3	2.3167	0.0
18	1.7	102	0.003	0.005	0.066	0.000	0.000	0.003	0.001	0.001	0.010	0.008	3.0	3.0368	0.0
19	1.8	108	0.003	0.005	0.070	0.000	0.000	0.004	0.001	0.001	0.012	0.010	3.7	3.7149	0.0
20	1.9	114	0.003	0.005	0.075	0.000	0.000	0.005	0.001	0.001	0.014	0.012	4.4	4.3522	0.0
21	2.0	120	0.003	0.005	0.080	0.000	0.000	0.006	0.001	0.001	0.015	0.014	5.0	4.9512	0.0
22	2.1	126	0.003	0.005	0.085	0.000	0.000	0.008	0.001	0.001	0.017	0.015	5.5	5.5149	0.0
23	2.2	132	0.003	0.005	0.090	0.000	0.000	0.009	0.002	0.001	0.018	0.017	6.0	6.0460	0.0
24	2.3	138	0.004	0.006	0.096	0.000	0.000	0.012	0.002	0.001	0.026	0.021	7.5	7.4539	0.0
25	2.4	144	0.003	0.005	0.101	0.000	0.000	0.014	0.002	0.001	0.021	0.023	8.2	8.2079	0.0
26	2.5	150	0.003	0.005	0.106	0.000	0.000	0.016	0.002	0.001	0.022	0.022	7.9	7.8696	0.0
27	2.6	156	0.003	0.005	0.110	0.000	0.000	0.018	0.002	0.001	0.023	0.022	8.1	8.0907	0.0
28	2.7	162	0.003	0.005	0.115	0.000	0.000	0.020	0.002	0.001	0.024	0.023	8.4	8.4357	0.0
29	2.8	168	0.004	0.006	0.122	0.000	0.000	0.023	0.003	0.002	0.034	0.028	10.0	9.9624	0.0
30	2.9	174	0.003	0.005	0.126	0.000	0.000	0.025	0.002	0.001	0.027	0.030	10.6	10.6460	0.0
31	3.0	180	0.003	0.005	0.131	0.000	0.000	0.028	0.002	0.001	0.027	0.028	9.9	9.9384	0.0
32	3.1	186	0.003	0.005	0.136	0.000	0.000	0.030	0.003	0.002	0.028	0.028	10.0	9.9937	0.0
33	3.2	192	0.003	0.005	0.141	0.000	0.000	0.033	0.003	0.002	0.029	0.028	10.2	10.2285	0.0
34	3.3	198	0.003	0.005	0.146	0.000	0.000	0.036	0.003	0.002	0.030	0.029	10.5	10.4979	0.0
35	3.4	204	0.004	0.006	0.152	0.000	0.000	0.039	0.004	0.002	0.041	0.034	12.2	12.1604	0.0
36	3.5	210	0.003	0.005	0.157	0.000	0.000	0.042	0.003	0.002	0.031	0.036	12.8	12.7980	0.0
37	3.6	216	0.003	0.005	0.162	0.000	0.000	0.045	0.003	0.002	0.032	0.033	11.8	11.7752	0.0
38	3.7	222	0.004	0.006	0.168	0.000	0.000	0.049	0.004	0.002	0.044	0.037	13.2	13.1821	0.0
39	3.8	228	0.004	0.006	0.174	0.000	0.000	0.053	0.004	0.002	0.045	0.042	15.2	15.2497	0.0
40	3.9	234	0.003	0.005	0.179	0.000	0.000	0.056	0.003	0.002	0.034	0.040	14.5	14.4840	0.0
41	4.0	240	0.004	0.006	0.186	0.000	0.000	0.060	0.004	0.002	0.046	0.040	14.5	14.5213	0.0
42	4.1	246	0.004	0.006	0.192	0.000	0.000	0.064	0.004	0.003	0.047	0.045	16.3	16.3043	0.0
43	4.2	252	0.003	0.005	0.197	0.000	0.000	0.068	0.003	0.002	0.036	0.043	15.3	15.3473	0.0
44	4.3	258	0.004	0.006	0.203	0.000	0.000	0.072	0.004	0.003	0.049	0.043	15.3	15.3046	0.0
45	4.4	264	0.004	0.006	0.210	0.000	0.000	0.076	0.004	0.003	0.050	0.048	17.1	17.1188	0.0
46	4.5	270	0.004	0.006	0.216	0.000	0.000	0.081	0.005	0.003	0.050	0.049	17.8	17.7759	0.0
47	4.6	276	0.004	0.006	0.222	0.000	0.000	0.085	0.005	0.003	0.051	0.050	18.1	18.1334	0.0
48	4.7	282	0.004	0.006	0.229	0.000	0.000	0.090	0.005	0.003	0.052	0.051	18.4	18.4066	0.0
49	4.8	288	0.004	0.006	0.235	0.000	0.000	0.095	0.005	0.003	0.052	0.052	18.6	18.6497	0.0
50	4.9	294	0.005	0.008	0.243	0.000	0.000	0.101	0.006	0.004	0.066	0.057	20.7	20.6762	0.0
51	5.0	300	0.004	0.006	0.250	0.000	0.000	0.106	0.005	0.003	0.054	0.059	21.4	21.3602	0.0
52	5.1	306	0.005	0.008	0.258	0.000	0.000	0.112	0.006	0.004	0.068	0.060	21.7	21.7415	0.0
53	5.2	312	0.004	0.006	0.264	0.000	0.000	0.117	0.005	0.003	0.055	0.061	22.0	21.9965	0.0
54	5.3	318	0.005	0.008	0.272	0.000	0.000	0.123	0.006	0.004	0.069	0.062	22.2	22.2499	0.0
55	5.4	324	0.005	0.008	0.280	0.000	0.000	0.129	0.006	0.004	0.070	0.068	24.4	24.3538	0.0
56	5.5	330	0.005	0.008	0.288	0.000	0.000	0.135	0.006	0.004	0.071	0.070	25.1	25.0693	0.0
57	5.6	336	0.005	0.008	0.296	0.000	0.000	0.142	0.006	0.004	0.071	0.071	25.4	25.4278	0.0
58	5.7	342	0.005	0.008	0.304	0.000	0.000	0.148	0.006	0.004	0.072	0.071	25.7	25.7056	0.0
59	5.8	348	0.005	0.008	0.312	0.000	0.000	0.155	0.006	0.004	0.073	0.072	26.0	26.0351	0.0
60	5.9	354	0.005	0.008	0.320	0.000	0.000	0.161	0.007	0.004	0.074	0.073	26.4	26.4363	0.0
61	6.0	360	0.006	0.010	0.330	0.001	0.000	0.169	0.008	0.005	0.091	0.080	28.9	28.9084	0.0
62	6.1	366	0.006	0.010	0.339	0.001	0.000	0.177	0.008	0.005	0.092	0.089	32.0	31.9531	0.0
63	6.2	372	0.006	0.010	0.349	0.002	0.001	0.185	0.008	0.005	0.094	0.092	33.1	33.1354	0.0
64	6.3	378	0.006	0.010	0.358	0.002	0.001	0.193	0.008	0.005	0.095	0.094	33.8	33.8374	0.0
65	6.4	384	0.007	0.011	0.370	0.003	0.001	0.203	0.010	0.006	0.113	0.102	36.6	36.6019	0.0
66	6.5	390	0.006	0.010	0.379	0.004	0.001	0.211	0.008	0.005	0.098	0.105	37.7	37.7029	0.0
67	6.6	396	0.006	0.010	0.389	0.005	0.001	0.219	0.008	0.005	0.100	0.100	36.2	36.1780	0.0
68	6.7	402	0.006	0.010	0.398	0.006	0.001	0.228	0.008	0.005	0.101	0.100	36.2	36.1501	0.0
69	6.8	408	0.006	0.010	0.408	0.007	0.001	0.236	0.008	0.005	0.102	0.101	36.5	36.4854	0.0
70	6.9	414	0.006	0.010	0.418	0.009	0.001	0.244	0.008	0.006	0.103	0.103	36.9	36.9011	0.0
71	7.0	420	0.007	0.011	0.429	0.010	0.002	0.254	0.010	0.007	0.122	0.110	39.7	39.6972	0.0
72	7.1	426	0.007	0.011	0.440	0.012	0.002	0.264	0.010	0.007	0.124	0.120	43.1	43.1335	0.0
73	7.2	432	0.008	0.013	0.453	0.014	0.002	0.276	0.011	0.008	0.143	0.130	46.8	46.8348	0.0
74	7.3	438	0.008	0.013	0.466	0.017	0.002	0.287	0.011	0.008	0.145	0.141	50.6	50.6476	0.0
75	7.4	444	0.009	0.014	0.480	0.020	0.003	0.300	0.013	0.009	0.165	0.152	54.6	54.5964	0.0
76	7.5	450	0.010	0.016	0.496	0.023	0.003	0.314	0.014	0.010	0.186	0.170	61.2	61.1560	0.0
77	7.6	456	0.021	0.034	0.530	0.031	0.008	0.345	0.031	0.021	0.400	0.262	94.4	78.0840	16.4
78	7.7	462	0.024	0.038	0.568	0.041	0.010	0.380	0.035	0.025	0.470	0.392	141.0	78.0840	79.3
79	7.8	468	0.024	0.038	0.606	0.052	0.011	0.416	0.036	0.026	0.482	0.455	163.8	78.0840	165.0
80	7.9	474	0.024	0.038	0.645	0.065	0.013	0.451	0.036	0.026	0.494	0.480	172.8	78.0840	259.7
81	8.0	480	0.022	0.035	0.680	0.077	0.012	0.484	0.033	0.025	0.462	0.478	172.2	78.0840	353.9
82	8.1	486	0.014	0.022	0.702	0.086	0.008	0.506	0.021	0.016	0.298	0.405	145.7	78.0840	421.5
83	8.2	492	0.013	0.021	0.723	0.094	0.008	0.525	0.020	0.015	0.280	0.318	114.5	78.0840	457.9
84	8.3	498	0.010	0.016	0.739	0.100	0.006	0.540	0.015	0.012	0.217	0.266	95.7	78.0840	475.5

85	8.4	504	0.010	0.016	0.755	0.107	0.007	0.556	0.015	0.012	0.219	0.230	82.8	78.0840	480.2
86	8.5	510	0.008	0.013	0.768	0.112	0.005	0.568	0.012	0.009	0.176	0.205	74.0	73.9530	480.2
87	8.6	516	0.009	0.014	0.782	0.118	0.006	0.582	0.014	0.011	0.199	0.192	69.1	69.1106	480.2
88	8.7	522	0.009	0.014	0.797	0.124	0.006	0.595	0.014	0.011	0.200	0.198	71.2	71.1691	480.2
89	8.8	528	0.007	0.011	0.808	0.129	0.005	0.606	0.011	0.008	0.156	0.183	65.9	65.9339	480.2
90	8.9	534	0.008	0.013	0.821	0.135	0.006	0.618	0.012	0.010	0.180	0.172	61.8	61.8476	480.2
91	9.0	540	0.007	0.011	0.832	0.140	0.005	0.629	0.011	0.008	0.158	0.169	61.0	61.0123	480.2
92	9.1	546	0.007	0.011	0.843	0.145	0.005	0.640	0.011	0.008	0.158	0.161	57.9	57.9493	480.2
93	9.2	552	0.006	0.010	0.853	0.150	0.004	0.649	0.009	0.007	0.136	0.151	54.3	54.2778	480.2
94	9.3	558	0.006	0.010	0.862	0.154	0.005	0.658	0.009	0.007	0.137	0.140	50.4	50.4296	480.2
95	9.4	564	0.006	0.010	0.872	0.159	0.005	0.667	0.009	0.007	0.137	0.138	49.6	49.5859	480.2
96	9.5	570	0.005	0.008	0.880	0.163	0.004	0.675	0.008	0.006	0.115	0.129	46.4	46.3914	480.2
97	9.6	576	0.006	0.010	0.890	0.167	0.005	0.684	0.009	0.007	0.138	0.127	45.7	45.6978	480.2
98	9.7	582	0.005	0.008	0.898	0.171	0.004	0.692	0.008	0.006	0.115	0.127	45.6	45.6107	480.2
99	9.8	588	0.006	0.010	0.907	0.176	0.005	0.701	0.009	0.007	0.139	0.127	45.7	45.6909	480.2
100	9.9	594	0.005	0.008	0.915	0.180	0.004	0.709	0.008	0.006	0.116	0.127	45.8	45.7947	480.2
101	10.0	600	0.005	0.008	0.923	0.184	0.004	0.717	0.008	0.006	0.116	0.119	42.8	42.7786	480.2
102	10.1	606	0.005	0.008	0.931	0.188	0.004	0.724	0.008	0.006	0.116	0.117	42.1	42.0986	480.2
103	10.2	612	0.005	0.008	0.939	0.192	0.004	0.732	0.008	0.006	0.117	0.117	42.0	42.0017	480.2
104	10.3	618	0.005	0.008	0.947	0.196	0.004	0.740	0.008	0.006	0.117	0.117	42.0	42.0496	480.2
105	10.4	624	0.004	0.006	0.954	0.199	0.003	0.746	0.006	0.005	0.094	0.108	39.0	38.9644	480.2
106	10.5	630	0.005	0.008	0.962	0.204	0.004	0.754	0.008	0.006	0.117	0.106	38.3	38.2564	480.2
107	10.6	636	0.005	0.008	0.970	0.208	0.004	0.761	0.008	0.006	0.118	0.115	41.3	41.3103	480.2
108	10.7	642	0.004	0.006	0.976	0.211	0.003	0.768	0.006	0.005	0.094	0.108	39.0	38.9549	480.2
109	10.8	648	0.005	0.008	0.984	0.215	0.004	0.775	0.008	0.006	0.118	0.107	38.4	38.4271	480.2
110	10.9	654	0.005	0.008	0.992	0.220	0.004	0.783	0.008	0.006	0.118	0.115	41.5	41.5431	480.2
111	11.0	660	0.004	0.006	0.998	0.223	0.003	0.789	0.006	0.005	0.095	0.109	39.2	39.1822	480.2
112	11.1	666	0.004	0.006	1.005	0.227	0.003	0.796	0.006	0.005	0.095	0.098	35.4	35.4397	480.2
113	11.2	672	0.005	0.008	1.013	0.231	0.004	0.803	0.008	0.006	0.119	0.105	37.8	37.7620	480.2
114	11.3	678	0.004	0.006	1.019	0.234	0.003	0.810	0.006	0.005	0.095	0.107	38.4	38.3888	480.2
115	11.4	684	0.004	0.006	1.026	0.238	0.003	0.816	0.006	0.005	0.096	0.098	35.4	35.3748	480.2
116	11.5	690	0.004	0.006	1.032	0.241	0.004	0.822	0.006	0.005	0.096	0.096	34.7	34.6615	480.2
117	11.6	696	0.004	0.006	1.038	0.245	0.004	0.828	0.006	0.005	0.096	0.096	34.5	34.5230	480.2
118	11.7	702	0.004	0.006	1.045	0.248	0.004	0.834	0.006	0.005	0.096	0.096	34.5	34.5278	480.2
119	11.8	708	0.004	0.006	1.051	0.252	0.004	0.841	0.006	0.005	0.096	0.096	34.6	34.5681	480.2
120	11.9	714	0.003	0.005	1.056	0.255	0.003	0.845	0.005	0.004	0.072	0.087	31.4	31.3658	480.2
121	12.0	720	0.004	0.006	1.062	0.258	0.004	0.851	0.006	0.005	0.096	0.085	30.6	30.5988	480.2
122	12.1	726	0.004	0.006	1.069	0.262	0.004	0.858	0.006	0.005	0.097	0.094	33.7	33.6913	480.2
123	12.2	732	0.003	0.005	1.074	0.265	0.003	0.862	0.005	0.004	0.072	0.087	31.2	31.2381	480.2
124	12.3	738	0.004	0.006	1.080	0.268	0.004	0.869	0.006	0.005	0.097	0.085	30.7	30.6575	480.2
125	12.4	744	0.004	0.006	1.086	0.272	0.004	0.875	0.006	0.005	0.097	0.094	33.8	33.8088	480.2
126	12.5	750	0.004	0.006	1.093	0.275	0.004	0.881	0.006	0.005	0.097	0.096	34.6	34.6333	480.2
127	12.6	756	0.004	0.006	1.099	0.279	0.004	0.887	0.006	0.005	0.097	0.097	34.9	34.8758	480.2
128	12.7	762	0.003	0.005	1.104	0.282	0.003	0.892	0.005	0.004	0.073	0.088	31.7	31.6868	480.2
129	12.8	768	0.004	0.006	1.110	0.286	0.004	0.898	0.006	0.005	0.097	0.086	30.9	30.9208	480.2
130	12.9	774	0.003	0.005	1.115	0.288	0.003	0.903	0.005	0.004	0.073	0.085	30.8	30.7526	480.2
131	13.0	780	0.004	0.006	1.122	0.292	0.004	0.909	0.006	0.005	0.098	0.085	30.7	30.7413	480.2
132	13.1	786	0.004	0.006	1.128	0.296	0.004	0.915	0.006	0.005	0.098	0.095	34.1	34.0623	480.2
133	13.2	792	0.003	0.005	1.133	0.299	0.003	0.920	0.005	0.004	0.073	0.088	31.6	31.6219	480.2
134	13.3	798	0.004	0.006	1.139	0.302	0.004	0.926	0.006	0.005	0.098	0.086	31.0	31.0418	480.2
135	13.4	804	0.004	0.006	1.146	0.306	0.004	0.933	0.006	0.005	0.098	0.095	34.2	34.2316	480.2
136	13.5	810	0.003	0.005	1.150	0.309	0.003	0.937	0.005	0.004	0.074	0.088	31.7	31.7460	480.2
137	13.6	816	0.003	0.005	1.155	0.312	0.003	0.942	0.005	0.004	0.074	0.077	27.8	27.8340	480.2
138	13.7	822	0.004	0.006	1.162	0.316	0.004	0.948	0.006	0.005	0.098	0.084	30.2	30.1976	480.2
139	13.8	828	0.003	0.005	1.166	0.319	0.003	0.953	0.005	0.004	0.074	0.086	30.8	30.8101	480.2
140	13.9	834	0.004	0.006	1.173	0.323	0.004	0.959	0.006	0.005	0.099	0.086	31.0	30.9919	480.2
141	14.0	840	0.003	0.005	1.178	0.325	0.003	0.964	0.005	0.004	0.074	0.086	31.1	31.0586	480.2
142	14.1	846	0.003	0.005	1.182	0.328	0.003	0.968	0.005	0.004	0.074	0.077	27.8	27.7663	480.2
143	14.2	852	0.004	0.006	1.189	0.332	0.004	0.975	0.006	0.005	0.099	0.084	30.3	30.3013	480.2
144	14.3	858	0.003	0.005	1.194	0.335	0.003	0.979	0.005	0.004	0.074	0.086	31.0	30.9558	480.2
145	14.4	864	0.003	0.005	1.198	0.338	0.003	0.984	0.005	0.004	0.074	0.077	27.8	27.8001	480.2
146	14.5	870	0.004	0.006	1.205	0.342	0.004	0.990	0.006	0.005	0.099	0.084	30.4	30.3786	480.2
147	14.6	876	0.003	0.005	1.210	0.345	0.003	0.995	0.005	0.004	0.074	0.086	31.0	31.0435	480.2
148	14.7	882	0.003	0.005	1.214	0.348	0.003	1.000	0.005	0.004	0.075	0.077	27.9	27.8801	480.2
149	14.8	888	0.004	0.006	1.221	0.352	0.004	1.006	0.006	0.005	0.099	0.085	30.5	30.4659	480.2
150	14.9	894	0.003	0.005	1.226	0.355	0.003	1.011	0.005	0.004	0.075	0.086	31.1	31.1322	480.2
151	15.0	900	0.003	0.005	1.230	0.358	0.003	1.015	0.005	0.004	0.075	0.078	28.0	27.9592	480.2
152	15.1	906	0.003	0.005	1.235	0.361	0.003	1.020	0.005	0.004	0.075	0.076	27.2	27.1828	480.2
153	15.2	912	0.004	0.006	1.242	0.365	0.004	1.026	0.006	0.005	0.100	0.084	30.4	30.3769	480.2
154	15.3	918	0.003	0.005	1.246	0.368	0.003	1.031	0.005	0.004	0.075	0.087	31.2	31.1948	480.2
155	15.4	924	0.003	0.005	1.251	0.371	0.003	1.036	0.005	0.004	0.075	0.078	28.0	28.0470	480.2
156	15.5	930	0.003	0.005	1.256	0.374	0.003	1.040	0.005	0.004	0.075	0.076	27.3	27.2764	480.2
157	15.6	936	0.003	0.005	1.261	0.377	0.003	1.045	0.005	0.004	0.075	0.075	27.1	27.1000	480.2
158	15.7	942	0.004	0.006	1.267	0.381	0.004	1.051	0.006	0.005	0.100	0.085	30.5	30.4580	480.2
159	15.8	948	0.003	0.005	1.272	0.384	0.003	1.056	0.005	0.004	0.075	0.087	31.3	31.3163	480.2
160	15.9	954	0.003	0.005	1.277	0.387	0.003	1.061	0.005	0.004	0.075	0.078	28.2	28.1634	480.2
161	16.0	960	0.003	0.005	1.282	0.390	0.003	1.066	0.005	0.004	0.075	0.076	27.4	27.3910	480.2
162	16.1	966	0.003	0.005	1.286	0.393	0.003	1.070	0.005	0.004	0.075	0.076	27.2	27.2137	480.2
163	16.2	972	0.003	0.005	1.291	0.396	0.003	1.075	0.005	0.004	0.076	0.076	27.2	27.1849	480.2
164	16.3	978	0.003	0.005	1.296	0.399	0.003	1.080	0.005	0.004	0.076	0.076	27.2	27.1933	480.2
165	16.4	984	0.003	0.005	1.301	0.402	0.003	1.084	0.005	0.004	0.076	0.076	27.2	27.2108	480.2
166	16.5	990	0.003	0.005	1.306	0.405	0.003	1.089	0.005	0.004	0.076	0.076	27.2	27.2305	480.2
167	16.6	996	0.003	0.005	1.310	0.408	0.003	1.094	0.005	0.004	0.076	0.076	27.3	27.2506	480.2
168	16.7	1002	0.003	0.005	1.315	0.411	0.003	1.098	0.005	0.004	0.076	0.076	27.3	27.2708	480.2
169	16.8	1008	0.003	0.005	1.320	0.415	0.003	1.103	0.005	0.004	0.076	0.076	27.3	27.2909	480.2
170	16.9	1014	0.003	0.005	1.325	0.418	0.003	1.108	0.005	0.004	0.076	0.076	27.3	27.3108	480.2
171	17.0	1020	0.003	0.005	1.330	0.421	0.003	1.113	0.005	0.004	0.076	0.076	27.3	27.3307	480.2
172	17.1	1026	0.003	0.005	1.334	0.424	0.003	1.117	0.005	0.004	0.076	0.076	27.4	27.3504	480.2
173	17.2	1032	0.003	0.005	1.339	0.427	0.003	1.122	0.005	0.004	0.076	0.076	27.4	27.3700	480.2
174	17.3	1038	0.003	0.005	1.344	0.430	0.003	1.127	0.005	0.004	0.076	0.076	27.4	27.3895	480.2
175	17.4	1044	0.003	0.005	1.349	0.433	0.003	1.131	0.005	0.004	0.076	0.076	27.4	27.4089	480.2
176	17.5	1050	0.003	0.005	1.354	0.436	0.003	1.136	0.005	0.004	0.076	0.076	27.4	27.4281	480.2
177	17.6	1056	0.003	0.005	1.358	0.440	0.003	1.141	0.005	0.004	0.076	0.076	27.4	27.4472	480.2
178	17.7	1062	0.002	0.003	1.362	0.442	0.002	1.144	0.003	0.003	0.051	0.067	24.0	24.0302	480.2
179	17.8	1068	0.003	0.005	1.366	0.445	0.003	1.149	0.005	0.004	0.076	0.064	23.2	23.1878	480.2
180	17.9	1074	0.003	0.005	1.371	0.448	0.003	1.153	0.005	0.004	0.076	0.073	26.4	26.4249	480.2
181	18.0	1080	0.003	0.005	1.376	0.451	0.003	1.158	0.005	0.004	0.076	0.076	27.2	27.2482	480.2
182	18.1	1086	0.003	0.005	1.381	0.454	0.003	1.163	0.005	0.004	0.077	0.076	27.5	27.4679	480.2

183	18.2	1092	0.002	0.003	1.384	0.457	0.002	1.166	0.003	0.003	0.051	0.067	24.1	24.0898	480.2
184	18.3	1098	0.003	0.005	1.389	0.460	0.003	1.171	0.005	0.004	0.077	0.065	23.3	23.2568	480.2
185	18.4	1104	0.003	0.005	1.394	0.463	0.003	1.175	0.005	0.004	0.077	0.074	26.5	26.5068	480.2
186	18.5	1110	0.003	0.005	1.398	0.466	0.003	1.180	0.005	0.004	0.077	0.076	27.3	27.3329	480.2
187	18.6	1116	0.002	0.003	1.402	0.468	0.002	1.183	0.003	0.003	0.051	0.067	24.1	24.0978	480.2
188	18.7	1122	0.003	0.005	1.406	0.471	0.003	1.188	0.005	0.004	0.077	0.065	23.3	23.3002	480.2
189	18.8	1128	0.003	0.005	1.411	0.475	0.003	1.193	0.005	0.004	0.077	0.074	26.6	26.5672	480.2
190	18.9	1134	0.002	0.003	1.414	0.477	0.002	1.196	0.003	0.003	0.051	0.066	23.9	23.9361	480.2
191	19.0	1140	0.003	0.005	1.419	0.480	0.003	1.201	0.005	0.004	0.077	0.065	23.3	23.2894	480.2
192	19.1	1146	0.003	0.005	1.424	0.483	0.003	1.205	0.005	0.004	0.077	0.074	26.6	26.5998	480.2
193	19.2	1152	0.002	0.003	1.427	0.485	0.002	1.208	0.003	0.003	0.051	0.067	24.0	23.9736	480.2
194	19.3	1158	0.003	0.005	1.432	0.489	0.003	1.213	0.005	0.004	0.077	0.065	23.3	23.3279	480.2
195	19.4	1164	0.002	0.003	1.435	0.491	0.002	1.216	0.003	0.003	0.051	0.064	23.2	23.1737	480.2
196	19.5	1170	0.003	0.005	1.440	0.494	0.003	1.221	0.005	0.004	0.077	0.064	23.1	23.1459	480.2
197	19.6	1176	0.003	0.005	1.445	0.497	0.003	1.226	0.005	0.004	0.077	0.074	26.6	26.6202	480.2
198	19.7	1182	0.002	0.003	1.448	0.500	0.002	1.229	0.003	0.003	0.051	0.067	24.0	24.0254	480.2
199	19.8	1188	0.003	0.005	1.453	0.503	0.003	1.234	0.005	0.004	0.077	0.065	23.4	23.3873	480.2
200	19.9	1194	0.002	0.003	1.456	0.505	0.002	1.237	0.003	0.003	0.052	0.065	23.2	23.2348	480.2
201	20.0	1200	0.003	0.005	1.461	0.508	0.003	1.242	0.005	0.004	0.077	0.064	23.2	23.2071	480.2
202	20.1	1206	0.002	0.003	1.464	0.510	0.002	1.245	0.003	0.003	0.052	0.064	23.2	23.2072	480.2
203	20.2	1212	0.003	0.005	1.469	0.514	0.003	1.249	0.005	0.004	0.077	0.064	23.2	23.2176	480.2
204	20.3	1218	0.002	0.003	1.472	0.516	0.002	1.253	0.003	0.003	0.052	0.065	23.2	23.2271	480.2
205	20.4	1224	0.002	0.003	1.475	0.518	0.002	1.256	0.003	0.003	0.052	0.055	19.8	19.7518	480.2
206	20.5	1230	0.003	0.005	1.480	0.521	0.003	1.260	0.005	0.004	0.078	0.062	22.4	22.3778	480.2
207	20.6	1236	0.002	0.003	1.483	0.524	0.002	1.264	0.003	0.003	0.052	0.064	23.0	23.0411	480.2
208	20.7	1242	0.003	0.005	1.488	0.527	0.003	1.268	0.005	0.004	0.078	0.064	23.2	23.2171	480.2
209	20.8	1248	0.002	0.003	1.491	0.529	0.002	1.271	0.003	0.003	0.052	0.065	23.3	23.2678	480.2
210	20.9	1254	0.002	0.003	1.494	0.531	0.002	1.275	0.003	0.003	0.052	0.055	19.8	19.7945	480.2
211	21.0	1260	0.003	0.005	1.499	0.535	0.003	1.279	0.005	0.004	0.078	0.062	22.4	22.4289	480.2
212	21.1	1266	0.002	0.003	1.502	0.537	0.002	1.283	0.003	0.003	0.052	0.064	23.1	23.0941	480.2
213	21.2	1272	0.002	0.003	1.506	0.539	0.002	1.286	0.003	0.003	0.052	0.055	19.8	19.7697	480.2
214	21.3	1278	0.003	0.005	1.510	0.542	0.003	1.290	0.005	0.004	0.078	0.062	22.4	22.4459	480.2
215	21.4	1284	0.002	0.003	1.514	0.545	0.002	1.294	0.003	0.003	0.052	0.064	23.1	23.1215	480.2
216	21.5	1290	0.002	0.003	1.517	0.547	0.002	1.297	0.003	0.003	0.052	0.055	19.8	19.7949	480.2
217	21.6	1296	0.003	0.005	1.522	0.550	0.003	1.301	0.005	0.004	0.078	0.062	22.5	22.4750	480.2
218	21.7	1302	0.002	0.003	1.525	0.553	0.002	1.305	0.003	0.003	0.052	0.064	23.2	23.1515	480.2
219	21.8	1308	0.002	0.003	1.528	0.555	0.002	1.308	0.003	0.003	0.052	0.055	19.8	19.8206	480.2
220	21.9	1314	0.002	0.003	1.531	0.557	0.002	1.311	0.003	0.003	0.052	0.053	19.0	18.9930	480.2
221	22.0	1320	0.002	0.003	1.534	0.559	0.002	1.314	0.003	0.003	0.052	0.052	18.8	18.7912	480.2
222	22.1	1326	0.003	0.005	1.539	0.563	0.003	1.319	0.005	0.004	0.078	0.062	22.3	22.2594	480.2
223	22.2	1332	0.002	0.003	1.542	0.565	0.002	1.322	0.003	0.003	0.052	0.064	23.1	23.1328	480.2
224	22.3	1338	0.002	0.003	1.546	0.567	0.002	1.325	0.003	0.003	0.052	0.055	19.8	19.8439	480.2
225	22.4	1344	0.002	0.003	1.549	0.569	0.002	1.328	0.003	0.003	0.052	0.053	19.0	19.0267	480.2
226	22.5	1350	0.002	0.003	1.552	0.572	0.002	1.331	0.003	0.003	0.052	0.052	18.8	18.8274	480.2
227	22.6	1356	0.002	0.003	1.555	0.574	0.002	1.335	0.003	0.003	0.052	0.052	18.8	18.7826	480.2
228	22.7	1362	0.002	0.003	1.558	0.576	0.002	1.338	0.003	0.003	0.052	0.052	18.8	18.7764	480.2
229	22.8	1368	0.002	0.003	1.562	0.578	0.002	1.341	0.003	0.003	0.052	0.052	18.8	18.7798	480.2
230	22.9	1374	0.002	0.003	1.565	0.581	0.002	1.344	0.003	0.003	0.052	0.052	18.8	18.7856	480.2
231	23.0	1380	0.002	0.003	1.568	0.583	0.002	1.347	0.003	0.003	0.052	0.052	18.8	18.7919	480.2
232	23.1	1386	0.002	0.003	1.571	0.585	0.002	1.350	0.003	0.003	0.052	0.052	18.8	18.7984	480.2
233	23.2	1392	0.002	0.003	1.574	0.587	0.002	1.353	0.003	0.003	0.052	0.052	18.8	18.8050	480.2
234	23.3	1398	0.002	0.003	1.578	0.590	0.002	1.357	0.003	0.003	0.052	0.052	18.8	18.8114	480.2
235	23.4	1404	0.002	0.003	1.581	0.592	0.002	1.360	0.003	0.003	0.052	0.052	18.8	18.8179	480.2
236	23.5	1410	0.002	0.003	1.584	0.594	0.002	1.363	0.003	0.003	0.052	0.052	18.8	18.8244	480.2
237	23.6	1416	0.002	0.003	1.587	0.597	0.002	1.366	0.003	0.003	0.052	0.052	18.8	18.8308	480.2
238	23.7	1422	0.002	0.003	1.590	0.599	0.002	1.369	0.003	0.003	0.052	0.052	18.8	18.8372	480.2
239	23.8	1428	0.002	0.003	1.594	0.601	0.002	1.372	0.003	0.003	0.052	0.052	18.8	18.8436	480.2
240	23.9	1434	0.002	0.003	1.597	0.603	0.002	1.376	0.003	0.003	0.052	0.052	18.8	18.8499	480.2
241	24.0	1440	0.002	0.003	1.600	0.606	0.002	1.379	0.003	0.003	0.052	0.052	18.9	18.8563	480.2
														Max Storage Req=	480.2 C.F.