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In reply, please refer to:
File:

16-282E CAB

May 9, 2016

Ms. Alexis Strauss
Acting Regional Administrator
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, California 94105

Dear Ms. Strauss:

SUBJECT: State of Hawaii, Department of Health, Clean Air Branch, Amendment 1 to Final Report, Modeling for Monitor Placement Data Requirements Rule for 1-Hour Sulfur Dioxide Primary National Ambient Air Quality Standard

Please find enclosed the amended final report for determining the location of monitoring sites to characterize sulfur dioxide (SO_2) air quality in accordance with the 1-hour SO_2 Data Requirements Rule. Amendment 1 of the report incorporates a change in location of the monitoring site selected to characterize SO_2 air quality for the Waiau Generating Station. A new monitoring site is being selected because Hawaiian Electric is having difficulty leasing land for the monitoring site selected in the initial report. The subject report provides the list of applicable SO_2 sources, the initial modeling assessments for SO_2 monitor placement, and location of affected facilities in relation to new and existing SO_2 air quality monitoring stations.

Air agency requirements for implementing the 1-hour SO_2 Data Requirements Rule are satisfied as follows:

1. On March 18, 2016, the Environmental Protection Agency (EPA) concurred with the list of sources to be characterized under the SO_2 Data Requirements Rule that was provided in the Department of Health, Clean Air Branch's (DOH-CAB's) January 8, 2016, final report submittal (see Attachment 5 of the amended final report).
2. For the subject Amendment 1 submittal of the final report, the EPA has been notified by July 1, 2016, as required by 40 Code of Federal Regulations §51.1203(b) on Pages 1 and 38 of the report, that the DOH-CAB has chosen to characterize 1-hour SO_2 air quality through ambient air quality monitoring.

If there are any questions, please contact Mr. Nolan Hirai of the Clean Air Branch at (808) 586-4200.

Sincerely,

KEITH E. KAWAOKA, D.Env.
Deputy Director for Environmental Health

MM:rkb
Enclosure

c: Vijay Limaye, Planning Office, Air Division (AIR-2), U.S. EPA, Region 9

State of Hawaii
Department of Health
Clean Air Branch

Modeling for Monitor Placement
Data Requirements Rule for 1-Hour Sulfur Dioxide
Primary National Ambient Air Quality Standard

Amendment 1 to Final Report
May 2016

Monitoring Site Selection Step for Large Sulfur Dioxide Emitter

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List of Acronyms and Definitions

AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Base Load	This is the maximum load of a unit at ambient temperatures.
CAA	Clean Air Act
CFR	Code of Federal Regulations
CIP	Campbell Industrial Park
CO	Carbon Monoxide
CSP	Covered Source Permit
DOH-CAB	Department of Health Clean Air Branch
EPA	United States Environmental Protection Agency
g/s	Grams per Second
HECO	Hawaiian Electric Company, Inc.
HELCO	Hawaii Electric Light Company, Inc.
hr	Hour
IPP	Independent Power Producer
km	Kilometers
kW	Kilowatt
lb/hr	Pound per Hour
m	Meter
MECO	Maui Electric Company, Ltd.
MMBtu/hr	Million British Thermal Units per hour
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NCore	National Core Multi-Pollutant Monitoring Station
NDV	Normalized Design Value
NED	National Elevation Database
NEI	National Emissions Inventory
NOy	Total Reactive Oxides of Nitrogen
NWS	National Weather Service
O_3	Ozone
Pb	Lead
$PM_{2.5}$	Particulate Matter Less than 2.5 Micrometers in Diameter
PM_{10}	Particulate Matter Less than 10 Micrometers in Diameter
$PM_{10-2.5}$	Difference Between PM_{10} and $PM_{2.5}$ (PM-Coarse)
ppb	Parts Per Billion
SLAMS	State and Local Air Monitoring Station
SLEIS	Hawaii's State and Local Emissions Inventory System
SUV	Sport Utility Vehicle
SO_2	Sulfur Dioxide
TAD	Technical Assistance Document
TPY	Tons per Year

Attachments

1. Hawaiian Electric Company, Inc., 1-Hour SO_2 Modeling to Inform Monitor Placement, Kahe Generating Station, Island of Oahu, Hawaii, August 2015 .
2. Hawaiian Electric Company, Inc. 1-Hour SO_2 Modeling to Inform Monitor Placement, Waiau Generating Station, Island of Oahu, Hawaii, August 2015.
3. Hawaiian Electric Company Kahe SO_2 AQMS Site Selection Alternate Sites Approval Request, October 2015.
4. Hawaiian Electric Company Request for Approval of Alternate Sites for Waiau SO_2 AQMS Site, April 2016.
5. U.S. EPA Region IX Concurrence of Sources Identified to be Characterized Under the SO_2 Data Requirements Rule, March 18, 2016.

Appendices

Appendix A: AES/Kalaeloa Receptor Score Ranking (DOH-CAB Run)
Appendix B: Kahe Receptor Score Ranking (DOH-CAB Run)
Appendix C: Waiau Receptor Score Ranking (DOH-CAB Run)

1.0 Introduction

The Data Requirements Rule for 1-hr SO_2 in 40 CFR Part 51 of Subpart BB (Ref. 1) directs air agencies to characterize current air quality in areas with large SO_2 emitters. The purpose of the rule is to identify maximum 1-hr SO_2 concentrations at locations where monitoring is insufficient for implementing the 2010 primary 1-hr SO_2 NAAQS of 75 ppb. Criteria is provided in the rule to identify sources where air quality must be characterized and the timelines to submit data to EPA for determining SO_2 area boundaries designated nonattainment, attainment, and unclassifiable. The CAA in 107(d)(1)(B) requires EPA to issue area designations for new or revised NAAQS within two years after the NAAQS are promulgated (Ref. 2). Options are provided in the 1-hr SO_2 Data Requirements Rule for characterizing air quality with modeling, monitoring, or federally enforceable emission limits. The DOH-CAB has chosen to provide data for SO_2 designation purposes through air quality monitoring for all Hawaii sources subject to the rule.

1.1 Data Requirements Rule Timelines

Pursuant to 40 CFR §51.1203 (Ref. 1), the following is the expected timeline of events for implementing the 1-hour SO_2 Data Requirements Rule:

a. The DOH-CAB must submit a list of applicable sources to EPA by January 15, 2016.
b. For each area subject to requirements for air quality characterization, the DOH-CAB must indicate, by July 1, 2016, whether it has chosen to: (1) characterize peak 1-hour SO_2 concentrations through ambient air quality monitoring; (2) characterize peak 1-hour SO_2 in such areas through air quality modeling techniques; or (3) provide federally enforceable emission limitations that limit SO_2 emissions of applicable sources to less than 2,000 tons per year or provide documentation that the source has permanently shut down.
c. The DOH-CAB's annual monitoring network plan is due on July 1, 2016.
d. All existing, new, or relocated ambient monitoring sites must be operational by January 1, 2017.
e. If DOH-CAB has chosen to limit emissions of applicable sources in accordance with 40 CFR §51.1203(e) by providing federally enforceable emission limits, it must show that such requirements were federally enforceable by January 13, 2017.
f. At any time prior to January 13, 2017 the DOH -CAB may submit federally enforceable emission limits that provide for attainment of the 2010 SO_2 NAAQS in the affected areas. The submittal must include associated air modeling and other analyses that demonstrate that all modeling receptors in the area will not violate the 2010 NAAQS, taking into account the updated allowable emission limits on applicable sources as well as emission limits that may apply to other sources in the area.
g. By May 1, 2020, the DOH-CAB must determine whether any new ambient monitoring sites deployed indicate a violation of the 2010 SO_2 NAAQS based on ambient monitoring data from the most recent three calendar years.
h. For each area for which air quality will be characterized through modeling, The DOH-CAB must submit by July 1, 2016, a technical protocol for conducting such modeling for EPA review.

i. The DOH-CAB must submit the modeling analysis to EPA by January 13, 2017.
j. For any area where SO_2 monitoring was conducted to characterize air quality pursuant to 40 CFR §51.1203, the DOH-CAB must continue to operate the monitor(s) used to meet those requirements and shall continue to report ambient data pursuant to existing ambient monitoring regulations, unless the monitor(s) have been approved for shutdown by EPA.
k. For any areas where modeling of actual SO_2 emissions serve as the basis for designating the specific area as attainment for the 2010 SO_2 NAAQS, the DOH-CAB must submit an annual report to the EPA by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its annual Monitoring Network Plan (also due by July 1 each year under 40 CFR §58.10), that documents the annual SO_2 emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year.
l. The DOH-CAB will no longer be subject to the requirements of 40 CFR §51.1205(b) for a particular area if it provides air quality modeling demonstrating that air quality values at all air quality receptors in the analysis are no greater than 50 percent of the 1-hour SO_2 NAAQS.
m. If it can be demonstrated that an area would meet the 2010 SO_2 NAAQS with allowable emissions, no future annual reports pursuant to 40 CFR §51.1205(b) are required.
n. If modeling or monitoring information indicates that an area is not attaining the 2010 NAAQS, the EPA may take appropriate action including emission limits to ensure continued attainment of the 2010 SO_2 NAAQS, designation or redesignation of the area to nonattainment, or issuance of a SIP call.

2.0 Top SO_2 Emitters

Table 2.0-1 below identifies Hawaii's top twelve (12) SO_2 emitters from the largest to smallest sources based on information from SLEIS and the NEI, except for AES, Hawaii, Inc. for years 2012, 2013, and 2014 (see note a in Table 2.0-1 for the AES facility).

Table 2.0-1 Largest SO_2Point Sources

Facility	Equipment	Island	Actual SO2 Emissions (TPY)			
			2011	2012	2013	2014
HECO Kahe Generating Station	Two 142 MW Boilers, 93 MW Boiler, Two 92 MW Boilers and 90 MW Boiler, and Two Black Start DEGs	Oahu	6,554	6,654	6,268	5,555
Kalaeloa Cogeneration Plant	Two 86 MW CTs	Oahu	3,090	2,777	2,626	2,917
HECO Waiau Generating Station	Two 92 MW Boilers, 58 MW Boiler, 57 MW Boiler, Two 49 MW Boilers, 52 MW CT, and 50 MW CT	Oahu	2,282	2,571	2,659	2,784

Table 2.0-1 Largest SO_2Point Sources						
Facility	Equipment	Island	Actual SO2 Emissions (TPY)			
			2011	2012	2013	2014
AES Hawaii, Inc. Cogeneration Plant	203 MW Coal-Fired Cogeneration Plant with Two 2,150 MMBtu/hr Boilers	Oahu	1,463[a]	2,250[b]	2,132[b]	2,238[b]
HELCO Kanoelehua Hill Generating Station	11.6 MW CT, 14.1 MW Boiler, 23 MW Boiler, 2.0 MW DEG, and Three 2.75 MW DEGs	Hawaii	2,252	1,798	1,795	1,852
MECO Kahului Generating Station	12.5 MW Boiler, 11.5 MW Boiler, and Two 5.0 MW Boilers	Maui	2,230	1,912	1,400	1,634
HELCO Puna Generating Station	20 MW CT, 600 kW DEG, and 15.5 MW Boiler	Hawaii	890.3	822.1	876.3	524.3
Hawaii Independent Energy[c]	Petroleum Refinery	Oahu	861.2	232.7	141.3	277.8
MECO Maalaea Generating Station	Two 20 MW CTs, Five 2.5 MW DEGs, Four 5.6 MW DEGs, Four 12.5 MW DEGs, and 600 kW Black Start DEG	Maui	688.0	508.7	465.2	549.5
Chevron Products Company[d]	Petroleum Refinery	Oahu	634.9	807.7	648.1	469.2
HC&S Puuene Sugar Mill	Two 212 MMBtu/hr Boilers, 586 MMBtu/hr Boiler, and 20,000 lb/hr Rotary Sugar Dryer	Maui	301.6	241.4	216.9	218.5
HECO Honolulu Generating Station	57 MW and 56 MW Boilers	Oahu	256.8	159.9	181.4	6.6

a: Based on emission inventory data reported in SLEIS.
b: Based on CEMS data initially submitted for this evaluation instead of that reported through SLEIS. As indicated by AES, emissions reported through SLIES are in error and will be updated to reflect emissions from CEMS data initially reported for this modeling assessment. Revised numbers for SLEIS, based on CEMS data, will be sent to EPA's EIS through SLEIS.
c. Company changed from Hawaii Independent Energy to Par Hawaii Refining.
d. Island Energy Services, LLC has signed an agreement to Chevron U.S.A. Incorporated ("Chevron") certain assets in Hawaii that includes the Chevron Refinery in Kapolei.

2.1 Source Applicability

To determine applicability to the 1-hour SO_2 Data Requirements Rule, actual emissions from facilities in Table 2.0-1 were compared against criteria in 40 CFR § 51.1202 (Ref. 1). As indicated in Reference 1, "applicable source" means a stationary source that is (1) not located in a designated nonattainment area, and (2) has actual annual SO_2 emissions data of 2,000 tons or more, or has been identified by the DOH-CAB or by the EPA Regional Administrator as requiring further air quality characterization. For the

applicability determination, source emissions were compared to the 2,000 TPY threshold to determine areas where air quality monitoring needs to be characterized.

2.2 Affected Sources and Existing SO_2 Monitors

Table 2.2-1 below identifies sources that are subject to the 1-hour SO_2 Data Requirements Rule with actual emissions greater than 2,000 TPY during the most recent year for which emissions data is available in accordance with Reference 3. Figure 2.2-1 shows the locations of large sources (red dots) subject to the 1-hour SO_2 Data Requirements Rule.

Table 2.2-1 Hawaii Sources Subject to 1-Hour SO_2 Data Requirements Rule

Facility	Island	Actual SO_2 Emissions (TPY)		
		2012	2013	2014[a]
HECO Kahe Generating Station	Oahu	6,654	6,268	5,555
HECO Waiau Generating Station	Oahu	2,571	2,659	2,784
Kalaeloa Cogeneration Plant	Oahu	2,777	2,416	2,917
AES Hawaii, Inc.	Oahu	2,250	2,132	2,238

a: Most recent year for which data is available.

Existing DOH and HECO air monitoring stations located in the vicinity of the affected sources which measure and record SO_2 are identified with black dots in Figure 2.2-1. There is one DOH station in Kapolei which monitors criteria pollutant emissions in the ambient air that includes SO_2. The Kapolei air station also participates in the NCore multi-pollutant monitoring network. In addition, there are three HECO air stations along the Waianae coast that monitor SO_2 and other pollutants as part of a commitment to the west Oahu communities for the construction and operation of CIP Generating Station (Ref. 4). Table 2.2-2 provides information on existing monitoring stations that measure and record SO_2 in the vicinity of the affected sources.

Table 2.2-2 Hawaii SO_2 Air Quality Monitoring Stations

Monitoring Stations Around Affected SO_2 Emitters	Pollutants Monitored	Location
DOH Kapolei	SO_2, PM_{10}, $PM_{2.5}$, CO, NO_2 $PM_{10\text{-}2.5}$, NO_y, CO, O_3, Pb, $PM_{2.5\ speciation}$	2052 Lauwiliwili St
HECO Lualualei	SO_2, CO, NO_2, O_3, $PM_{2.5}$	Lualualei, Oahu
HECO Timberline	SO_2, CO, NO_2, O_3, $PM_{2.5}$	Timberline, Oahu
HECO Waianae	SO_2, CO, NO_2, O_3, $PM_{2.5}$	Waianae, Oahu

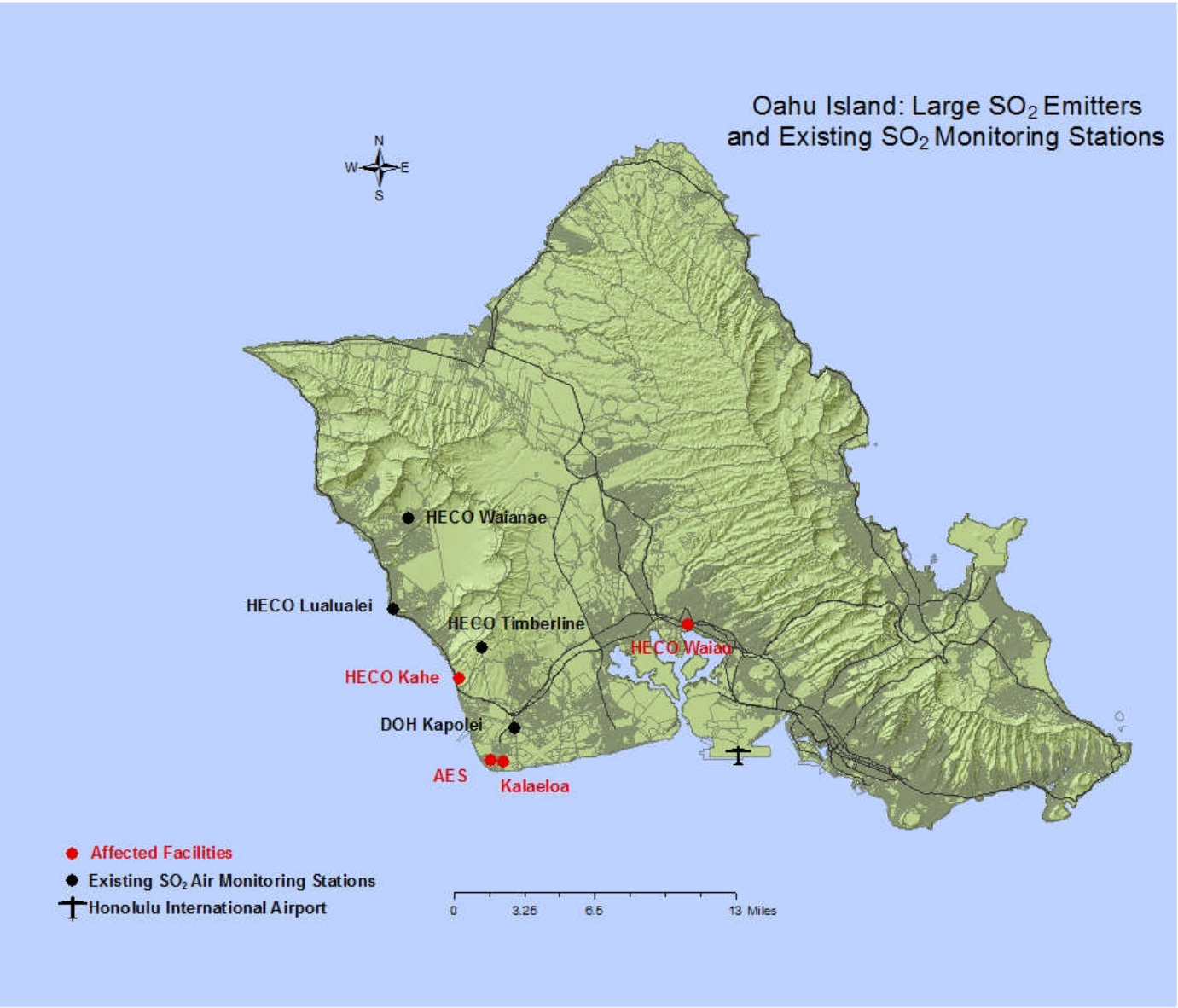

Figure 2.2-1 Large SO_2 Sources and Existing SO_2 Monitoring Stations.

3.0 Modeling for Monitor Placement

Pursuant to EPA's Draft, "SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document" (Ref. 5), AERMOD was used for modeling the normalized hourly emission rates to determine the NDVs. The NDVs were ranked according to magnitude and frequency of having the daily maximum normalized concentration then scored to determine potential monitoring sites for characterizing SO_2 air quality. As indicated in Reference 4, the modeling to determine NDVs does not indicate exceedance or compliance with the NAAQS, but provides a means to understanding the relative magnitude of SO_2 concentrations in the area.

Through collaboration and discussions with DOH-CAB, HECO conducted single source modeling assessments for the Kahe and Waiau Generating Stations to determine potential monitoring sites for its large SO_2 emitters. HECO's modeling assessments for monitor placement are provided in Attachments 1 and 2.

Due to the location of Kahe Generating Station being situated in complex terrain, HECO modeled the facility as a single source. Since the Kahe facility is adjacent to the southern portion of the Waianae Range and its emissions are released from tall stacks, the maximum impacts from its emissions would occur in complex terrain (Ref. 6). Also, if a source is in complex terrain, such as in the midst of mountains and valleys, topographical influence becomes a much larger factor in pollutant transport and dispersion (Ref. 7). Site specific wind rose data used for modeling Kahe Generating Station shows predominate northeast trade winds a majority of the time in the area (see Figure 3.0-1) based on wind data from April 1993 to March 1994.

HECO modeled the Waiau Generating Station located in Pearl City as a single source using meteorological data from the Honolulu International Airport. Figures 3.0-2 and 3.0-3 show similar wind roses with dominate northeast trade winds for the Honolulu International Airport and Pearl City areas based on wind data from 2012-2014.

The DOH-CAB modeled the AES and Kalaeloa cogeneration plants in one multi-source domain to determine the NDVs. Both of these sources are located in CIP on the south west point of Oahu. Wind data between 2012 and 2014 from the Honolulu International Airport was used for the modeling assessment. Respective wind data between 2012 and 2014 in Figures 3.0-2 and 3.0-4 from Honolulu International Airport and CIP show predominate northeast trade winds for both areas.

The EPA's TAD for source oriented monitoring (Ref. 6) indicates modeling for monitoring site selection can generally follow recommendations from EPA's SO_2 designation modeling TAD (Ref.7). The maximum distances between AES and Kalaeloa facilities in DOH-CAB's multi-source modeling domain was 0.98 km (0.61 mile). The example in Appendix A of Reference 6 on Page A-3 considers multi-source modeling appropriate for sources separated by as much as 24 km (14.9 miles).

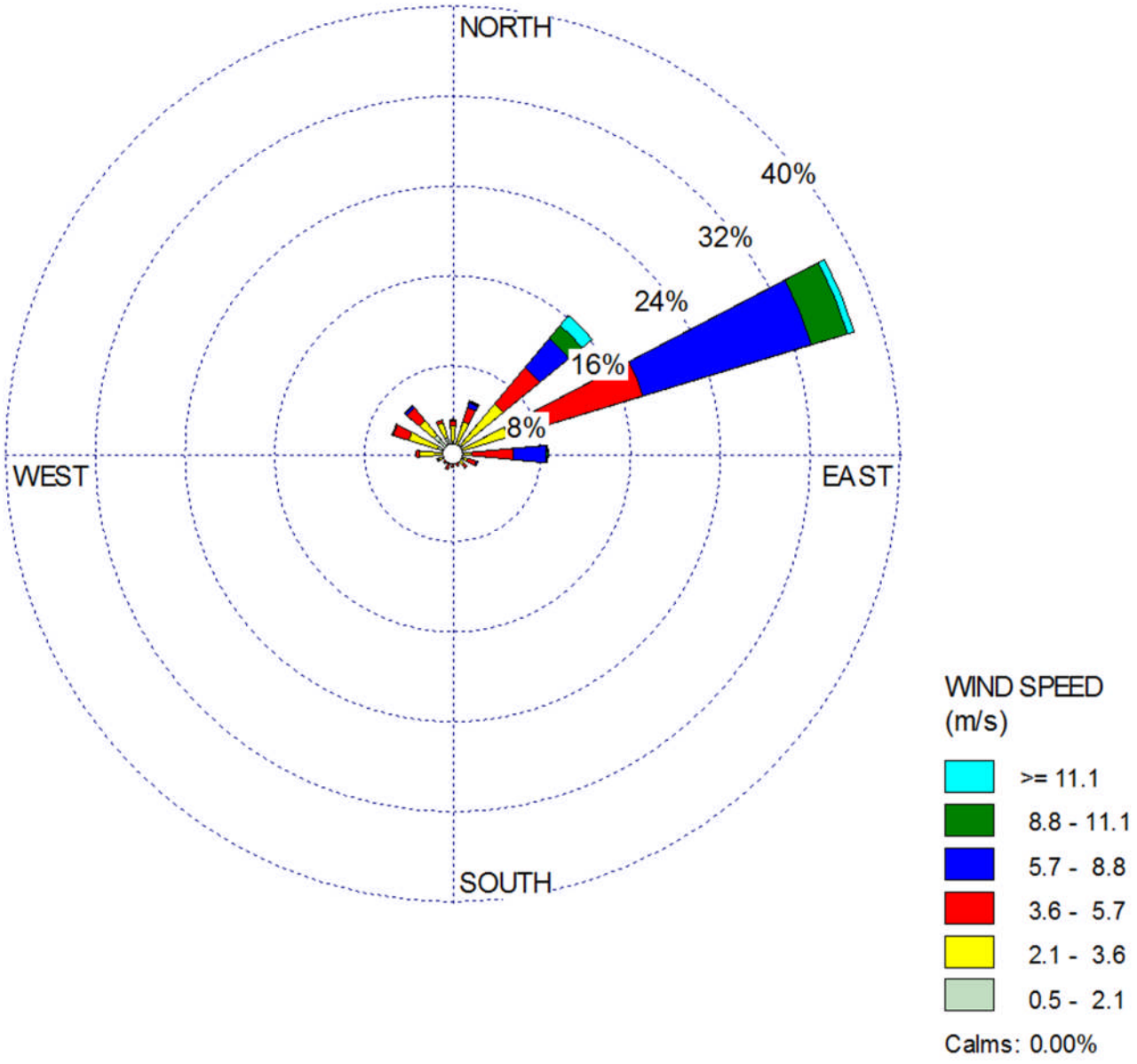

Figure 3.0-1 Kahe Site-Specific Wind Rose (Page 13, Attachment 1)
(100-M Level Winds • April 1, 1993 – March 31, 1994)

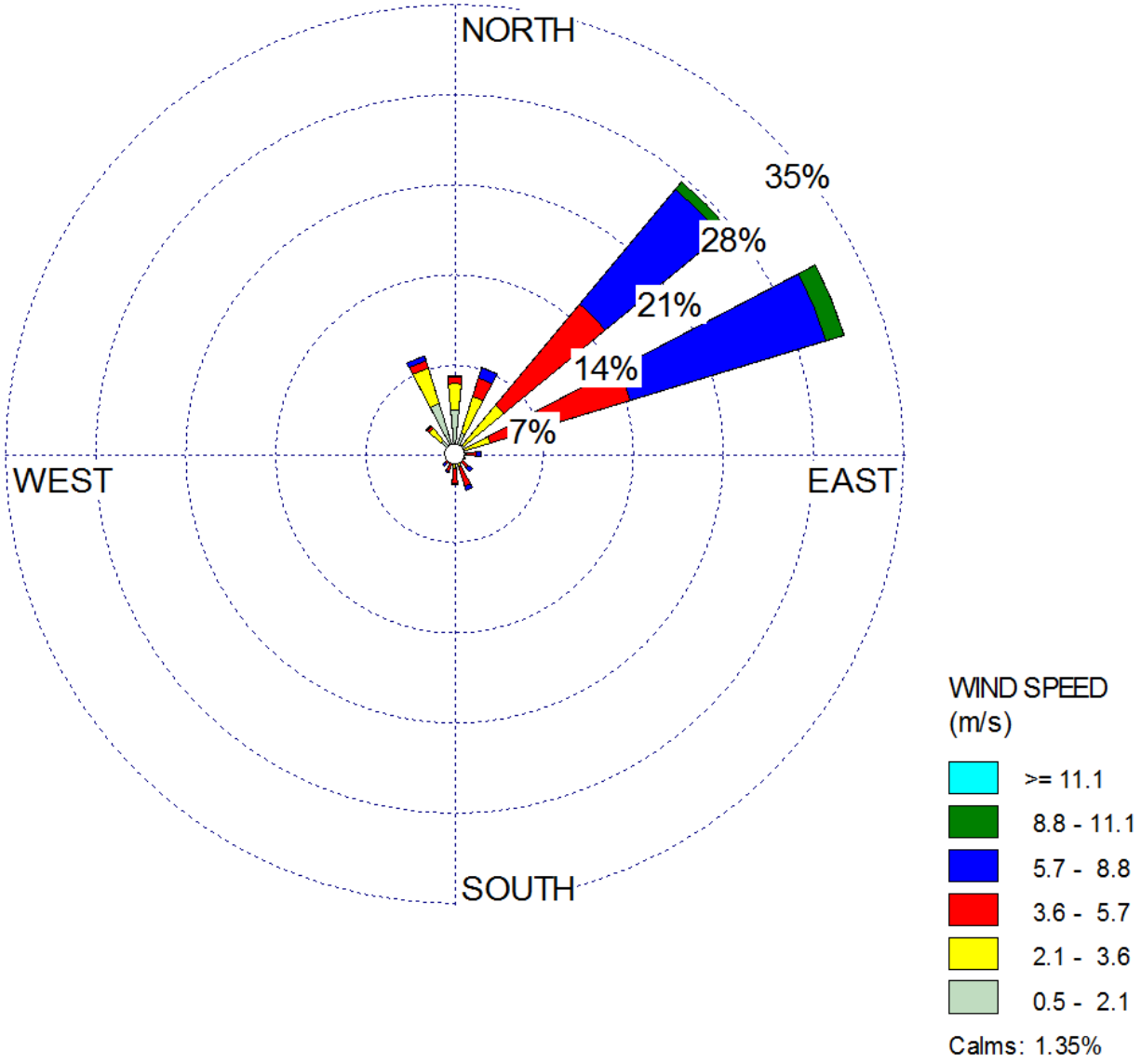

Figure 3.0-2 Honolulu International Airport Wind Rose (Page 13, Attachment 2)
(10-M Level Winds • January 1, 2012 – December 31, 2014)

All Hours & All Months

Data Info: Windrose

Number of Datasets = 21342

... first & last dataset (below); Direction = DRCT °

ID = AN774	SKNT m/s	DRCT °	QFLG	ID = AN774
{2012, 1, 1, 1, 0, 0.}	0.5	345.	OK	1-1-2012 1:00 HST

ID = AN774	SKNT m/s	DRCT °	QFLG	ID = AN774
{2014, 12, 31, 23, 0, 0.}	1.5	3.		12-31-2014 23:00 HST

... complete dataset (below)

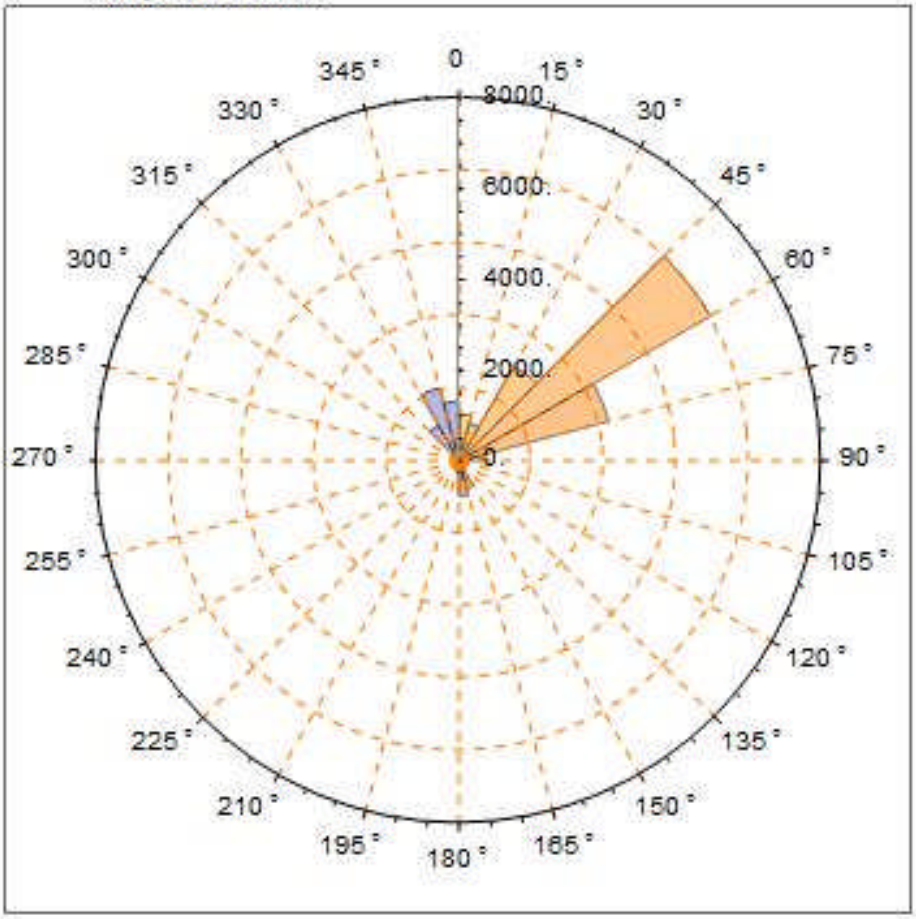

Figure 3.0-3 Pearl City Wind Rose (Meso West data 2012-2014)

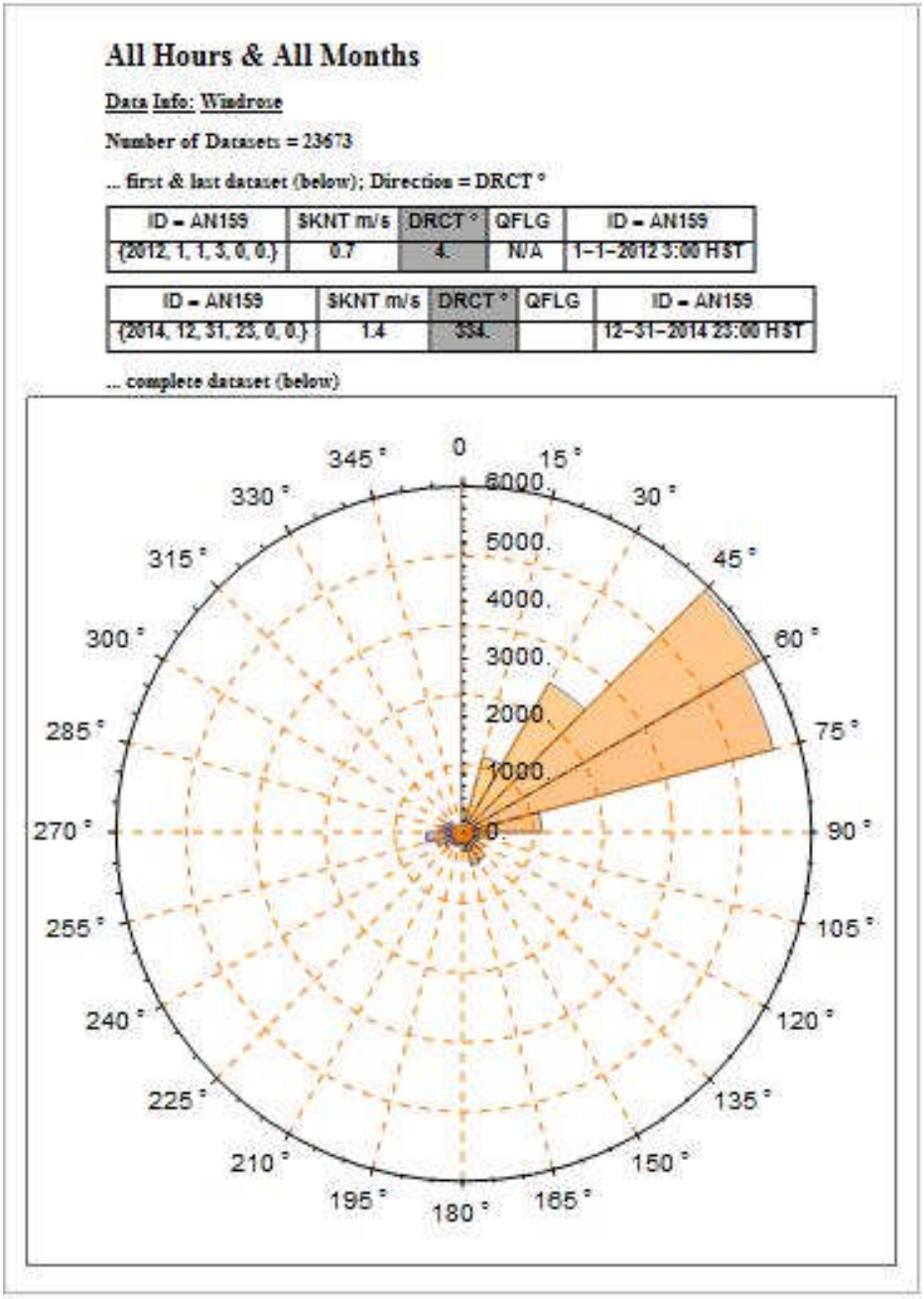

Figure 3.0-4 Kapolei (CIP) Wind Rose (Meso West data 2012-2014)

3.1 Model Setup

Modeling assessments used normalized emission rates for years 2012, 2013, and 2014. The normalized emissions were determined by dividing the actual pound per hour emission rate for each unit by the maximum hourly emission rate from the total combined unit emissions among all units modeled. The normalized emissions were modeled in AERMOD using concurrent meteorological data, actual stack flow rate and temperatures with CEMS data for the IPPs, and actual stack flow rate and temperatures associated with fuel flow rate data for the HECO facilities. Tables 3.1-1, 3.1-2, and 3.1-3, provide information on the how the modeling was setup.

Table 3.1-1 HECO's Modeling Scenario (Kahe Facility)

Facility	Equipment	Model Setup
HECO Kahe Generating Station	Six Boilers (90-142 MW) Two Black Start DEGs (see note a for DEGs)	• Actual SO_2 emission rates determined by mass balance from hourly fuel use and fuel sulfur content (see note b) • Actual stack exhaust flow rate and temperature (see notes c and d) • Actual stack height • Use of fine modeling grid with 250-m spaced receptors that extends from around the facility into complex terrain up to 4.3 km wide from north to south and up to 7.2 km long from east to west (see note e) • Use of coarse modeling grid extending around facility into Waianae and CIP with 500 meter spaced receptors up to 15.8 km from east to west and up to 16.5 km long from north to south (see note e) • One (1) year of site specific surface meteorological data collected between 1993 and 1994 as well as upper air data from Lihue Airport was processed using AERMET to create AERMOD ready meteorological input files. The processed surface and profile files were repeated and dated 2012, 2013, and 2014 to obtain the desired modeling time period • Rural dispersion coefficient based on urban land use types that are less are less than 50% of the area within 3-km radius of source

a: As indicated by HECO, black start DEGs were not included in the modeling assessment due to their limited operation (less than 150 hours/year total).

b: SO_2 emission rate in lb/hr was based on mass balance with fuel weight (lb/hr), molecular weight of SO_2 (64 lb/lb mole, molecular weight of S (32 lb/lb/mole), and % sulfur content = (%S/100)(64 SO_2/32 S)(lb fuel/hr).

c: Actual stack temperatures based on measured air heater temperatures.

d: Actual stack flow rate was estimated with Method 19 F-Factor and flow rate equation in Section 2.2 of Attachment 1.

e: Receptors were not located in areas prohibitive to establishing fixed monitoring sites including open water, within fence-line of facility, and on Waimanalo Gulch Sanitary Landfill property.

Table 3.1-2 HECO's Modeling Scenario (Waiau Facility)		
Facility	Equipment	Model Setup
HECO Waiau Generating Station	Six Boilers (59-92 MW) Two CTs (50 & 52 MW)	• Actual SO_2 emission rates determined by mass balance from hourly fuel use and fuel sulfur content (see note a) • Actual stack exhaust flow rate and temperature (see notes b and c) • Actual stack height • Fine modeling grid with 100-m spaced receptors from the center of the Waiau site to 2.5 km (see note d) • Coarse grid with 250-m spaced receptors that extend 2.5 km to 6 km from the Waiau plant and 500-m spaced receptors that extend 6 km to 7.5 km from the Waiau plant (see note d) • Three (3) years of NWS surface meteorological data from Honolulu International Airport collected between 2012 and 2014 as well as upper air data from Lihue International Airport was processed using AERMET and AERMINUTE to create AERMOD ready meteorological input files • Urban dispersion coefficient based on population density (see note e)

a: SO_2 emission rate in lb/hr was based on mass balance with fuel weight (lb/hr), molecular weight of SO_2 (64 lb/lb mole, molecular weight of S (32 lb/lb/mole), and % sulfur content = (%S/100)(64 SO_2/32 S)(lb fuel/hr).

b: Actual stack temperatures based on measured air heater temperatures.

c: Actual stack flow rate was estimated with Method 19 F-Factor and flow rate equation in Section 2.2 of Attachment 2.

d: Receptors were not located in areas prohibitive to establishing fixed monitoring sites including open water, within fence-line of facility, wetlands, developed areas, wooded areas, roads, and jogging area (see Figures 2.5-1 and 2.5-2 of Attachment 2 for excluded receptors).

e: Classification of a site as urban or rural are based on the Land Use Procedure or Population Density Procedure. A review of land use around the facility found that urban land use types are less than 50% of the area within a 3-km radius of the source. However, the population density was found to be greater than 750 people /km^2 within a 3-km radius of the source. Therefore, HECO classified the area as urban.

Table 3.1-3 DOH-CAB's Modeling Scenario (AES and Kalaeloa Facilities)		
Facility	Equipment	Model Setup
AES Hawaii, Inc.	Two 2,150 MMBtu/hr Boilers	• CEMS data for each unit at the two facilities with direct hourly SO_2 emission rates for the AES facility and actual exhaust temperatures and flow rates. For the Kalaeloa facility, CEMS data was used with continuous monitoring system data for the steam to fuel consumption ratio for each CT (see notes a and b) • Actual stack heights for each unit from each facility • Same modeling grids for both sources • Receptor grid consisting of 250 meter spacing extending approximately 8 km to the east of the center of the two (2) facilities, 1 km to the coast on the south, 4 km to the west (receptors in the water were removed), and approximately 11 km to the north • Three (3) years of NWS surface meteorological data from the Honolulu International Airport collected between 2010 and 2012 as well as upper air data from Lihue Airport was processed using AERMET and AERMINUTE to create AERMOD ready meteorological input files • Rural dispersion coefficient based on assumption that urban land use types are less than 50% of the area within 3-km radius of each source
Kalaeloa Cogeneration Plant	Two 86 MW CTs	

a: For the Kalaeloa plant, CEMS data recovery in 2012 was 97.9% for CT-1 and 98.5% for CT-2. CEMS data recovery in 2013 was 99.2% for CT-1 and 99.1% for CT-2. In 2014 CEMS data recovery was 99.6% for CT-1 and 99.5% for CT-2.

b: For the AES facility, Boiler A CEMS data availability was 99.3%, 99.0%, and 99.1% for years 2012, 2013, and 2014, respectively. CEMS data availability was 99.4%, 98.97%, and 99.4% for years 2012, 2013, and 2014, respectively.

3.2 Model Results

The normalized hourly SO_2 emissions were modeled to calculate the NDVs for each receptor that were ranked and scored to evaluate potential SO_2 monitoring sites. The NDVs for the modeling assessments are the 3-year average of each year's 4th daily highest 1-hour maximum concentrations, which is equivalent to the 99th percentile of daily 1-hour maximum concentrations.

Information on NDVs and cumulative number of days with daily maximum 1-hr NDV are provided in Attachments 1 and 2 for HECO's assessments of the Kahe and Waiau facilities, respectively. Figures 3.1-1 and 3.1-2 in Attachment 1 show NDVs from modeling normalized emission rates from units at the Kahe facility. Figure 3.1-3 in Attachment 1 shows the cumulative number of days with maximum 1-hr NDV. Figures 3.1-1 and 3.1-2 in Attachment 2 show NDVs from modeling normalized emission rates from units at the Waiau facility. Figure 3.1-4 in Attachment 2 shows the cumulative number of days with the daily maximum 1-hour NDV. Appendix B of Attachments 1 and 2 provide detailed scoring calculations for HECO's modeling assessments of the Kahe and Waiau facilities, respectively.

Information on the NDVs and cumulative number of days with maximum 1-hour NDV are provided in this report for the AES/Kalaeloa modeling assessment conducted by DOH-CAB. The plot in Figure 3.3.3-1 shows the top 200 ranked NDVs from multi-source modeling. The plot in Figure 3.3.3-2 shows the top 133 ranked receptors with the number of days the receptor had the daily maximum NDV. Appendix A of this report provides the score ranking for receptors based on the AES/Kalaeloa modeling run.

In accordance with Reference 4, the final step in selecting a monitoring site, is to score the receptor locations using the NDVs and frequency of having the 1-hour daily maximum concentration amongst all receptors. Appendix A of Reference 4 states on Page A-7 that this scoring strategy can be conducted as follows:

1. Calculate the NDV at each receptor and rank from highest to lowest receptor. Rank of 1 means the highest design value.

2. Using the MAXDAILY output option in AERMOD, determine each day's highest normalized concentration and receptor. The MAXDAILY option in AERMOD outputs each receptor's highest concentration for each modeled day.

3. Using the output from Step 2, determine the number of days each receptor is the highest concentration for the day among all receptors.

4. Rank the results in Step 3 from highest to lowest number of days. Rank of 1 means the highest number of days having the daily maximum value.

5. For each receptor, add the concentration rank and the day rank. The lowest possible score is 2, meaning the receptor was the highest overall normalized design value and also had the highest number of days where the receptor was the highest concentration for the day.

3.3 Monitoring Site Selection

Locations were selected for permanent site-oriented SO_2 monitoring based on the scoring strategy in Section 3.2 that ranks NDVs and frequency of maximum daily concentrations among all the receptors. The scoring strategy was applied to the single source and multi-source modeling scenarios described in Section 3.2 to address locations for permanent source oriented SO_2 monitoring stations.

3.3.1 HECO's Single Source Modeling Scenarios

Kahe Generating Station

For selecting a monitoring station site to characterize SO_2 air quality in the vicinity of Kahe Generating Station, the scoring ranks among the receptors were examined. Figure 3.3.1-1 shows the top 10 score ranked receptors from HECO's assessment for characterizing SO_2 air quality around the Kahe Generating Station. Based on the location of the score ranked receptors, HECO determined the following for selecting a monitoring site:

- Area 1 – This area contains the receptors with the 2nd (tie) and 5 (tie) score ranks that are shown in Figure 3.3.1-1 and 3.3.1-2 shaded in yellow. These receptors are located in an area owned by the James Campbell Company that is adjacent to a former Nike missile launch site (OA-63-LS). HECO conducted ambient air quality monitoring close to this area in the early 1980's. Existing electrical power lines run through this area. Therefore, electrical power is expected to be available. Access to the site would require some improvements to the existing road. The last 0.5 km (0.3 mile) of the road is unpaved and will require some re-grading to ensure safe vehicular access with an SUV. Based on the evaluation of the modeling results, accessibility, safety and logistics, this area is the preferred area in which to locate the ambient air quality monitor.

- Area 2 – This area contains receptors with the 1st, 2nd (tie), and 4th score ranks that are shown in Figure 3.3.1-1 and 3.3.1-2 shaded in yellow. These receptors are located on private ranchland. Accessing this area requires traversing approximately 1.5 km (0.9 mile) of private ranchland that currently does not have suitable vehicular access to the area. Extensive road work would be required to provide safe vehicular access to the area. The closest possible electrical power source is at least 0.5 km (0.3 mile) away. Due to these accessibility, safety and logistics factors, Area 2 is not the preferred area in which to locate an ambient air quality monitor.

- Area 3 – This area contains the receptors with the 5th (tie) and 7th score ranks that are shown in Figure 3.3.1-1 and 3.3.1-3 shaded in yellow. Accessibility and power would be major challenges for this area because there are no access roads or power lines available in the area. Therefore, it is not preferred to locate an ambient air quality monitor within this area.

HECO concluded that Area 1 is the preferred location for an SO_2 air monitoring station based on the following factors:

1. Area 1 contains the receptor with the 2nd (tie) and 5th (tie) highest score ranks;
2. Area 1 will require the least amount of road work and expenditure to provide safe vehicular access to the site; and
3. Electrical power lines are available within the area, and thus, access to electrical power to this area will require the least amount of work and expenditure.

Figure 3.3.1-1 Monitoring Site Selection for Kahe Facility

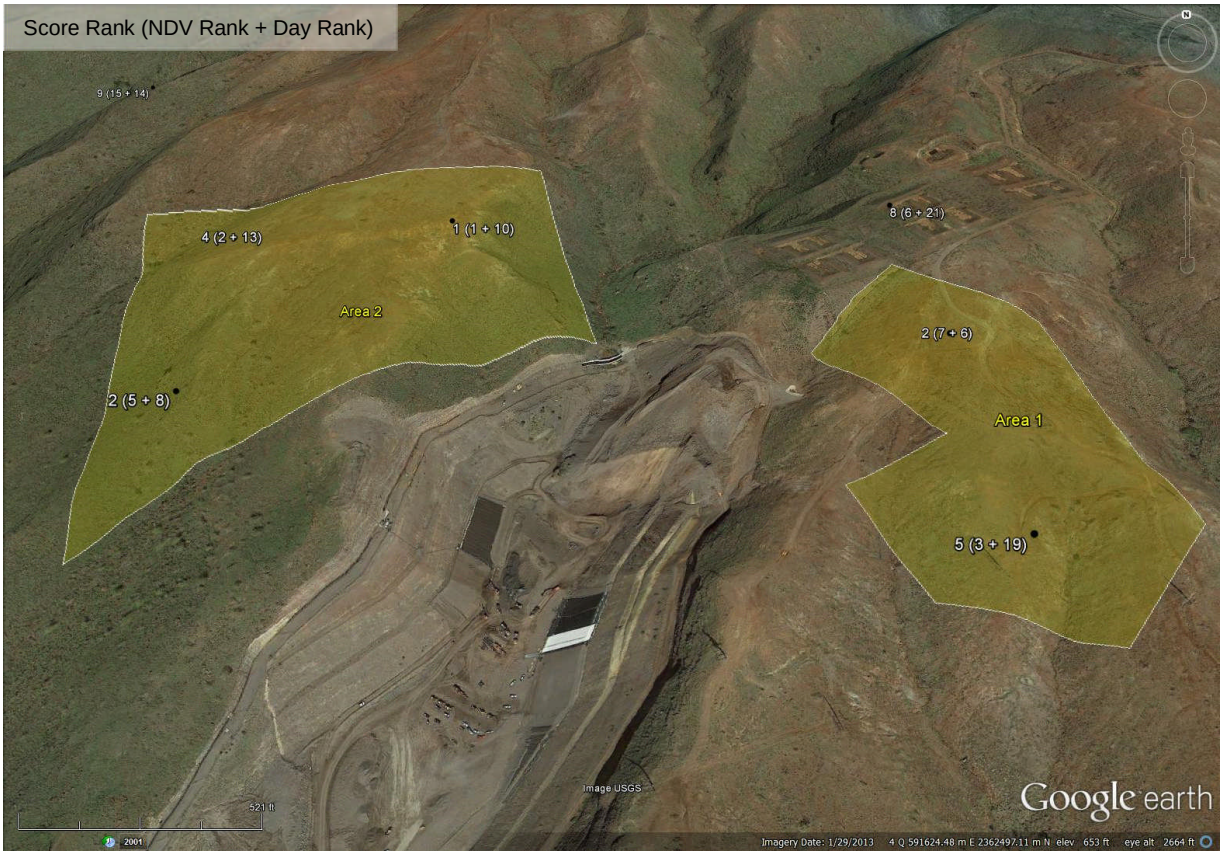

Figure 3.3.1-2 Area 1 and 2 Potential Monitoring Sites Based on Kahe Model Run

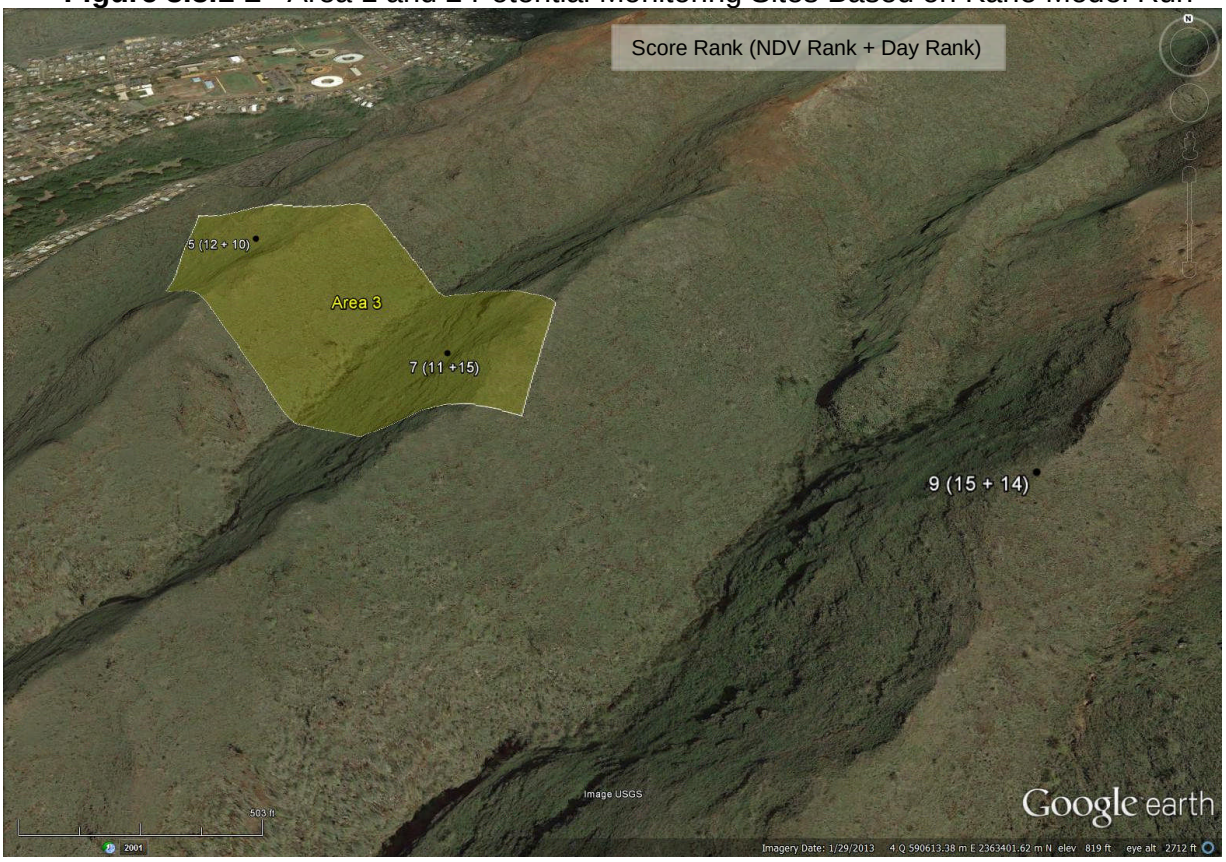

Figure 3.3.1-3 Area 3 Potential Monitoring Site Based on Kahe Model Run

Kahe Generating Station (Alternate Sites)

Logistical problems were encountered for installing an air quality monitoring station in the aforementioned preferred area for the Kahe Generating Station (Area 1 in Figures 3.3.1-1 and 3.3.1-2). A primary obstacle is that the property owner will not lease land to HECO for building a monitoring station in and around Area 1 (see Attachment 3). Significant road improvements would also be necessary for safely accessing the area due to erosion and runoff. As indicated by HECO, the site is on sloping terrain and is subject to significant erosion and storm drainage issues and recent summer storms has caused significant erosion. There was another problem with the feasibility of flying in electrical poles by helicopter because access to the site by truck is not feasible. The original site and three alternate sites considered, where HECO ultimately found it infeasible to build a monitoring station, are shown in Figure 3.3.1-4. The three alternate sites that were considered infeasible for building a monitoring station are Sites 1, 2, and 3. These sites are identified with red triangles. Figure 3.3.1-4 also provides a border outline of the landowner's property in green that cannot be leased to HECO.

Due to the above logistical problems, HECO evaluated other potential sites to monitor SO_2 for its Kahe Generating Station. Based on the score ranking of receptors and other site selection factors, HECO determined the following for a potential SO_2 monitoring site:

- Alternate Site 4 – This site, identified with a red triangle in Figure 3.3.1-4, is in the vicinity of the 23rd score ranked yellow receptor. This site is adjacent to Palehua Road.

- Alternate Site 5 – This site, identified with a red triangle in Figure 3.3.1-4, is in the vicinity of the 20th score ranked yellow receptor. This site is adjacent to Palehua Road.

HECO has determined that either Site 4 or Site 5 is feasible due to the following factors:

1. Property owner will likely lease land to HECO;
2. Road work will not be necessary to provide safe access to the sites (sites are located along Palehua Road which is paved);
3. Electrical poles may be trucked in on Palehua Road. The electrical tie-in is less difficult for Alternate Site 5; and
4. Minimal site preparation work is needed.

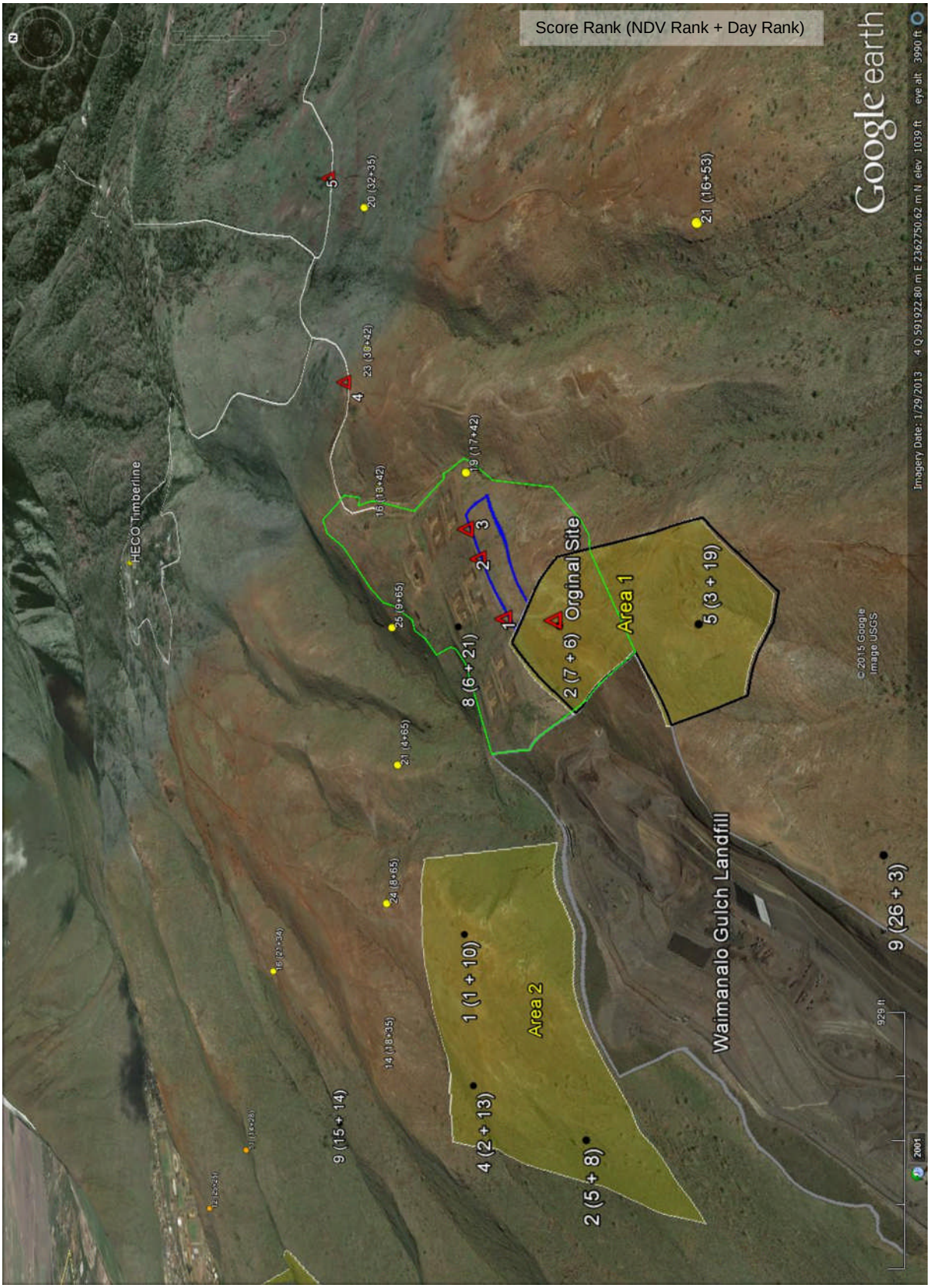

Figure 3.3.1-4 Alternate SO_2 Monitoring Sites for Kahe Generating Station

Waiau Generating Station

For selecting an SO_2 monitoring station site to determine air quality in the vicinity of Waiau Generating Station, scoring ranks among receptors were examined. Figure 3.3.1-5 shows the top 10 score ranked receptors from HECO's modeling assessment for monitor placement. Based on the location of the score ranked receptors, HECO determined the following for selecting an SO_2 monitoring site:

- Area 1 (Sears Warehouse) – This area is located north of the Waiau facility, is adjacent to residential areas, and contains the receptor with the 1st score rank as shown in Figure 3.3.1-5 and 3.3.1-6. This area appears to have the space needed to meet Appendix E to 40 CFR §58 siting criteria including the required offset from near building and trees. This is the preferred location for an ambient monitoring station.

- Area 2 (Exit Ramp) – This area is located along the Queen Liliuokalani Freeway (a.k.a. Interstate H-1) and Moanalua Road south interchange approximately 450 meters east-northeast of the facility. This area contains receptors with the 2nd and 4th score ranks as shown in Figure 3.3.1-5 and 3.3.1-7. This area has steep terrain and is bordered by roads on all sides. Therefore, this site is not a preferred area.

- Area 3 (Pearl Harbor Warehouse) – This area is located across the East Loch, is adjacent to a group of warehouses, and contains the receptor with the 3rd score rank as shown in Figure 3.3.1-5 and 3.3.1-8. This area is located on federal land. Even though the receptor in this area had the maximum number of 1-hour daily maxima, the NDV rank is relatively low.

Based on the score rank and logistics, HECO concluded that Area 1 is the preferred area in which to locate an ambient air quality monitor.

Figure 3.3.1-5 Monitoring Site Selection for Waiau Facility

Figure 3.3.1-6 Area 1 Potential Monitoring Site Based on Waiau Modeling Run

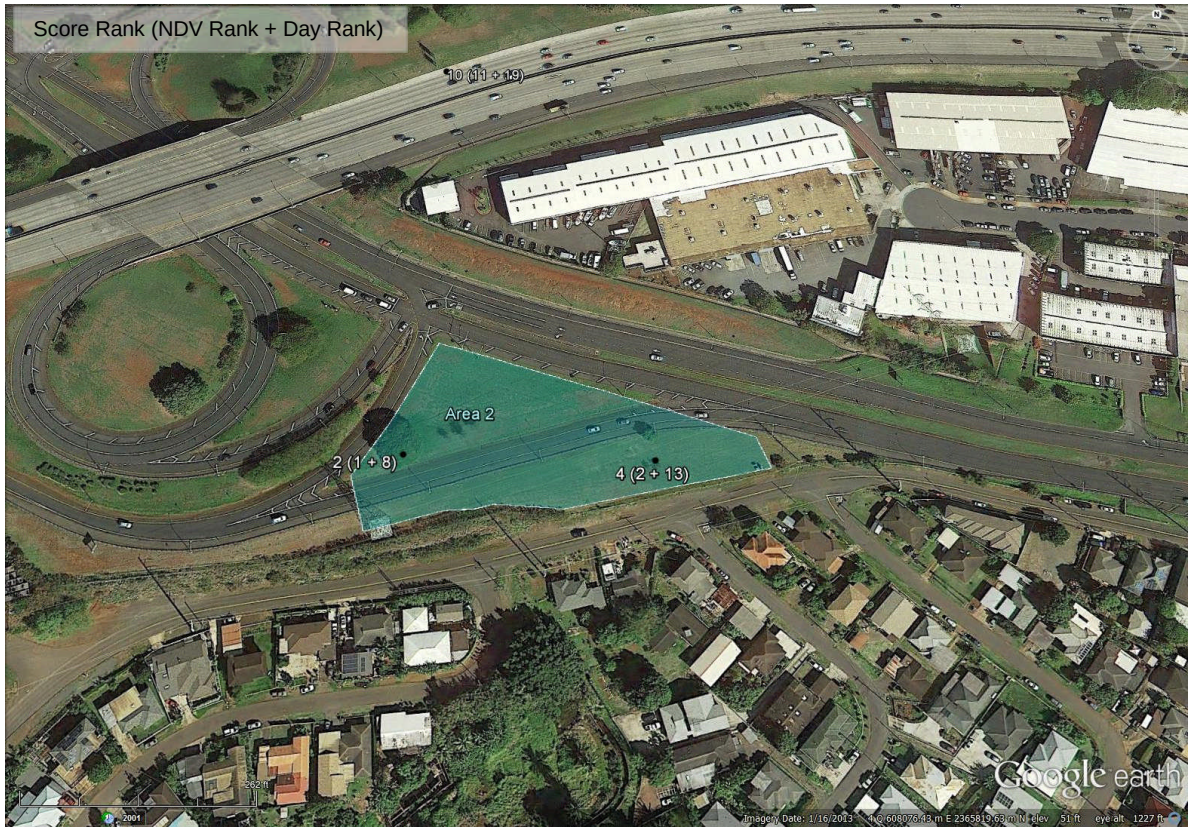

Figure 3.3.1-7 Area 2 Potential Monitoring Site Based on Waiau Modeling Run

Figure 3.3.1-8 Area 3 Potential Monitoring Site Based on Waiau Modeling Run

Waiau Generating Station (Alternate Sites)

Logistical problems were encountered for installing an air quality monitoring station in the aforementioned preferred area for the Waiau Generating Station (Area 1 in Figures 3.3.1-5 and 3.3.1-6). The primary obstacle is that the lessor of the land parcel for the Area 1 site rejected multiple offers from Hawaiian Electric to sub-lease land for the Waiau air quality monitoring site (see Attachment 4). Hawaiian Electric indicated that Sears/Innovel logistics leases the property from Mun LLC (the owner) which is requiring a sublease between Sears/Innovel and Hawaiian Electric. Sears/Innovel, however, rejected Hawaiian Electric's first offer (market-based with annual payments, second offer (five times market and front-end loaded), and a request for a counter offer (name your price).

Due to the above logistical problems, HECO evaluated other potential sites to monitor SO_2 for its Waiau Generating Station. Based on the score ranking of receptors and other site selection factors, HECO determined the following for a potential SO_2 monitoring site:

- Alternate Site 1A – This site, identified with orange shaded rectangle in Figures 3.3.1-9 through 3.3.1-11, is in the vicinity of the 6th score ranked receptor. Hawaiian Electric currently leases Weinberg property where Site 1A is located and is exercising an option to extend the existing lease for five (5) years, with an option to extend the lease another five (5) years.

- Alternate Site 1B – This site, is identified with an orange shaded rectangle in Figures 3.3.1-9 through 3.3.1-11, and is in the vicinity of the 6th score ranked receptor. Hawaiian Electric owns Alternate Site 1B property.

Table 3.3.1-1 below summarizes Hawaiian Electric's site evaluation.

Table 3.3.1-1 Summary of Hawaiian Electric's Alternate Site Evaluation

Site	Safety/Site Access	Lease Agreement	Electrical Service	Site Work
Alternate Site 1A	Fencing around property perimeter. No additional fencing around station is needed. Future gate card access to be installed.	No challenge anticipated. Property owner allows the operation of an air monitoring station. Hawaiian Electric is currently leasing property.	Electric pole near site.	Minimal grading work.
Alternate Site 1B	Security fencing needs to be installed. Site access from Weinberg property. Evaluating long term site access.	Hawaiian Electric owns the property.	Electric pole near site.	Minimal grading work.

Hawaiian Electric has determined that Site 1A is feasible due to the following factors:

1. Property lease is not an issue;
2. Property has an existing perimeter fence and surveillance cameras, with good security;
3. Easier to provide electrical service for this site; and
4. Minimal site preparation work is needed.

Hawaiian Electric has determined that Site 1B is also feasible due to the following factors:

1. Hawaiian Electric owns the property
2. Minimal site preparation work is needed; and
3. Electrical service can be provided to the monitoring station.

Figure 3.3.1-9 Alternate Sites 1A & 1B in Relation to Area 1

Figure 3.3.1-10 Alternate Sites 1A & 1B in Relation to Waiau Plant, Area 1, & Area 2

Figure 3.3.1-11 Alternate Sites 1A & 1B

3.3.2 DOH-CAB Modeling Checks

The DOH-CAB verified the outputs from the modeling runs submitted by HECO for monitoring site selection by using all input data and AERMOD settings submitted by HECO and conducting an independent modeling analysis for Kahe and Waiau. The terrain file submitted by HECO for the Kahe and Waiau projects was a 10 meter NED file for the entire island of Oahu. Due to the length of time to process this NED file using AERMAP, the DOH-CAB downloaded and processed a 10 meter NED file for the modeling domain. This difference in the terrain file did not significantly change the output submitted by HECO for the Kahe and Waiau projects.

Results from the Waiau and Kahe modeling assessment by the DOH-CAB were then used to score rank each receptor according to EPA guidance. Mathematica software was used to score rank the NDVs for each receptor.

The score rank results compared very favorably between the DOH-CAB modeling and that performed by HECO for the Kahe Generating Station (see Appendix B). Eleven (11) of HECO's top score ranking locations occurred in the top twelve (12) of the DOH-CAB score ranking locations. Forty-eight (48) of HECO's top fifty (50) score ranking locations occurred in the top fifty (50) of DOH-CAB's score ranking locations. Table 3.3.2-1 below shows HECO's top one score ranking is the second highest DOH-CAB score ranking (see column highlighted in green).

Table 3.3.2-1 DOH-CAB Top Four Score Ranking Versus HECO Score Ranking for Kahe

Easting (m)	591200	591450	591200	590200
Northing (m)	2362500	2362750	2362750	2363750
Normalize Design Value	2.11614	2.40215	2.13408	1.99013
# Max (Frequency)	27	21	18	17
NDV Rank	3	1	2	5
Frequency Rank	7	11	12	13
Score (NDV rank + frequency Rank -dups)	10	12	14	18
DOH-CAB Score Rank (1toN: dups)	1	2	3	4
DOH-CAB Score Rank (1toN: no dups)	1	2	3	4
HECO Kahe Run Score Rank	2	1	4	5

The DOH-CAB score rank results compared very well to HECO's score rank results for the Waiau Generating Station (see Appendix C). Ten (10) of HECO's top ten (10) score ranking locations occurred in the top twelve (12) of the DOH-CAB score ranking locations. Forty-four (44) of HECO's top fifty (50) score ranking locations occurred in the top fifty (50) of DOH's score ranking locations. Table 3.3.2-2 below shows HECO's top one score ranking is the third best DOH-CAB score ranking (see column highlighted in green).

Table 3.3.2-2 DOH-CAB Top Four Score Ranking Versus HECO Score Ranking for Waiau				
Easting (m)	608,000	607,300	607,600	608,100
Northing (m)	2,365,800	2,366,000	2,366,100	2,365,800
Normalize Design Value	1.66628	1.4608	1.3953	1.5804
# Max (Frequency)	42	45	45	29
NDV Rank	1	3	4	2
Frequency Rank	8	7	7	11
Score (NDV rank + frequency Rank-dups)	9	10	11	13
DOH-CAB Score Rank (1 to N: dups)	1	2	3	4
DOH-CAB Score Rank (1 to N: no dups)	1	2	3	4
HECO Score Rank	2	4	1	5

3.3.3 DOH-CAB's Multi-source Modeling Scenario

AES and Kalaeloa Facilities

The DOH-CAB modeled the AES and Kalaeloa facilities in one multi-source domain to determine the NDVs for score ranking receptors. Modeling disclosed the following information:

1. The top 200 ranked NDVs are identified in Figure 3.3.3 -1. The plot shows high ranked NDVs with red dots in vicinity of where HECO proposes to install an SO_2 monitoring station for its Kahe facility. There are also high ranked receptors shown with red and orange dots in the vicinity of the AES and Kalaeloa facilities on the southwest point of the island. The normalized concentrations at these receptors range from 0.48 to 0.72 for ranks 1 to 10, 0.41 to 0.48 for ranks 11 to 25, 0.27 to 0.40 for ranks 26 to 100, and 0.20 to 0.27 for ranks 101 to 200.

2. The top 133 receptors ranked by the number of days with the daily maximum NDV are provided in Figure 3.3.3-2. The plot shows high ranked receptors with red dots in the vicinity of the AES and Kalaeloa facilities on the southwest point of the island. The number of days with maximum daily NDVs at these receptors vary from 361 to 52 days for ranks 1 to 5, 42 to 12 days for ranks 6 to 13, 10 to 4 days for ranks 14 to 25, and 3 to 1 days for ranks 26 to 94.

3. Figure 3.3.3-3 identifies the top 300 score ranked receptors showing high score ranked receptors (red dots) along the hillside of the Waianae Range in the vicinity where HECO proposes to install an SO_2 monitor for its Kahe facility. There are also high score ranked receptors with red dots adjacent to AES and Kalaeloa facilities on the southwest point of the island.

4. Figure 3.3.3-4 shows four potential areas (Areas A , B, C, and D that are shaded in blue) for locating an SO_2 monitor based on the top twenty (20) score ranked receptors from the AES/Kalaeloa modeling run.

5. A closer view of Areas A, B, and C are shown in Figure 3.3.3-5 in and around a residential area along the south side of the Waianae Range.

6. Figure 3.3.3-6 shows a closer view of Area D that is in the vicinity of Area 1 initially selected as the preferred site to locate an SO_2 monitor for the Kahe facility.

7. Figure 3.3.3-7 shows Area E located in the vicinity of the AES and Kalaeloa facilities on the southwest point of the island.

8. Figure 3.3.3-8 compares the magnitude of NDVs from the Kahe modeling run to those from the AES/Kalaeloa modeling run. For modeling, emission rates for AES and Kalaeloa units were divided by 236.05 g/s to normalize emissions. Emission rates for the Kahe facility were divided by 366.84 g/s to normalize emissions. Therefore, the NDVs from the AES/Kalaeloa run were multiplied by a factor of 236.05/366.84 for comparing values to those from the Kahe modeling run. Comparison shows that NDVs for the Kahe modeling run are significantly higher (from 4.6 to 5.9 times higher) than those for the AES/Kalaeloa run.

Based on information in (1) through (8) of Section 3.3.3, the DOH-CAB determined the following for selecting a monitoring site to characterize SO_2 emissions from the AES and Kalaeloa cogeneration plants:

Area A – This area, shown in Figure 3.3.3-5, is located on the hillside of a ravine with sloping terrain. Area A is not considered a viable location for constructing an SO_2 monitoring station.

Area B (Kahiwelo Housing Construction Site) – This area, shown in Figure 3.3.3-5, is located on a construction site for building single family condominium homes and is not considered a preferred location for locating an SO_2 monitoring station.

Area C (Residential Housing) – This area, shown in Figure 3.3.3-5, is in a residential housing area and is not preferred for an ambient air monitoring station. It is not feasible to secure approvals and a lease agreement with the landowner of an appropriate site within the time constraints established by the 1-hour SO_2 Data Requirements Rule.

Area D – This area, shown in Figure 3.3.3-6 is located on sloping terrain in the vicinity of where HECO found it infeasible to build a monitoring station for its Kahe Generating station. Due to the area's inaccessibility, the DOH-CAB does not consider this area as a preferred location.

Area E - This area, shown in Figure 3.3.3-7, is located on the southwest point of the island in the vicinity of the AES and Kalaeloa facilities and is about 600 feet from the ocean. The DOH-CAB does not believe Area E is a reasonable site to install an SO_2 air monitoring station based on the following:

1. The area is located downwind of the predominate northeast trade winds that would blow pollutants arriving at this site from CIP sources out to the ocean a majority of the time (see wind rose for Kapolei air monitoring station in Figure 3.0-4);

2. A new monitoring station (either Site 4 or 5 in Figure 3.3.1-4) will be installed for the Kahe facility on the south face of Waianae range in vicinity where high scoring ranked receptors were located for the AES/Kalaeloa modeling run; and
3. The top 25 ranked NDVs for the Kahe modeling run are 4.6 to 5.9 times higher than those for the AES/Kalaeloa modeling run (see bar chart if Figure 3.3.3-8).

Alternate Kahe Sites 4 or 5 (Figures 3.3.1-4, 3.3.3-4, and 3.3.3-6) - Based on the comparison of NDVs in Figure 3.3.3-8 and other site selection factors, alternate Sites 4 or 5 for the Kahe Generating Station would be a worst-case scenario and most feasible monitoring site to characterize SO_2 impacts from those among the AES, Kalaeloa, and Kahe facilities. Since the Kahe facility is situated immediately adjacent to complex terrain and has higher emission rates than the total combined emission rates for the AES and Kalaeloa facilities, highest impacts among the sites evaluated would be expected to occur at Kahe Sites 4 or 5. Note that total combined SO_2 emissions for the AES and Kalaeloa facilities range are 5,027 TPY, 4,758 TPY, and 5,155 TPY for 2012, 2013, and 2014, respectively. The SO_2 emissions from the Kahe facility are 6,654, 6,268, and 5,555 for 2012, 2013, and 2014, respectively. The g/s emission rates for normalizing the Kahe and AES/Kalaeloa facilities are 366.84 g/s and 236.05 g/s, respectively. Also, the distance of the AES and Kalaeloa facilities to location of high score ranked receptors on the Waianae Range is about 3.5 miles. The distance of the Kahe facility to location of high score ranked receptors on the Waianae Range is about 1.5 miles. As indicated in Reference (7), if a source is in complex terrain, such as in the midst of mountains and valleys, topographical influence becomes a much larger factor in pollutant transport and dispersion. For these reasons, the DOH-CAB considers the new SO_2 monitor at either Kahe Sites 4 or 5 as a worst-case scenario for where the highest impacts would occur among the facilities evaluated.

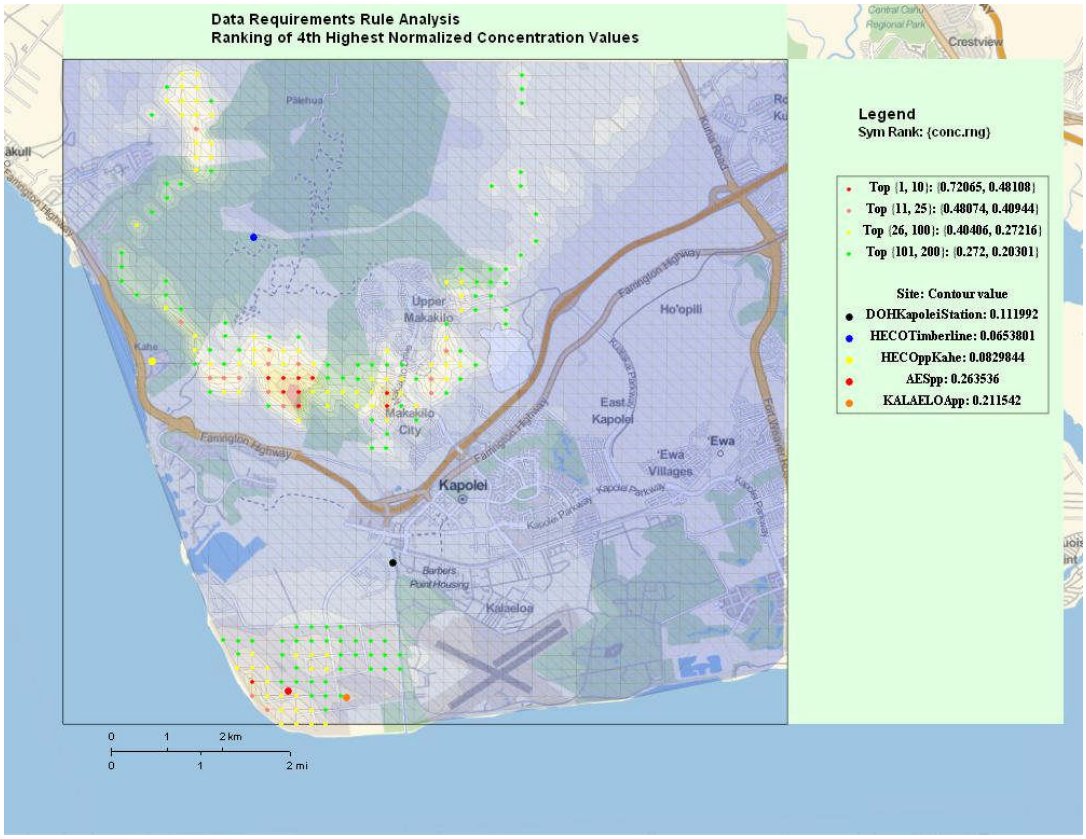

Figure 3.3.3-1 Top 200 Ranked NDVs from Multi-Source Modeling

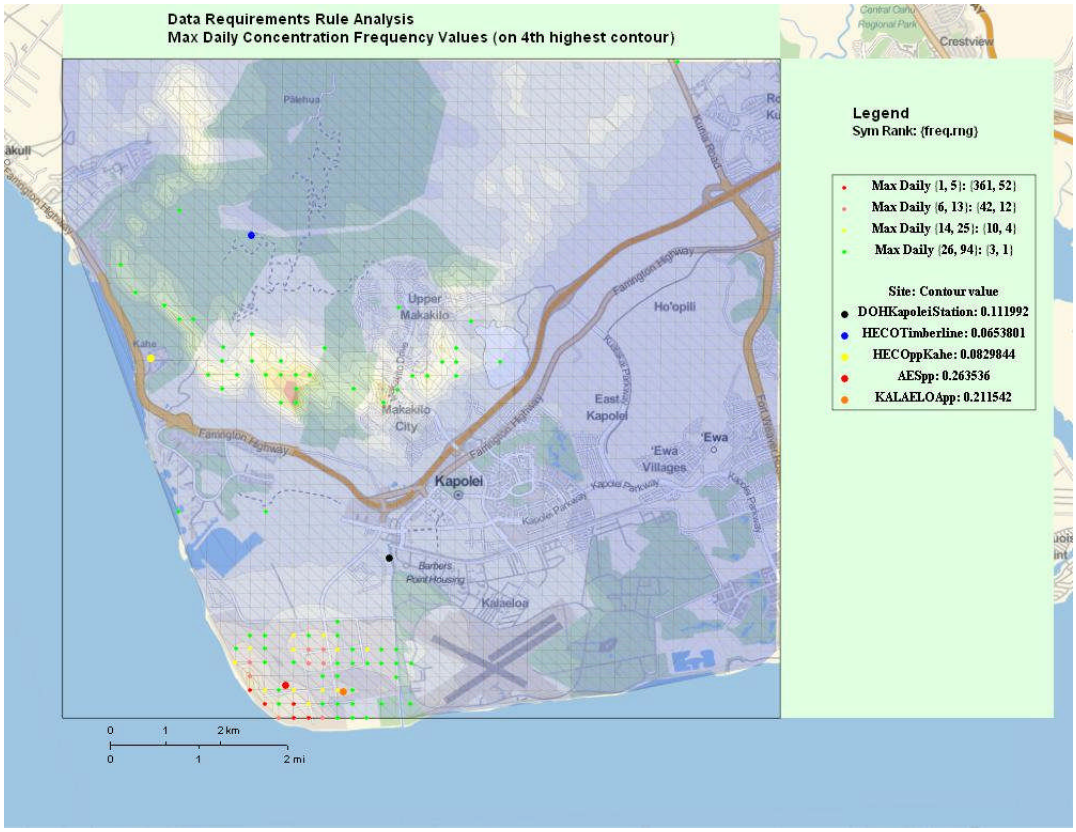

Figure 3.3.3-2 Top 133 Receptors Ranked Number of Days with Daily Maximum NDV

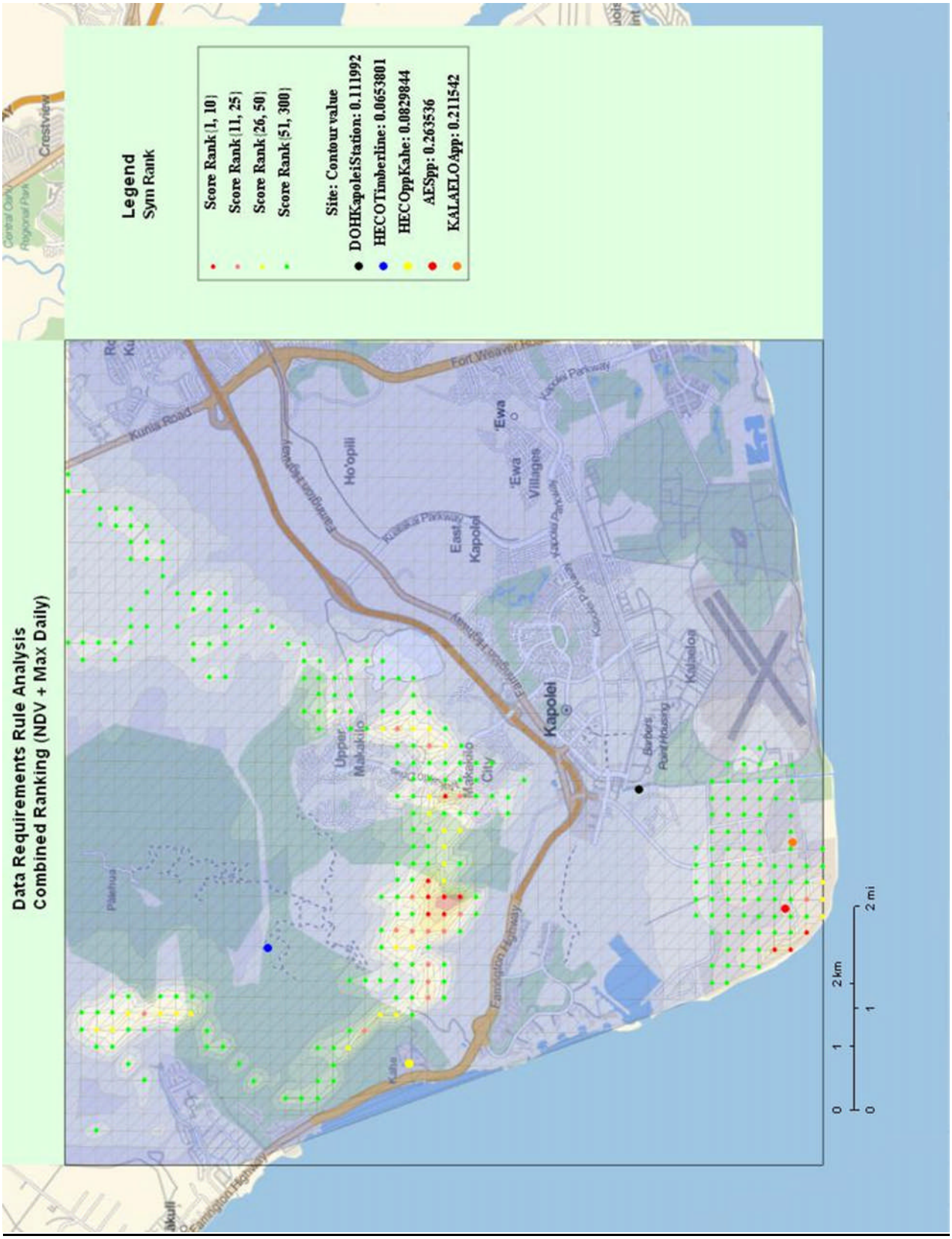

Figure 3.3.3-3 Top 300 Score Ranked Receptors from Multi-Source Modeling

Figure 3.3.3-4 Monitoring Site Selection for AES/Kalaeloa Facilities

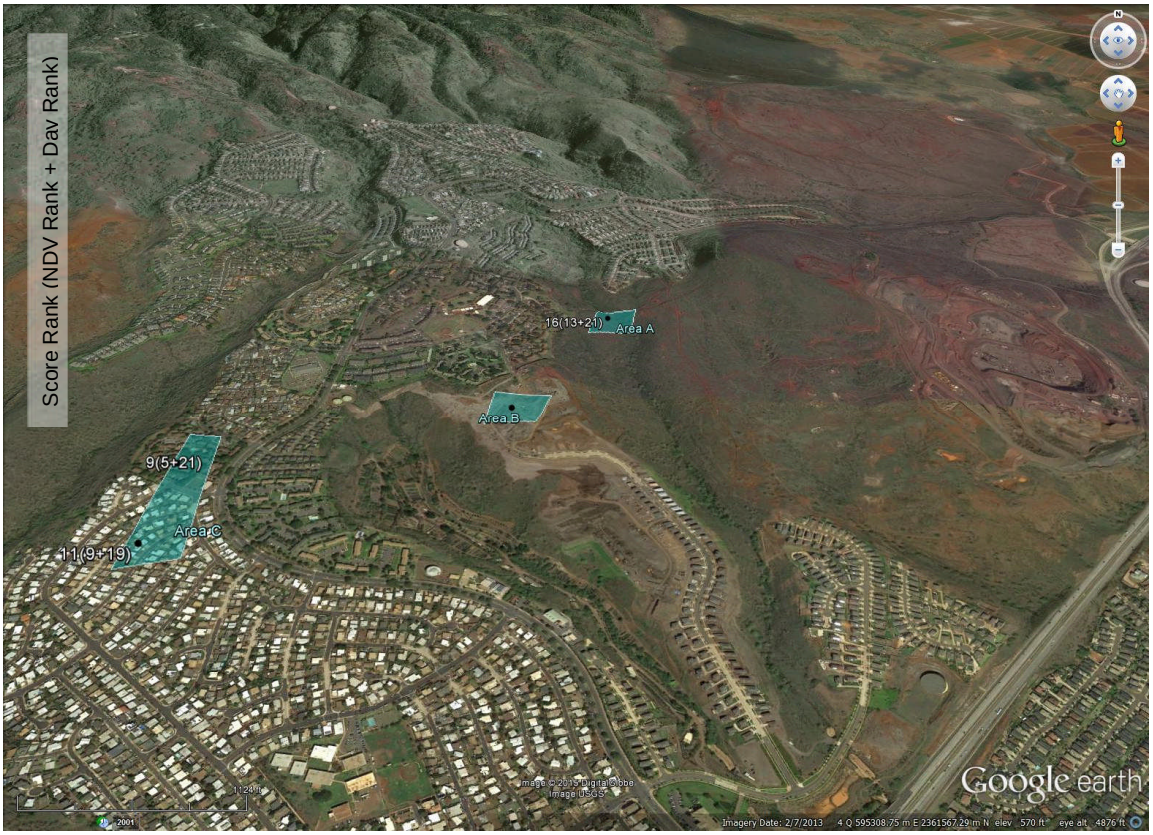

Figure 3.3.3-5 Area A, B, and C Potential Monitoring Sites from Multi-Source Model Run

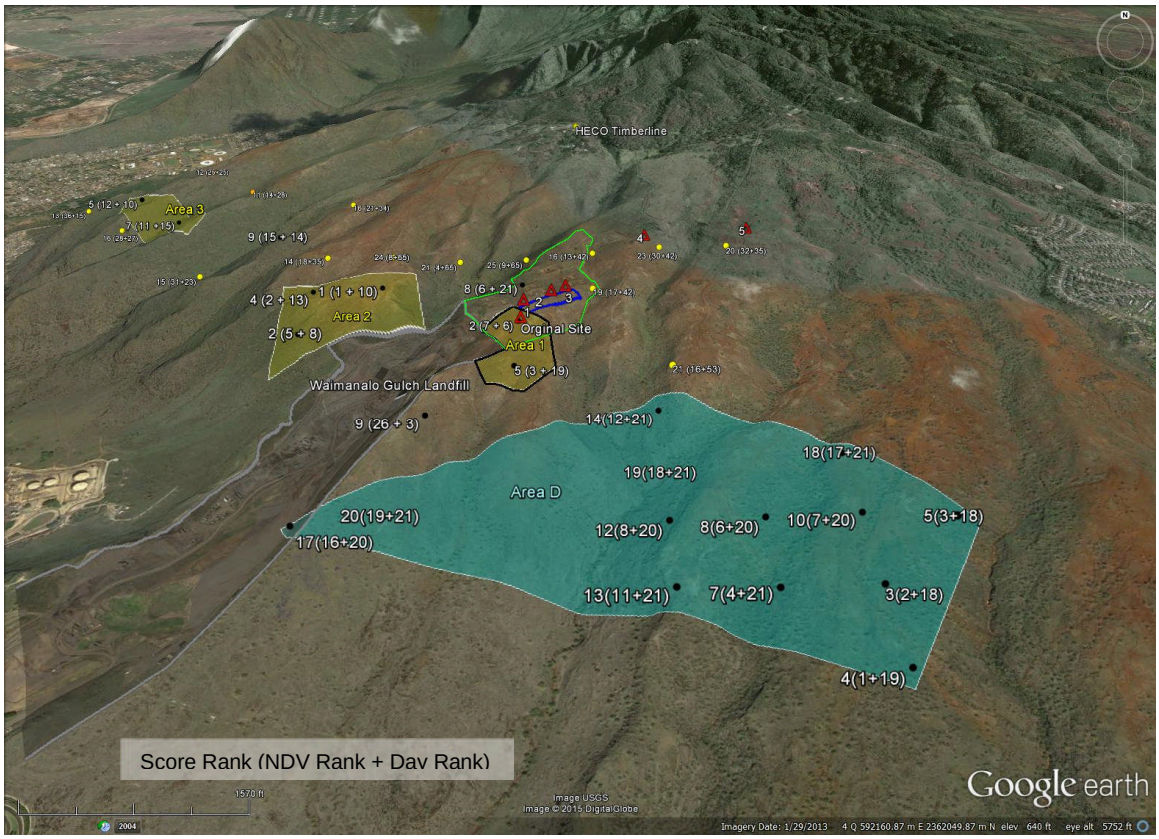

Figure 3.3.3-6 Area D Potential Monitoring from Multi-Source Modeling

Figure 3.3.3-7 Area E Potential Monitoring Site Based on Multi-Source Modeling

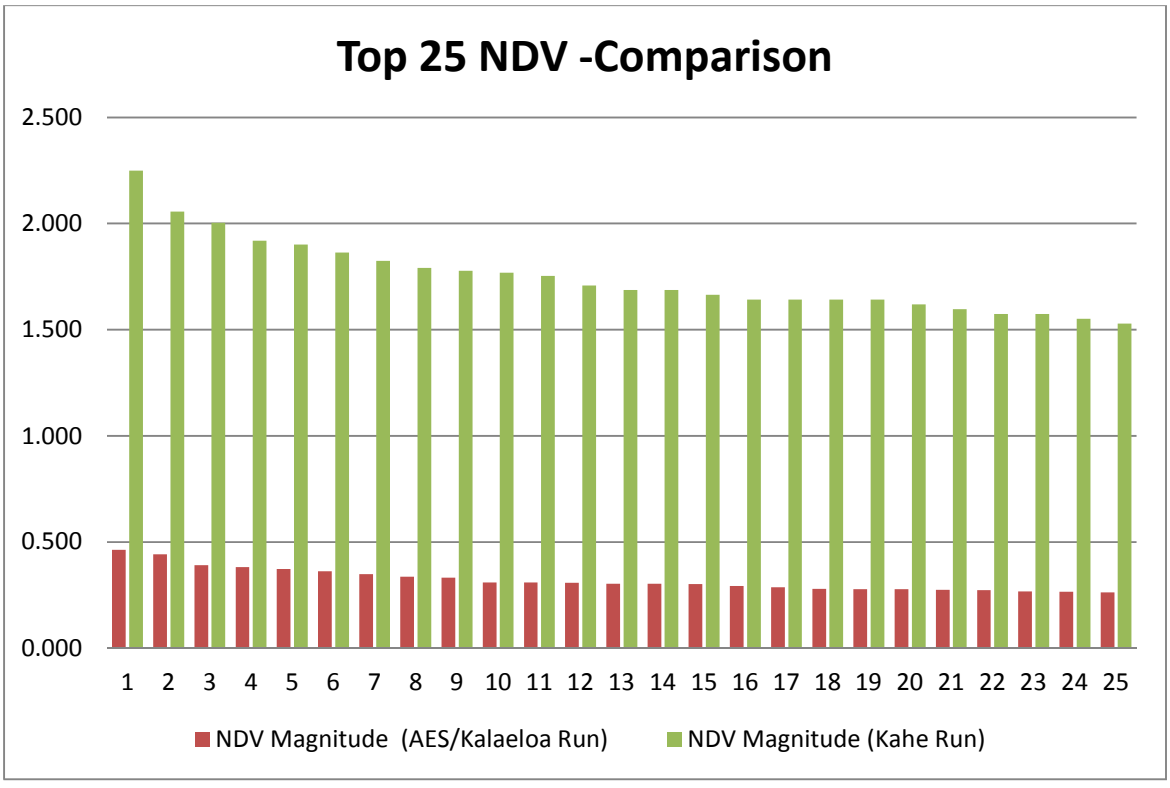

Figure 3.3.3-8 NDV Comparison for Modeling Runs

4.0 Regulatory Determinations for SO_2 Monitoring

Based on information from the modeling assessments and provisions of 40 CFR Part 51, Subpart BB, the DOH-CAB has determined the following:

1. Site 4 or 5 in Figure 3.3.1-4 is the most appropriate area to install an SO_2 air monitoring station, as a worst-case scenario, to characterize air quality for the AES, Kahe, and Kalaeloa facilities. Hawaiian Electric has proposed to procure, install, operate, and maintain this air monitoring station. The DOH-CAB will evaluated data from this station to determine compliance with the 1-hour SO_2 NAAQS.

2. The most appropriate site for an air monitoring station to characterize SO_2 air quality for the Waiau Generating plant is either Site 1A or 1B as shown in Figures 3.3.1-9 through 3.3.1-11. Hawaiian Electric has proposed to procure, install, operate, and maintain this air quality monitoring station. The DOH-CAB will evaluated data from this station to determine compliance with the 1-hour SO_2 NAAQS.

3. The monitors must be sited and operated either as SLAMS or in a manner equivalent to SLAMS pursuant to 40 CFR §51.1203(c). The monitors must also meet the applicable criteria in 40 CFR Part 58, Appendices A, C, E and the data is subject to certification reporting requirements as prescribed in 40 CFR §58.15 and §58.16. The requirements include quarterly reporting of monitoring data to the Air Quality System, and annual certification of data by May 1 of the following year.

4. Pursuant to 40 CFR §51.1203(c)(1), the DOH-CAB must include relevant information about the new monitors in its Annual Monitoring Network Plan required by July 1, 2016.

5. To meet the requirements of 40 CFR §51.1203(c), the new monitors must be operational by January 1, 2017.

6. Pursuant to 40 CFR §51.1203(c)(3), the monitoring stations may be eligible for shut down if they produce a design value no greater than 50% of the 2010 NAAQS in either the first or second 3 year period of operation.

7. The location of new and existing SO_2 air quality monitoring stations in the vicinity of the affected sources are shown in Figure 4.0-1.

4.1 1-Hour SO_2 Data Requirements Rule Implementation

List of SO_2 sources Subject to Data Requirements Rule (40 CFR §51.1202) – The EPA concurred with the list of sources in the DOH-CAB's January 8, 2016 submittal to be characterized under the SO_2 Data Requirements Rule (see Attachment 5). These sources are shown in Table 2.2-1 on Page 4 of this report. In accordance with the SO_2 Data Requirements Rule, this list of sources was due on January 15, 2016.

Notification on DOH-CAB's Choice to Characterize 1-Hour SO_2 Air Quality (40 CFR §51.1203 (b)) – The DOH-CAB has chosen to characterize 1-hour SO_2 concentrations through ambient air quality monitoring. Pursuant to the SO_2 Data Requirements Rule, this notification is due on July 1, 2016.

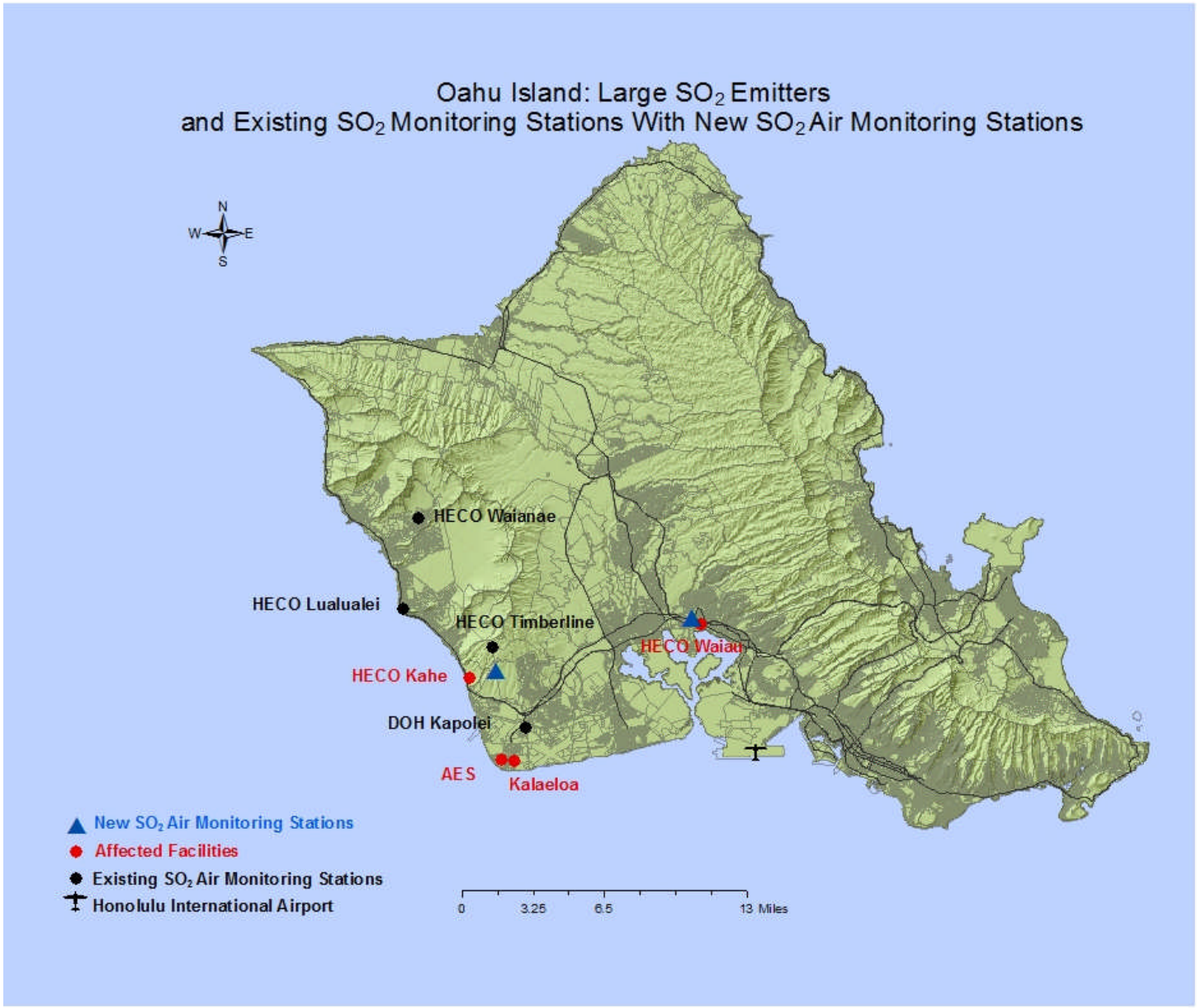

Figure 4.0-1 Existing and New SO_2 Monitors with Affected Sources

References

1. 40 CFR Part 51, Subpart BB, Data Requirements for Characterizing Air Quality for the Primary SO_2 NAAQS.
2. Regulations/Permitting, Air Quality Monitoring Requirements Proposed for 2010 Sulfur Dioxide NAAQS, Volume 24, Issue 4, 2014.
3. 40 CFR Part 51, [EPA-HQ-OAR-2013-0711;FRL-9928-18-OAR], RIN 2060-AR19, Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS).
4. State of Hawaii 2015 Ambient Air Monitoring Network 5-Year Assessment.
5. Covered Source Permit Application, Hawaiian Electric Company, Inc., Kahe Generating Station, Waianae, Oahu, Hawaii, November 23, 1994.
6. SO_2 NAAQS Designations, Source-Oriented Monitoring, Technical Assistance Document (Draft), U.S. Environmental Protection Agency, December 2013.
7. SO_2 NAAQS Designations Modeling, Technical Assistance Document (Draft), U.S. Environmental Protection Agency, December 2013.

Attachment 1: Hawaiian Electric Company Incorporated, 1-Hour SO_2 Modeling to Inform Monitor Placement, Kahe Generating Station, Island of Oahu, Hawaii, August 2015

Hawaiian Electric Company, Inc.

1-Hour SO_2 Modeling to Inform Monitor Placement

Kahe Generating Station

Island of O‘ahu, Hawai‘i

Prepared by

JCA

August 2015

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1.0 INTRODUCTION AND SUMMARY

The Environmental Protection Agency (EPA) published the final *Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS)* in the Federal Register on August 21, 2015 (80 FR 51052). This rule directs state and tribal air agencies (air agencies) to provide data characterizing current air quality in areas with large sources of SO_2 emissions. The rule defines an applicable source as:

> *A stationary source that is (1) not located in a designated nonattainment area, and (2) has actual annual SO_2 emissions data of 2,000 tons or more, or has been identified by an air agency or by the EPA Regional Administrator as requiring further air quality characterization.*

The rule specifies applicable sources must use either dispersion modeling or ambient monitoring to demonstrate that the area sounding the source is in attainment with the 2010 1-hour SO_2 NAAQS. The EPA issued the following non-binding draft technical assistance documents (TADs) to assist the air agencies in preparing these demonstrations:

- *SO_2 NAAQS Designations Modeling Technical Assistance Document* (modeling TAD), draft dated December 2013, and
- *SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document* (monitoring TAD), draft dated December 2013.

The Hawaiian Electric Company, Inc. (Hawaiian Electric) Kahe Generating Station's 2014 actual SO_2 emissions exceeded 2,000 tons. Therefore, a source specific attainment demonstration is required for the Kahe Generating Station (Kahe). Hawaiian Electric proposes that the source-oriented monitoring option be used.

Figure 1.0-1 shows the proposed general area for the source-oriented SO_2 monitor based on modeling to inform monitor placement as described in the monitoring TAD. The proposed general area is adjacent to a former Nike missile launch site (OA-63-LS). Hawaiian Electric conducted ambient air monitoring close to this area in the early 1980's. The modeling methodology used for the monitor site selection is discussed in Section 2.0. The monitor site selection process is discussed in Section 3.0.

FIGURE 1.0-1 PROPOSED SOURCE-ORIENTED SO_2 MONITOR LOCATION AREA

2.0 MODELING METHODOLOGY

The modeling in this report is based on the guidance presented in the modeling and monitoring TADs (EPA, 2013a; EPA, 2013b).

2.1. MODEL SELECTION AND OPTIONS

EPA's recommended dispersion model, AERMOD (version 14134), was used for this modeling analysis. AERMOD is a steady-state plume model capable of modeling simple, intermediate, and complex terrain receptors. In the stable boundary layer (nighttime), it assumes the concentration distribution to be Gaussian in both the vertical and horizontal. In the convective boundary layer (daytime) the probability density function describing the horizontal distribution is assumed to be Gaussian, while the vertical distribution is assumed to be bi-Gaussian. AERMOD also contains the PRIME algorithm which incorporates the two fundamental features associated with building downwash: (1) enhanced plume dispersion coefficients due to the turbulent wake, and (2) reduced plume rise caused by a combination of the descending streamlines in the lee of the building and the increased entrainment in the wake (EPA, 2004a and EPA, 2004d).

AERMOD's regulatory default options were used when modeling SO_2 impacts.

AERMOD (starting with version 11059) is capable of calculating the distribution of daily maximum 1-hour values. The daily maximum 1-hour values are calculated when the pollutant ID is either "SO2" or "NO2" and the only short-term averaging period specified is "1-hour."

2.2. STACK PARAMETERS AND EMISSION RATES

The TADs specify the modeling should be based on actual hourly SO_2 emissions and stack parameters. Table 2.2-1 lists the stack locations and stack parameters.

Hourly 2012 through 2014 actual SO_2 emission rates were calculated as each unit's hourly fuel use in pounds multiplied by two times[3] the maximum rolling prior 30-day fuel sulfur content. The data recovery for the hourly fuel flow was 100%.

Actual stack temperatures were based on measured air heater temperatures. Data recovery of the air heater temperatures was almost 100%. Table 2.2-2 lists the number of operating hours with missing temperature data. Missing actual stack temperatures were filled in using linear regression of the available data for the respective unit. The air heaters are the last equipment the flue gas passes through before exiting the stack.

The actual hourly exhaust flow rates and velocities were estimated using the Method 19 F-factor and the following equations:

$$Q = F_d * HI \left(\frac{20.9}{20.9 - \%O_{2d}}\right)\left(1 + \frac{\%H_2O}{100}\right)\left(\frac{T_{stack}}{T_{std}}\right)\left(\frac{1\ hr}{3600\ sec}\right)\left(\frac{0.3048^3 m^3}{ft^3}\right)$$

$$V = \frac{Q}{A}$$

Where:

Q	=	Hourly exhaust flow rate (m^3/sec)
F_d	=	F_d factor for oil (9,190 dscf/MMBtu)
HI	=	Hourly heat input (MMBtu/hr)
$\%O_{2d}$	=	Concentration of oxygen on a dry basis (Kahe/Waiau boiler average = 6.2 %)
$\%H_2O$	=	Concentration of water vapor (Kahe/Waiau boiler average = 10.3 %)

[3] The oxidation rate of fuel sulfur to SO_2 based on the ratio of molecular weights (64 lb SO_2/lb-mole / 32 lb S/lb-mole = 2).

T_{stack} = Hourly stack exhaust temperature (K)
T_{std} = Standard temperature (293 K)
V = Hourly stack velocity (m/s)
A = Stack area (m^2)

Concurrent actual O_2 and H_2O concentrations are not available. A review of all available Kahe and Waiau boiler stack test data shows that the O_2 content ranges from 4.1% to 9.4% with an average value of 6.2% and the H_2O content ranges from 8.7% to 11.5% with an average value of 10.3%. Based on the flow rate equation, the stack exhaust temperature and heat input have the largest overall impact on the estimated flow rate.

As specified in the monitoring TAD, each unit's hourly actual SO_2 emission rates were normalized using the following steps:

1. Determine the total actual SO_2 emission rates from all units for each hour in the data period.
2. Determine the maximum hourly SO_2 emission rate calculated in Step 1.
3. Divide all hourly actual SO_2 emission rates by the SO_2 emission rate identified in Step 2.

The normalized hourly SO_2 emission rates were input into AERMOD using the HOUREMIS keyword in the source pathway.

The black start diesel engine generators (A and B) are not included in the modeling, due to their limited operation (less than 150 hrs/yr total). Also, during calendar years 2012 to 2014 the black start diesel engine generators were fired on ultra-low sulfur diesel (ULSD) and continue to fire ULSD.

2.3. METEOROLOGICAL DATA

Representative meteorological data that is concurrent with the hourly emissions files is not available. The modeling TAD states that older site-specific meteorological data that have been used in past regulatory applications may be used to inform monitor placement if the dates are adjusted to match the hourly emissions file. Therefore, the 12 months of site-specific meteorological data collected at the Kahe site-specific meteorological tower and SODAR (sonic detection and ranging) were used in this study. The 12-month collection period was from April 1, 1993 through March 31, 1994.

EPA's meteorological processor for AERMOD, AERMET (version 14134), was used to create the required meteorological input files. The meteorological tower collected hourly wind speed, wind direction, sigma-theta, vertical wind speed, and sigma-w at heights of 10 m, 100 m, and 150 m. The meteorological tower also collected temperature data and temperature differences at heights of 2 m, 10 m, 100 m, and 150 m. The SODAR recorded hourly values of horizontal wind speed, horizontal wind direction, and sigma-w at 25-m intervals between 200 m and 500 m. Figure 2.3-1 presents a wind rose of the 12 months of 100-m horizontal wind data.

Using a text editor, the 12 months of site-specific meteorological data in the surface and profile files were repeated three times and the dates were adjusted to match the dates in the hourly emissions file[4].

The Līhu'e Airport and Hilo International Airport are the only available sources of upper air meteorological data in the state of Hawai'i. The Līhu'e Airport station is operated by the National Weather Service (NWS) and is located on the Island of Kaua'i. As previously recommend by

[4] The meteorological data does not cover a leap year. Therefore, February 28, 2012 was repeated with a new date of February 29 to be concurrent with the hourly emissions file (EPA, 2013a).

DOH for sources on the Island of O'ahu, the Līhu'e Airport soundings provided the required upper air meteorological data for AERMET.

Appendix A contains a catalogue of the meteorological modeling files.

AERMOD uses several different boundary layer parameters to model how pollutants disperse in the atmosphere. Many of these parameters are not observed, but are estimated from other variables that are more easily measured. To make these estimates, observed near-surface wind and temperature and site-specific surface characteristics are required. AERMET requires the following site-specific surface characteristics:

- Surface roughness length (z_o) – the height above the ground at which horizontal wind velocity is typically zero,
- Noon-time albedo (r) – the fraction of radiation reflected by the surface, and
- Daytime Bowen ratio (B_o) – the ratio of the sensible heat flux (H) to the latent heat flux (λE).

EPA has developed a program called AERSURFACE to calculate the above parameters based on United States Geological Survey (USGS) land use/land cover data. However, the required USGS 1992 National Land Cover Data (NLCD92) is not available for Hawai'i. Section 3.1.2 of the AERMOD Implementation Guide provides the recommended methods for determining surface characteristics. These methods should be followed unless a case-by-case justification can be provided for an alternative method (EPA, 2009a).

The selection of the surface parameters follows the land use procedure provided in the AERMOD Implementation Guide (EPA, 2009a) and the Alaska Department of Environmental Conservation (ADEC) on how to calculate geometric means (ADEC, 2009). The land uses are determined using a geographic information system (GIS) to analyze the USGS 2001 National Land Cover Data (NLCD2001). Table 2.3-1 lists the NLCD2001 land cover categories and the corresponding values for surface roughness length, albedo, and Bowen ratio.

The AERMOD Implementation Guide specifies that the albedo and Bowen ratio should be based on a 10-km by 10-km area centered on the meteorological tower. Figure 2.3-2 shows the 10-km by 10-km area centered on the meteorological tower. Albedo is determined using a simple unweighted arithmetic mean (i.e., no direction or distance dependency). Bowen ratio is determined using a simple unweighted geometric mean (i.e., no direction or distance dependency). Table 2.3-2 lists the area of land cover categories for the 10-km by 10-km domain.

The AERMOD Implementation Guide specifies that the surface roughness length should be based on an inverse distance weighted geometric mean for a recommended upwind fetch of 1 km relative to the meteorological tower. Surface roughness length may vary by sector to account for variations in land cover near the measurement site; however, the sector widths should be no smaller than 30 degrees. Figure 2.3-3 shows the area within a 1-km radius of the meteorological tower and the selected sector boundaries. Table 2.3-3 lists the area of land cover categories for each sector.

Table 2.3-4 shows the calculated values of surface roughness length for each sector and the albedo and Bowen ratio.

2.4. URBAN/RURAL CLASSIFICATION

The selection of either rural or urban dispersion coefficients in the air quality modeling follows the procedure provided in 40 CFR Part 51, Appendix W. Categorizing an area as urban or rural is determined by land use classification or population. A review of the land use surrounding the facility shows that urban land use types are less than 50% of the area within a 3-km radius of the source. Therefore, the area was classified as rural.

2.5. RECEPTOR DATA

The modeling TAD states:

> *For the purposes of modeling for SO_2 designations, the receptor placement strategy differs since the modeling is acting as a surrogate for monitoring. In areas where it is not feasible to place a monitor (water bodies, etc.), receptors can be ignored or not placed in those locations. In any case, receptor placement should be of sufficient density to provide resolution needed to detect significant gradients in the concentrations, with receptors placed closer together near the source to detect local gradients and placed farther apart away from the source* (EPA, 2013a).

Receptor elevations and height scales were derived from the USGS National Elevation Dataset (NED) data using EPA's AERMAP (version 11103) program. Figure 2.5-1 shows the initial modeling grid (grid 1) consisting of 250-m spaced receptors centered at 592200 m Easting, 2363000 m Northing to 3.5 km east and west and 2 km north and south.

Receptors were not located in the following locations because it is infeasible (prohibitive) to locate a monitor in these areas:

- Overwater,
- Within and on the facility boundary, and
- On the Waimanalo Gulch Sanitary Landfill property.

Many areas inside the modeled domain are inaccessible to the general public and do not contain roads or nearby electrical power sources. The feasibility of these areas will be addressed on a case-by-case basis after the scoring has been completed.

To ensure the location of the maximum modeled impacts were identified by the initial grid (grid 1) an additional coarse grid was added. The coarse grid contains 500-m spaced receptors that extend 7.5 km from Kahe. Figure 2.5-2 shows the coarse grid receptors.

Appendix A contains a catalogue of files used in the receptor grid processing.

2.6. BUILDING DOWNWASH

For air quality modeling purposes, the stacks were evaluated in terms of their proximity to nearby structures to determine whether stack effluents may be affected by downwash in the turbulent wake of such structures. AERMOD uses the following building parameters to account for downwash:

- BUILDHGT, the building height,
- BUILDWID, the projected width of the building perpendicular to the flow,
- BUILDLEN, the projected length of the building along the flow,
- XBADJ, the along-flow distance from the stack to the center of the upwind face of the projected building, and
- YBADJ, the across-flow distance from the stack to the center of the upwind face of the projected building.

Building parameters were obtained using EPA's Building Profile Input Program for PRIME (BPIPPRM – version 04274). BPIPPRM calculates the building parameters for 36 wind directions based on the physical dimensions of the structures surrounding a source.

Off property structures meeting the following requirements should be included in the BPIPPRM processing:

- The structure is less than 800 meters from the source, and

- The structure is located within 5L (five times the lesser of the height or width of the structure) of the source.

A review of the Honolulu Land Information System[5] (HoLIS) and Google Earth determined that off-site buildings did not need to be included in the BPIPPRM processing. Figure 2.6-1 shows the structures and heights entered into BPIPPRM. Appendix A contains a catalogue of files used in the BPIPPRM processing.

[5] City & County of Honolulu, Department of Planning & Permitting: http://gis.hicentral.com.

TABLE 2.2-1 STACK LOCATIONS AND STACK PARAMETERS

Unit	NAD83 UTM Coordinates		Base Elevation		Stack Height	Stack Diameter	Stack Area	Stack Velocity	Stack Temperature
	Easting (m)	Northing (m)	(ft)	(m)	(m)	(m)	(m^2)	(m/s)	(K)
K1	590358.99	2361874.63	30.0	9.14	91.44	3.20	8.044	Varies	Varies
K2	590353.25	2361872.57	30.0	9.14	91.44	3.20	8.044	Varies	Varies
K3	590355.30	2361866.83	30.0	9.14	91.44	3.20	8.044	Varies	Varies
K4	590361.04	2361868.89	30.0	9.14	91.44	3.20	8.044	Varies	Varies
K5	590367.25	2361753.14	26.0	7.92	92.66	4.88	18.679	Varies	Varies
K6	590384.01	2361675.07	30.0	9.14	137.20	4.88	18.679	Varies	Varies

Notes:

1. Stack locations are provided in UTM coordinates (NAD 83, Hawai'i) based on estimates from Google Earth.
2. Stack heights and diameters are from the initial CSP Application.

TABLE 2.2-2 SUMMARY OF MISSING ACTUAL STACK TEMPERATURES

Year	Hours of Missing Actual Stack Temperatures					
	K1	K2	K3	K4	K5	K6
2012	0	0	7	7	14	0
2013	0	0	0	0	0	0
2014	0	0	0	0	0	0

Note: Missing actual stack temperatures were filled in using linear regression of the available data for the respective unit.

TABLE 2.3-1 SURFACE CHARACTERISTIC VALUES FOR NLCD2001 LAND COVER CATEGORIES

Land Cover Category		Surface Roughness		Bowen Ratio		
Name	No.	Length (m)	Albedo	Wet	Average	Dry
Open Water	11	0.001	0.10	0.1	0.1	0.1
Perennial Ice/Snow	12	0.002	0.60	0.5	0.5	0.5
Developed, Open Space	21	0.02	0.15	0.3	0.5	1.5
Developed, Low Intensity	22	0.54	0.16	0.6	0.8	2.0
Developed, Medium Intensity	23	1.00	0.18	1.0	1.5	3.0
Developed, High Intensity	24	0.80	0.18	1.0	1.5	3.0
Barren Land	31	0.05	0.20	1.0	1.5	3.0
Deciduous Forest	41	1.30	0.16	0.2	0.3	0.6
Evergreen Forest	42	1.30	0.12	0.2	0.3	0.6
Mixed Forest	43	1.30	0.14	0.2	0.3	0.6
Shrub/Scrub	52	0.30	0.18	0.8	1.0	2.5
Grasslands/Herbaceous	71	0.10	0.18	0.4	0.8	2.0
Pasture Hay	81	0.15	0.20	0.3	0.5	1.5
Cultivated Crops	82	0.20	0.20	0.3	0.5	1.5
Woody Wetlands	90	0.70	0.14	0.1	0.2	0.2
Emergent Herbaceous Wetlands	95	0.20	0.14	0.1	0.1	0.2

Notes:

1. Surface characteristic values for surface roughness length, albedo, and Bowen ratio are based on values contained in Appendix A of EPA's AERSURFACE User's Guide (January 2008).

2. The relationship between NLCD92 and NLCD2001 land cover categories and numbers are from Table 1 of *USGS's Completion of the National Land Cover Database (NLCD) 1992-2001 Land Cover Change Retrofit Product.*

TABLE 2.3-2 LAND COVER BREAKDOWN FOR BOWEN RATIO AND ALBEDO CALCULATIONS

Land Cover Category		Area (km^2) of Land Cover Categories for Bowen Ratio and Albedo
Name	**No.**	
Open Water	11	39.95
Perennial Ice/Snow	12	--
Developed, Open Space	21	5.25
Developed, Low Intensity	22	4.76
Developed, Medium Intensity	23	4.61
Developed, High Intensity	24	1.69
Barren Land	31	1.44
Deciduous Forest	41	--
Evergreen Forest	42	15.24
Mixed Forest	43	--
Shrub/Scrub	52	18.60
Grasslands/Herbaceous	71	8.04
Pasture Hay	81	--
Cultivated Crops	82	0.40
Woody Wetlands	90	--
Emergent Herbaceous Wetlands	95	0.02

Note: The areas for each land use category and sector were developed using ESRI ArcGIS (Version 10) software and land cover data from the NLCD2001 digital database.

TABLE 2.3-3 LAND COVER BREAKDOWN FOR SURFACE ROUGHNESS LENGTH CALCULATIONS

Land Cover Category		Area (km^2) of Land Cover Categories Surface Roughness Length Sectors								
Name	**No.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Open Water	11	--	--	--	--	0.03	0.17	0.21	0.17	0.02
Perennial Ice/Snow	12	--	--	--	--	--	--	--	--	--
Developed, Open Space	21	--	0.01	0.02	0.02	0.02	0.002	--	--	--
Developed, Low Intensity	22	--	0.01	0.03	0.02	0.03	0.004	0.01	0.01	0.02
Developed, Medium Intensity	23	--	0.02	0.001	0.01	0.04	0.01	0.01	0.01	0.01
Developed, High Intensity	24	--	0.01	0.02	0.03	0.07	0.05	0.02	0.003	--
Barren Land	31	0.002	0.07	0.11	0.05	--	0.02	0.01	0.02	0.004
Deciduous Forest	41	--	--	--	--	--	--	--	--	--
Evergreen Forest	42	0.01	--	--	--	--	--	--	--	--
Mixed Forest	43	--	--	--	--	--	--	--	--	--
Shrub/Scrub	52	0.83	0.06	0.03	0.07	0.06	--	0.00	0.01	0.07
Grasslands/Herbaceous	71	0.21	0.10	0.04	0.07	0.03	0.001	0.004	0.04	0.14
Pasture Hay	81	--	--	--	--	--	--	--	--	--
Cultivated Crops	82	--	--	--	--	--	--	--	--	--
Woody Wetlands	90	--	--	--	--	--	--	--	--	--
Emergent Herbaceous Wetlands	95	--	--	--	--	--	--	--	--	--

Note: The areas for each land use category and sector were developed using ESRI ArcGIS (Version 10) software and land cover data from the NLCD2001 digital database.

TABLE 2.3-4 SURFACE PARAMETERS

Sector	Sector Arc (Degrees from North) Start	Sector Arc (Degrees from North) End	Sector Width (Degrees)	Surface Roughness Length (m)	Bowen Ratio (Dry)	Albedo
1	330	90	120	0.233		
2	90	120	30	0.166		
3	120	150	30	0.165		
4	150	180	30	0.210		
5	180	210	30	0.291	0.53	0.14
6	210	240	30	0.024		
7	240	270	30	0.012		
8	270	300	30	0.011		
9	300	330	30	0.122		

Note: The value for Bowen ratio dry surface moisture conditions is based on the average of annual precipitation for 1993 and 1994 in comparison to the 30-year climatological period from 1981-2010.

FIGURE 2.3-1 KAHE SITE-SPECIFIC WIND ROSE

(100-M LEVEL WINDS ● APRIL 1, 1993 – MARCH 31, 1994)

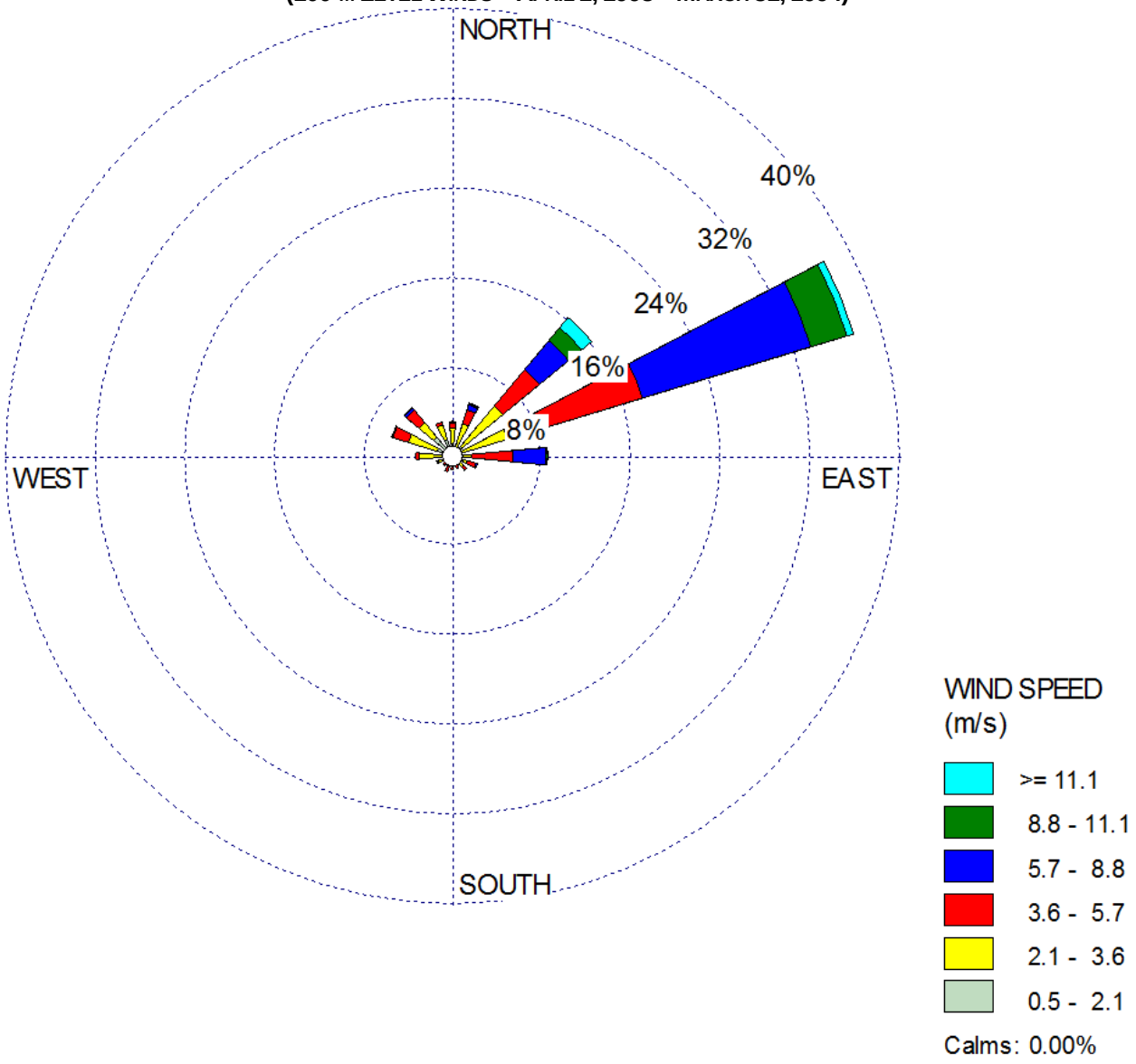


FIGURE 2.3-2 USGS NLCD2001 SURROUNDING THE KAHE SITE-SPECIFIC METEOROLOGICAL TOWER (10 X 10 KM DOMAIN)

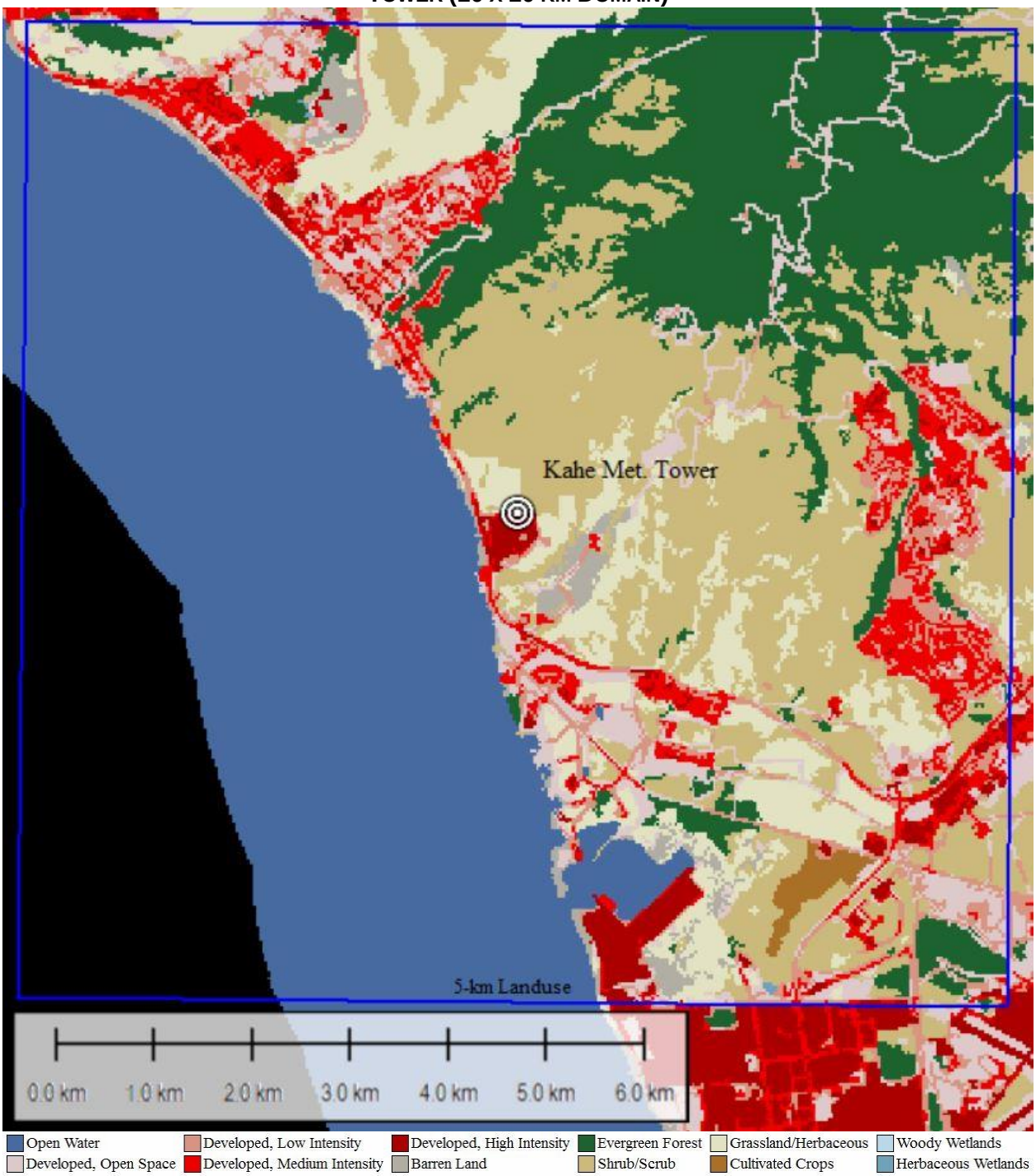


FIGURE 2.3-3 USGS NLCD2001 SURROUNDING THE KAHE SITE-SPECIFIC METEOROLOGICAL TOWER (1-KM RADIUS)

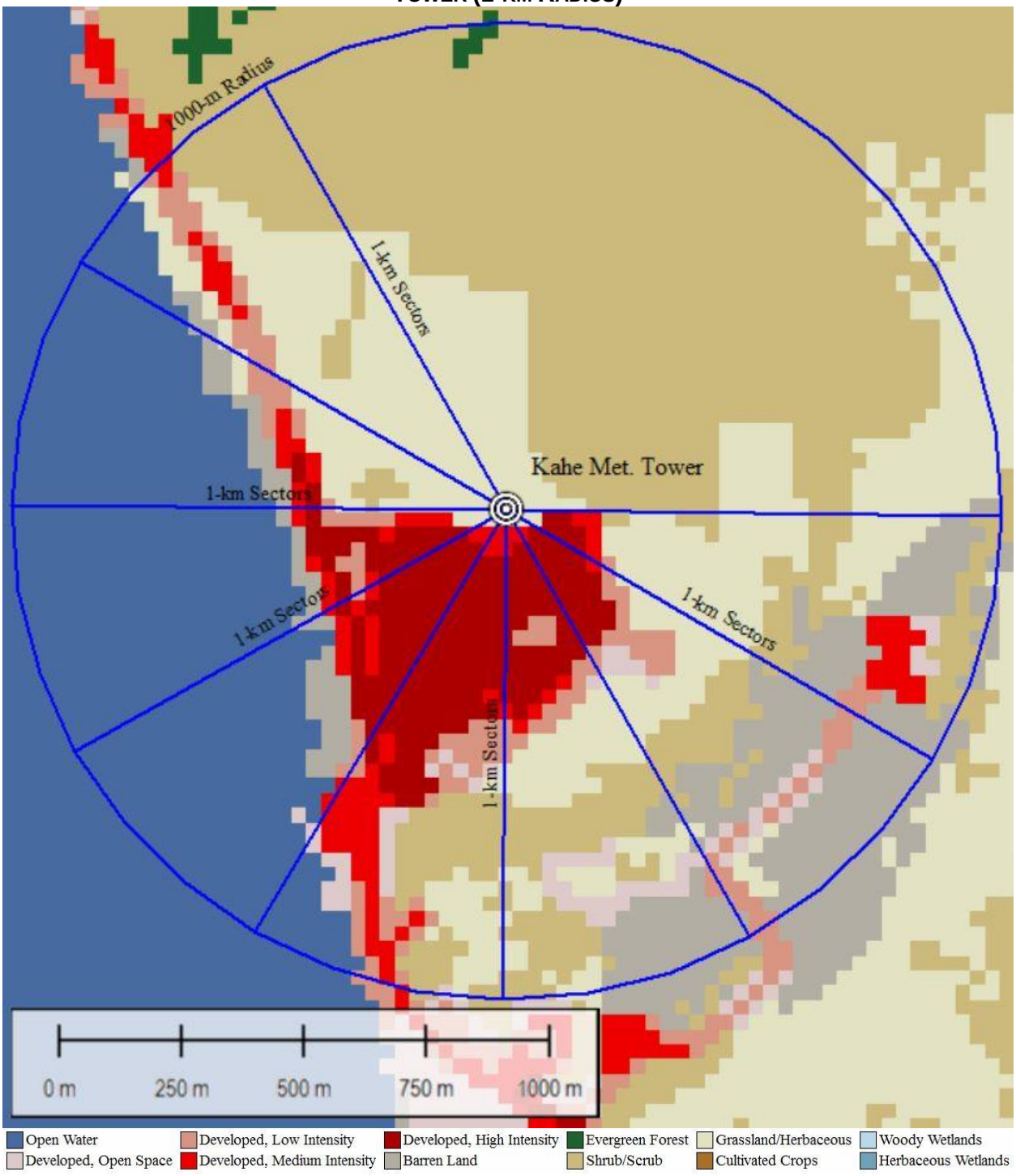


FIGURE 2.5-1 RECEPTOR GRID (GRID 1)

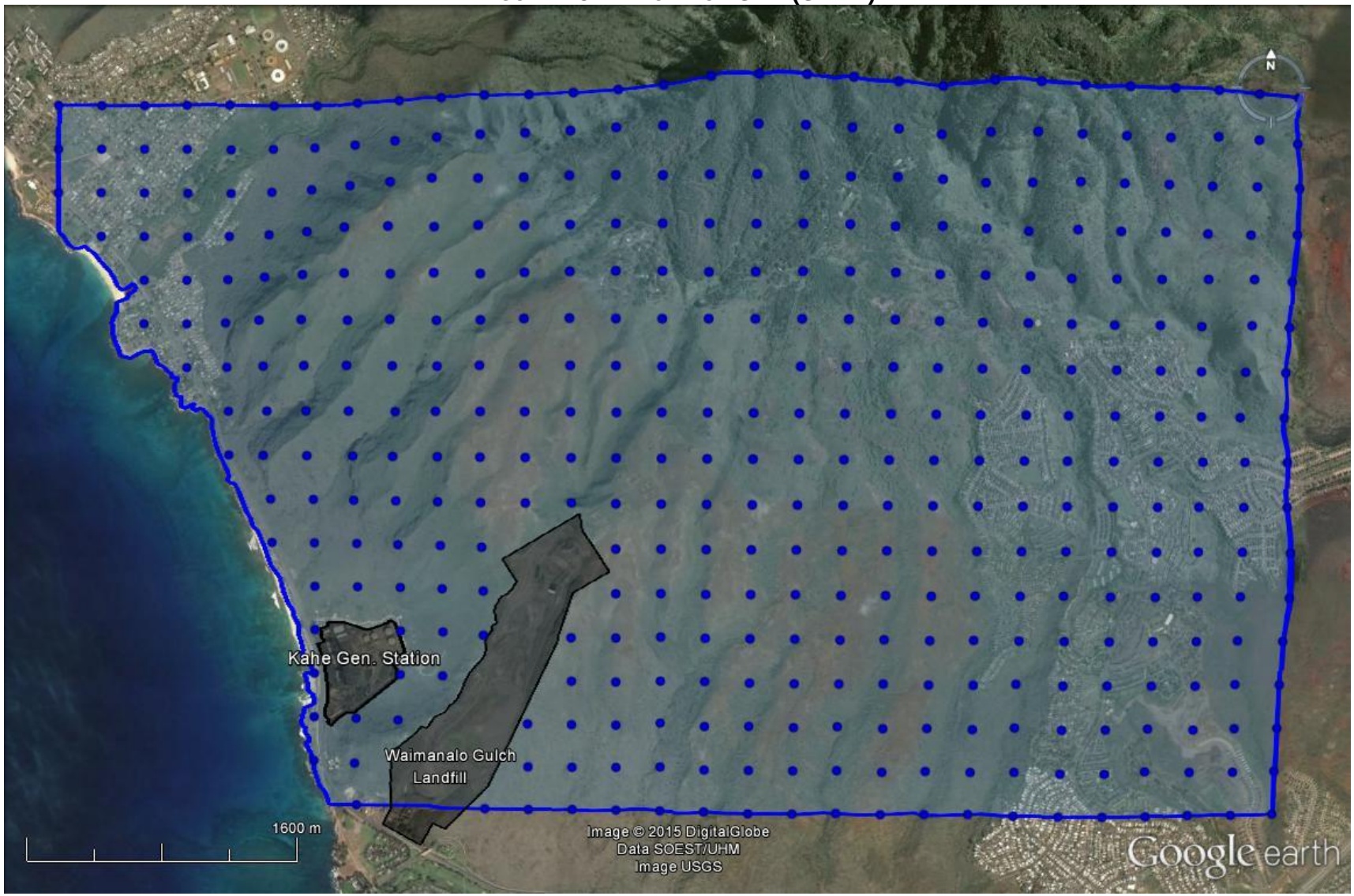


FIGURE 2.5-2 COARSE GRID RECEPTORS

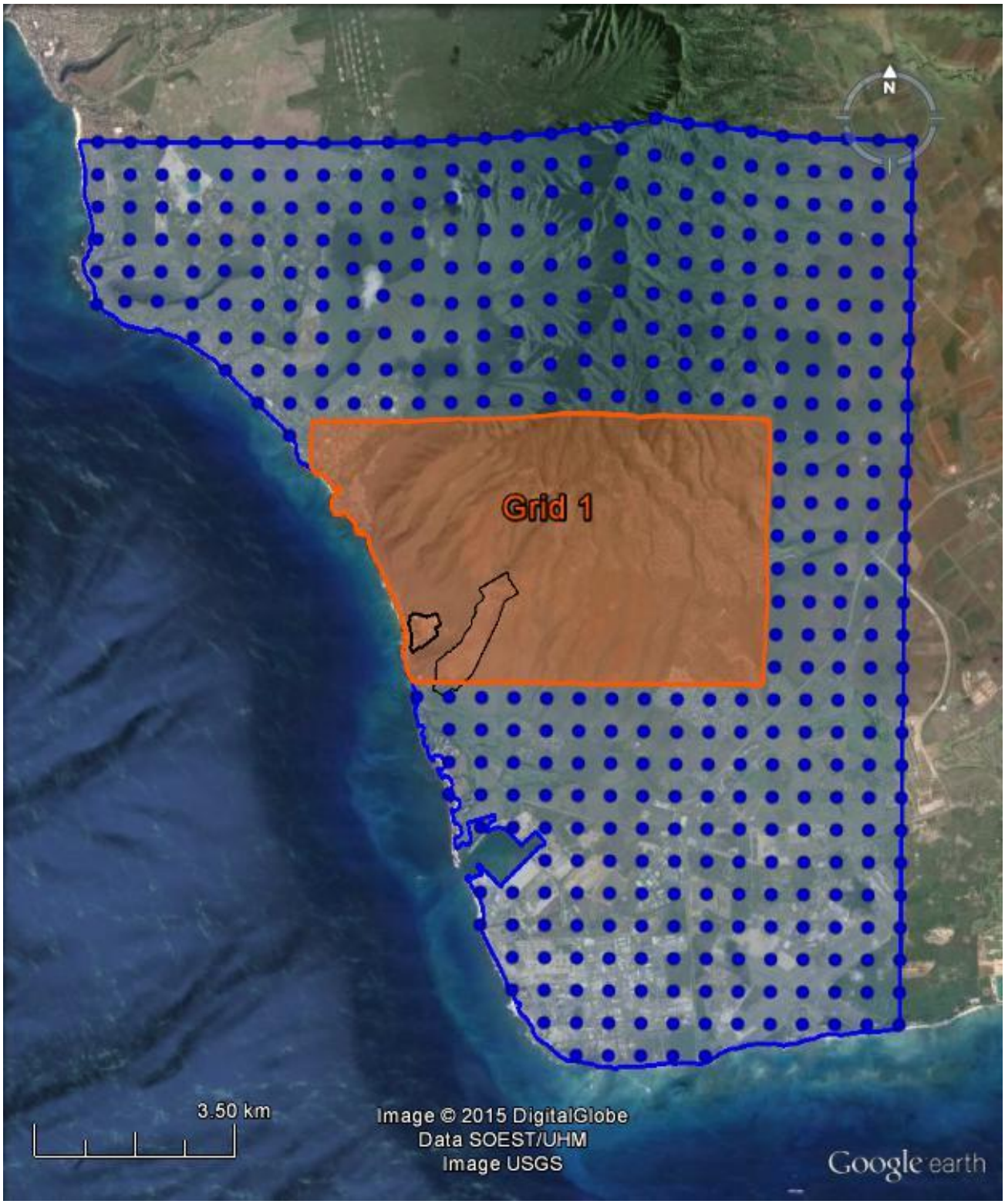
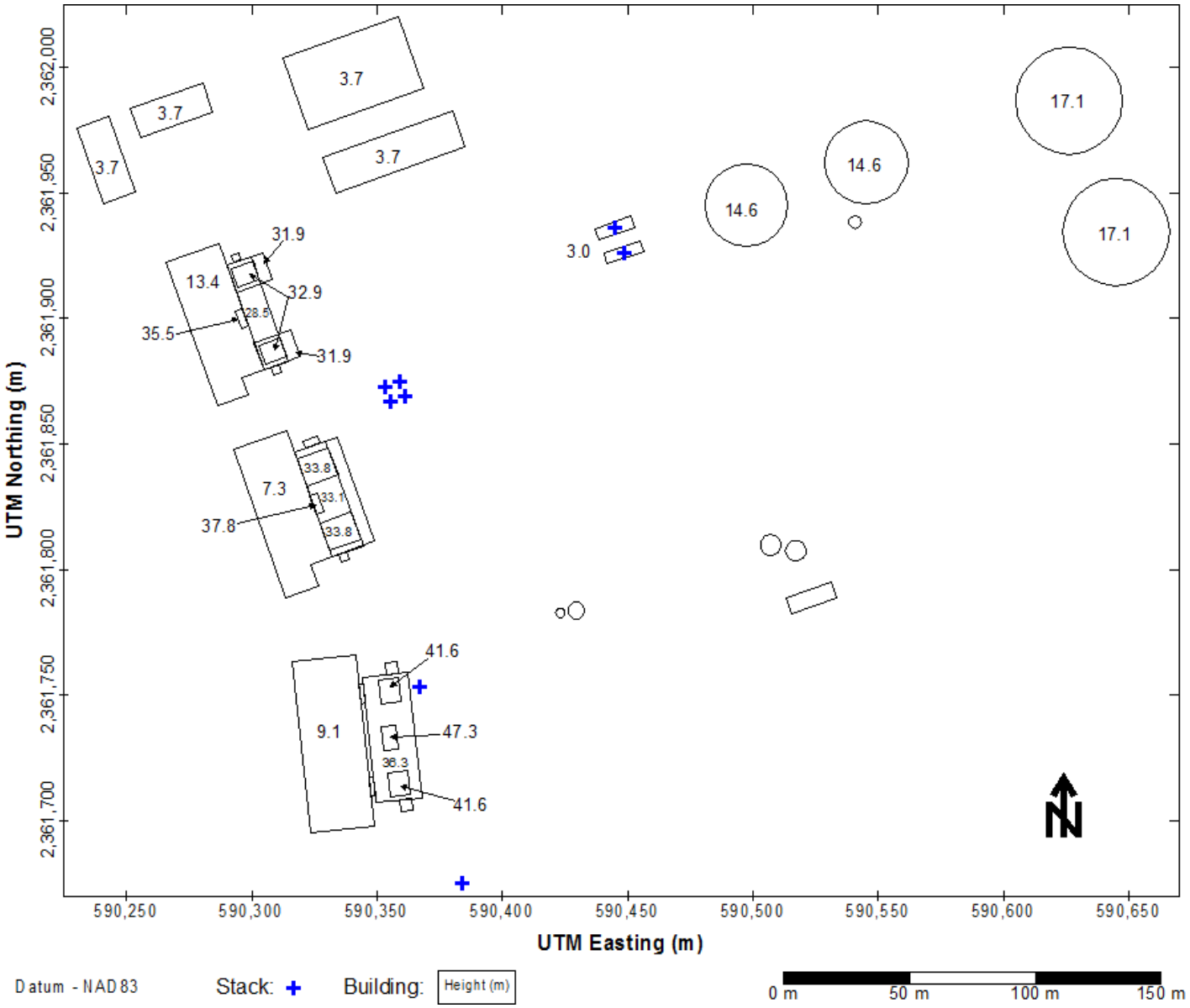


FIGURE 2.6-1 BPIPPRM INPUTS



3.0 MONITOR LOCATION SELECTION

3.1. MONITOR PLACEMENT SCORING

As stated in the monitoring TAD Example of Modeling to Inform Monitoring Placement Using Normalized Emissions (EPA, 2013b), the primary objective of the modeling is to "find a sufficient number of feasible locations with predicted peak and/or relatively high SO_2 concentrations where a permanent monitoring site might be located" with consideration given for the frequency in which the daily maxima occurs at a receptor.

The monitoring TAD (EPA, 2013b) presents a scoring strategy to rank the receptors for consideration of monitor placement. The monitoring TAD states:

> *This scoring strategy can be conducted as follows:*
>
> *1. Calculate the normalized design value at each receptor and rank from highest to lowest receptor. Rank of 1 means the highest design value.*
>
> *2. Using the MAXDAILY output option in AERMOD, determine each day's highest normalized concentration and receptor. The MAXDAILY option in AERMOD outputs each receptor's highest concentration for each modeled day.*
>
> *3. Using the output from step 2, determine the number of days each receptor is the highest concentration for the day among all receptors.*
>
> *4. Rank the results from step 3 from highest to lowest number of days. Rank of 1 means the highest number of days having the daily maximum value.*
>
> *5. For each receptor, add the concentration rank and the day rank. The lowest possible score is 2, meaning the receptor was the highest overall normalized design value and also had the highest number of days where the receptor was the highest concentration for the day.*

Since the hourly SO_2 emissions were normalized, the AERMOD output concentrations are called normalized design values (NDVs). The NDVs are the 3 year average of the 99th percentile (4th rank) of the 1-hour daily maximum concentrations on a receptor-by-receptor basis. Appendix A contains a catalogue of the modeling files. Figure 3.1-1 presents color coded NDVs to illustrate the distribution of the NDVs and Figure 3.1-2 shows a zoomed in view of the grid 1 NDVs. The plots show that all of the coarse grid receptors had NDVs less than 50% of the maximum NDV. Due to these low NDVs the coarse grid receptors were not included in the following steps. The NDV ranks for the initial grid receptors are listed in Appendix B, Table B-1.

Next, the MAXDAILY output option in AERMOD was used to determine the number of days each receptor had the daily maximum 1-hour concentration for the day among all receptors. The MAXDAILY output was imported into an Access database to perform this calculation and ranking. As shown by the wind rose in Figure 2.3-1, the majority of the time the plumes are transported over the ocean where receptors are not located. Therefore, daily maximum 1-hour NDVs that are less than 5% of the overall maximum are excluded from the cumulative calculations. This filters outs insignificant impacts in the terrain.

Figure 3.1-3 presents the cumulative number of days a receptor had the daily maximum 1-hour concentration over the three modeled years. Note that the receptor on the coastline adjacent to the facility with the largest number of cumulative days with the daily maximum 1-hour NDV is not the receptor with the overall highest NDV as shown in Figures 3.1-1 and 3.1-2. The coastline receptor with the largest cumulative number of days with the 1-hour daily maxima has modeling impacts less than 25% of the maximum NDV resulting in a score (described below) of greater than 200. The cumulative number of day ranks for all receptors are listed in Appendix B, Table B-1.

Next, the NDV rank and the cumulative number of days rank were added to calculate the monitor placement score. Figure 3.1-4 shows the monitor placement scores. The monitor placement scores are ranked from lowest to highest to determine the score rank. Therefore, the receptor with the lowest score has a score rank of one, the second lowest score has a score rank of 2, and so on. Figure 3.1-5 shows the receptors with the top 10 score ranks (score ranks one through ten). Appendix B, Table B-1 presents the monitor placement scores and score ranks.

3.2. SITE SELECTION EVALUATIONS

The goal of the evaluation is to find a location at or very near the receptor having the highest score rank. Based on the score ranks, three areas were selected for additional site feasibility evaluations. Figure 3.2-1 shows the following three areas:

- Area 1 – This area contains the receptors with the 2nd (tie) and 5th (tie) score ranks. Figure 3.2-2 shows a zoomed in aerial photograph of this area. The area is owned by the James Campbell Company and is adjacent to a former Nike missile launch site (OA-63-LS). Hawaiian Electric conducted ambient air quality monitoring close to this area in the early 1980's. Existing electrical power lines run through this area. Therefore, electrical power is expected to be available. Access to the site would require some improvements to the existing road. The last 0.5 km (0.3 mile) of the road is unpaved and will require some re-grading to ensure safe vehicular access with a sport utility vehicle (SUV). Based on an evaluation of modeling results, accessibility, safety and logistics, this area is the preferred area in which to locate the ambient air quality monitor.
- Area 2 – This area contains receptors with the 1st, 2nd (tie), and 4th score ranks. Figure 3.2-3 shows a zoomed in aerial photograph of this area. This area is located on private ranchland. Accessing this area requires traversing approximately 1.5 km (0.9 mile) of private ranch land that currently does not have suitable vehicular access roads. Extensive road work would be required to provide safe vehicular access to the area. The closest possible electrical power source is at least 0.5 km (0.3 mile) away. Due to these accessibility, safety and logistics factors, Area 2 is not the preferred area in which to locate an ambient air quality monitor.
- Area 3 – This area contains the receptors with the 5th (tie) and 7th score ranks. Figure 3.2-4 shows a zoomed in aerial photograph of this area. Accessibility and power would be major challenges for this area as there are no access roads or power lines available in the area. Therefore, it is not preferred to locate an ambient air quality monitor within this area.

Based on the feasibility evaluation for the three potential areas in which to locate an ambient air quality monitor as discussed above, Area 1 is the preferred area in which to place the ambient air quality monitoring station. This area is preferred based on the following factors:

1. Area 1 contains the receptor with the 2nd (tie) and 5th (tie) highest score ranks;
2. Area 1 will require the least amount of road work and expenditure to provide safe vehicular access to the site;
3. Electrical power lines are available within the area, and thus, access to electrical power to this area will require the least amount of work and expenditure.

Based on these factors, Area 1 is the preferred area in which to locate the ambient air quality monitoring station.

FIGURE 3.1-1 NORMALIZED DESIGN VALUES

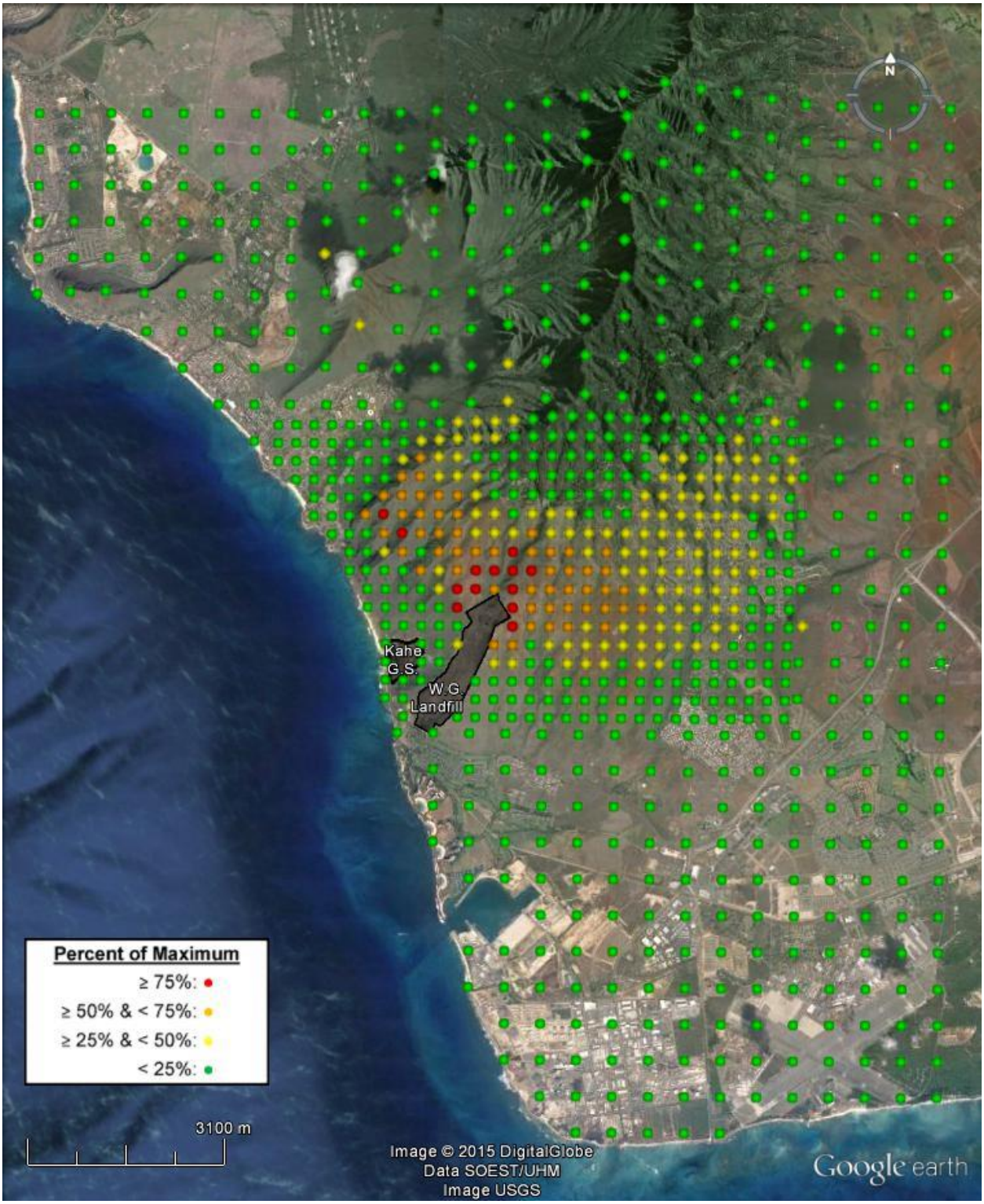


FIGURE 3.1-2 NORMALIZED DESIGN VALUES (ZOOMED IN)

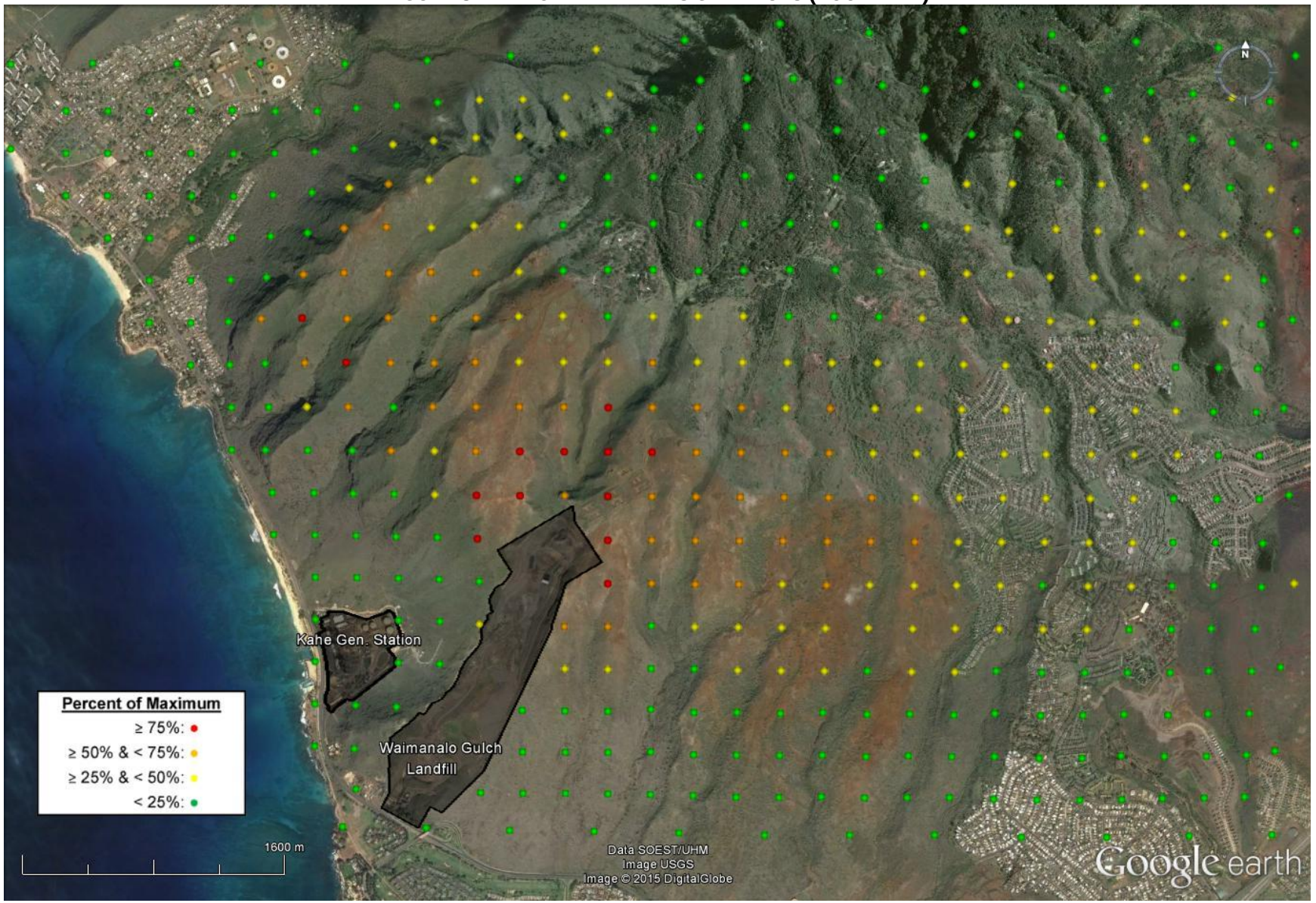


FIGURE 3.1-3 CUMULATIVE NUMBER OF DAYS WITH THE DAILY MAXIMUM 1-HOUR NDV

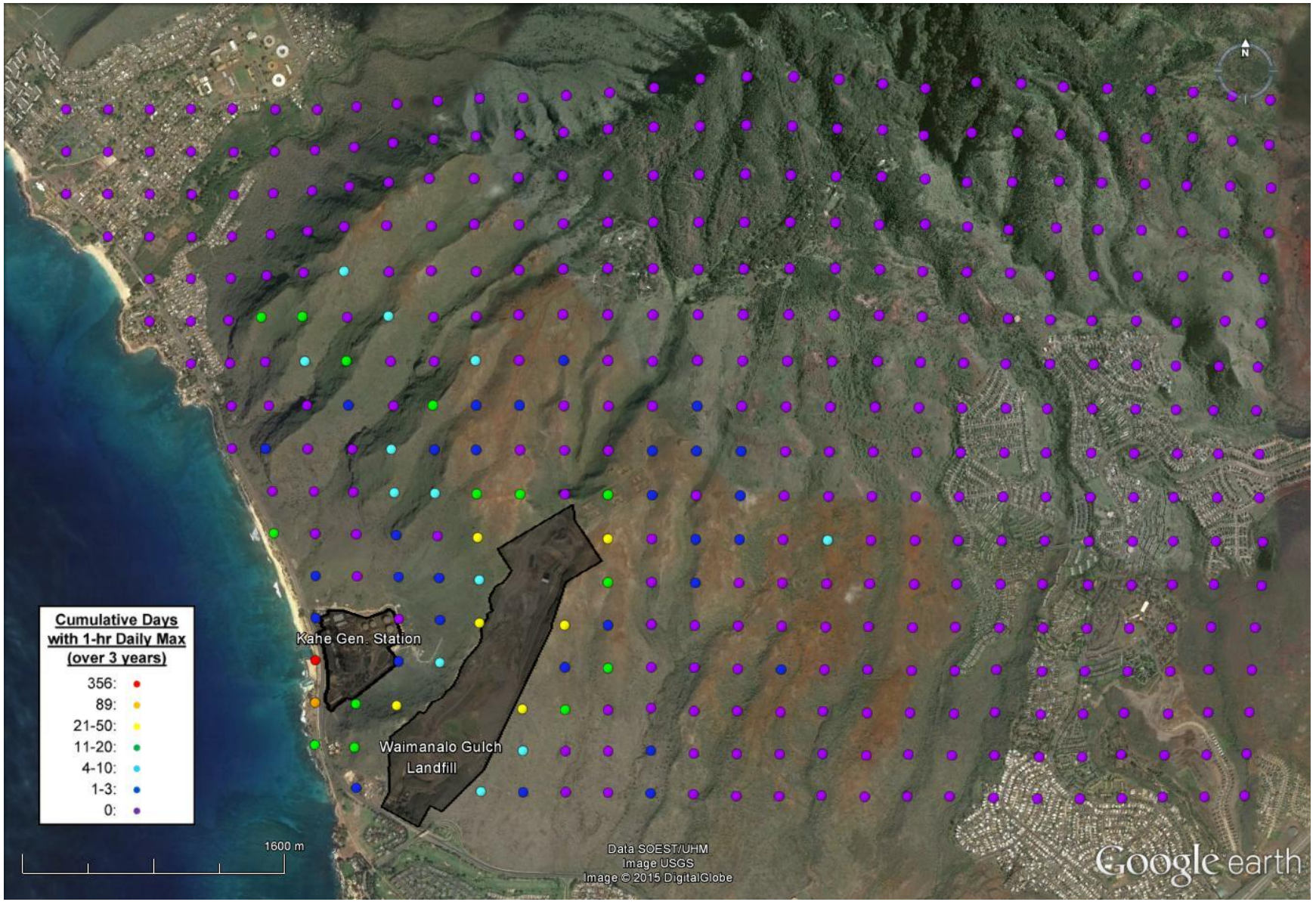


FIGURE 3.1-4 MONITOR PLACEMENT SCORES

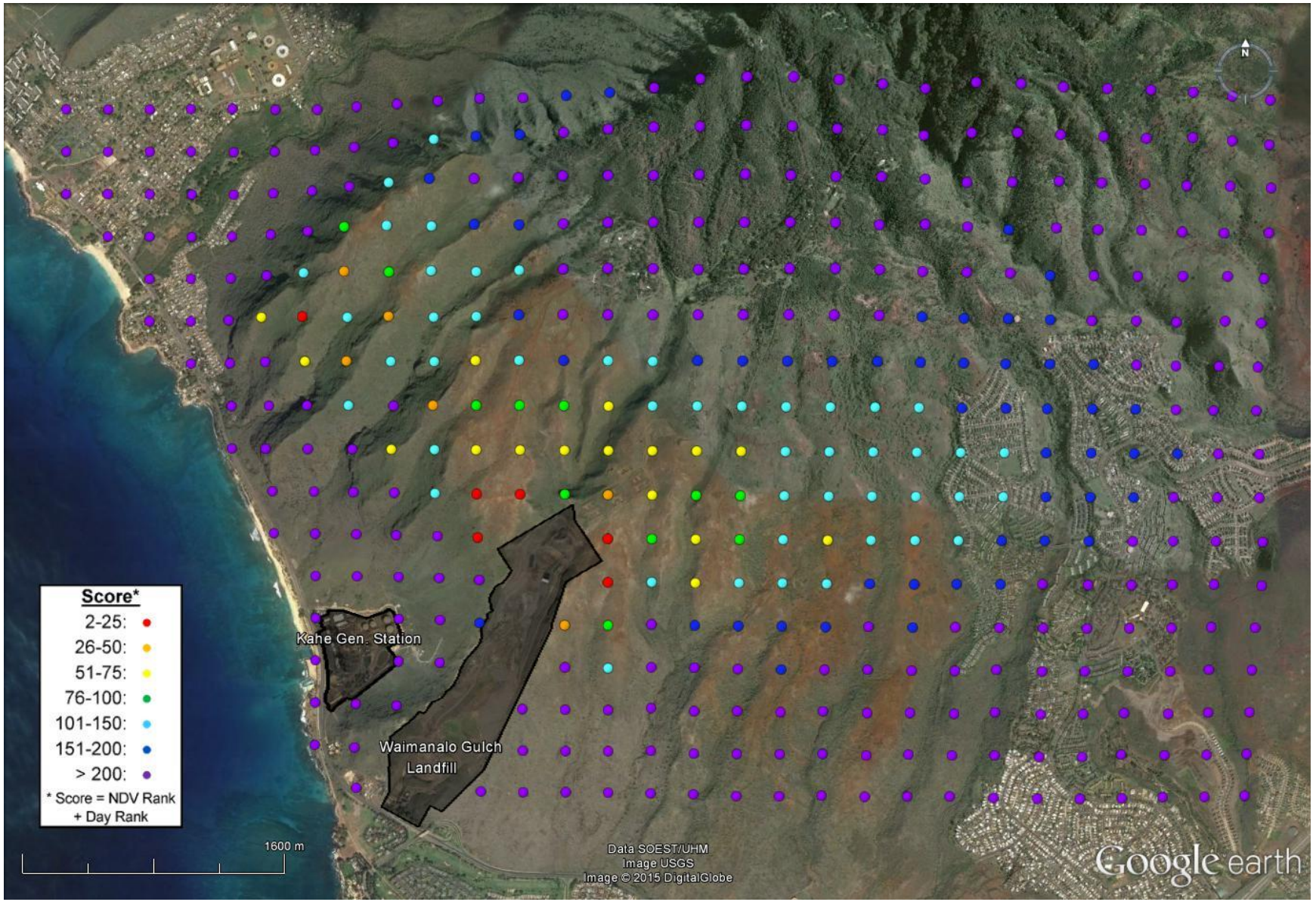


FIGURE 3.1-5 TOP 10 MONITOR PLACEMENT SCORE RANKS

FIGURE 3.2-1 POTENTIAL MONITOR LOCATIONS

FIGURE 3.2-2 AREA 1 POTENTIAL MONITOR LOCATION

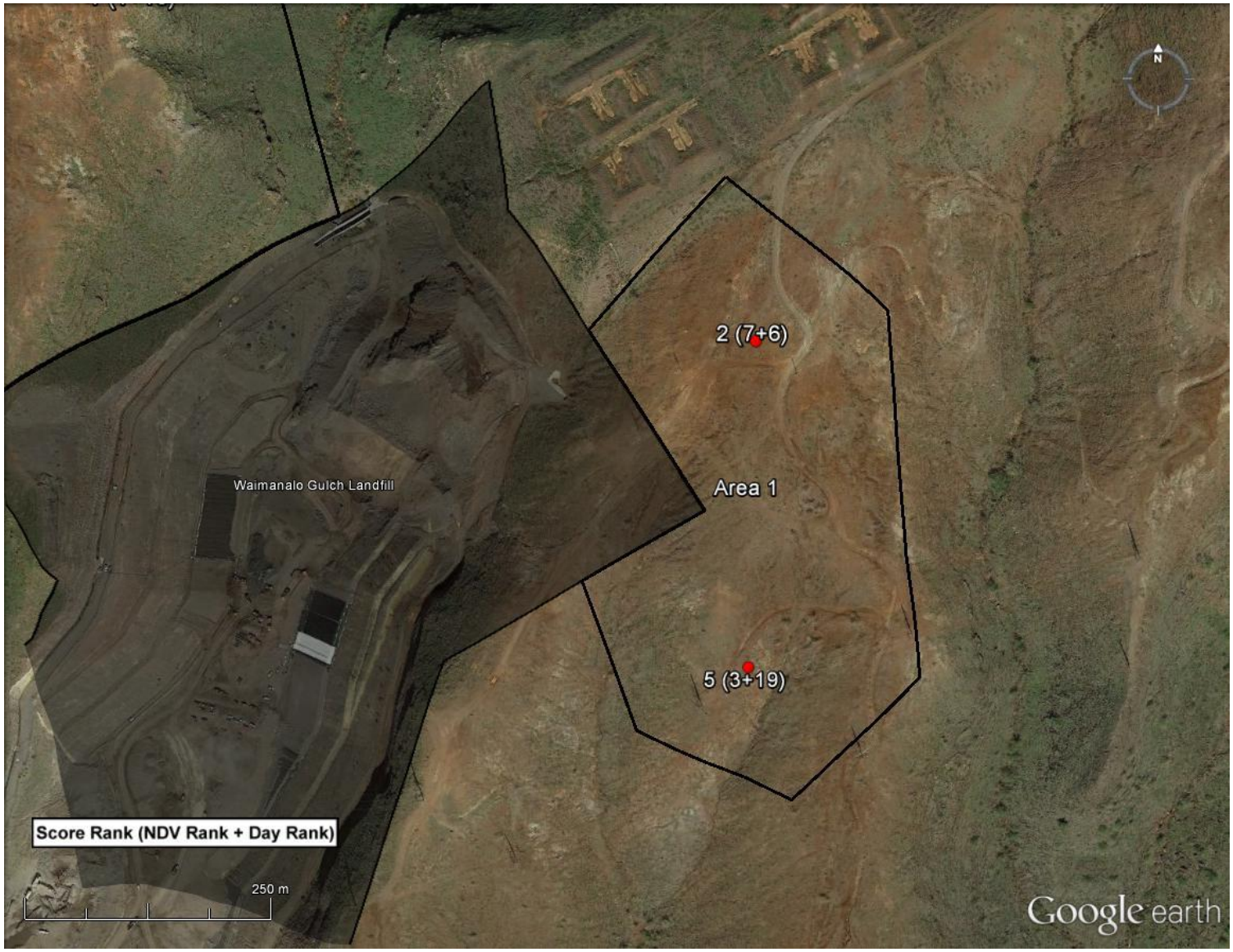


FIGURE 3.2-3 AREA 2 POTENTIAL MONITOR LOCATION

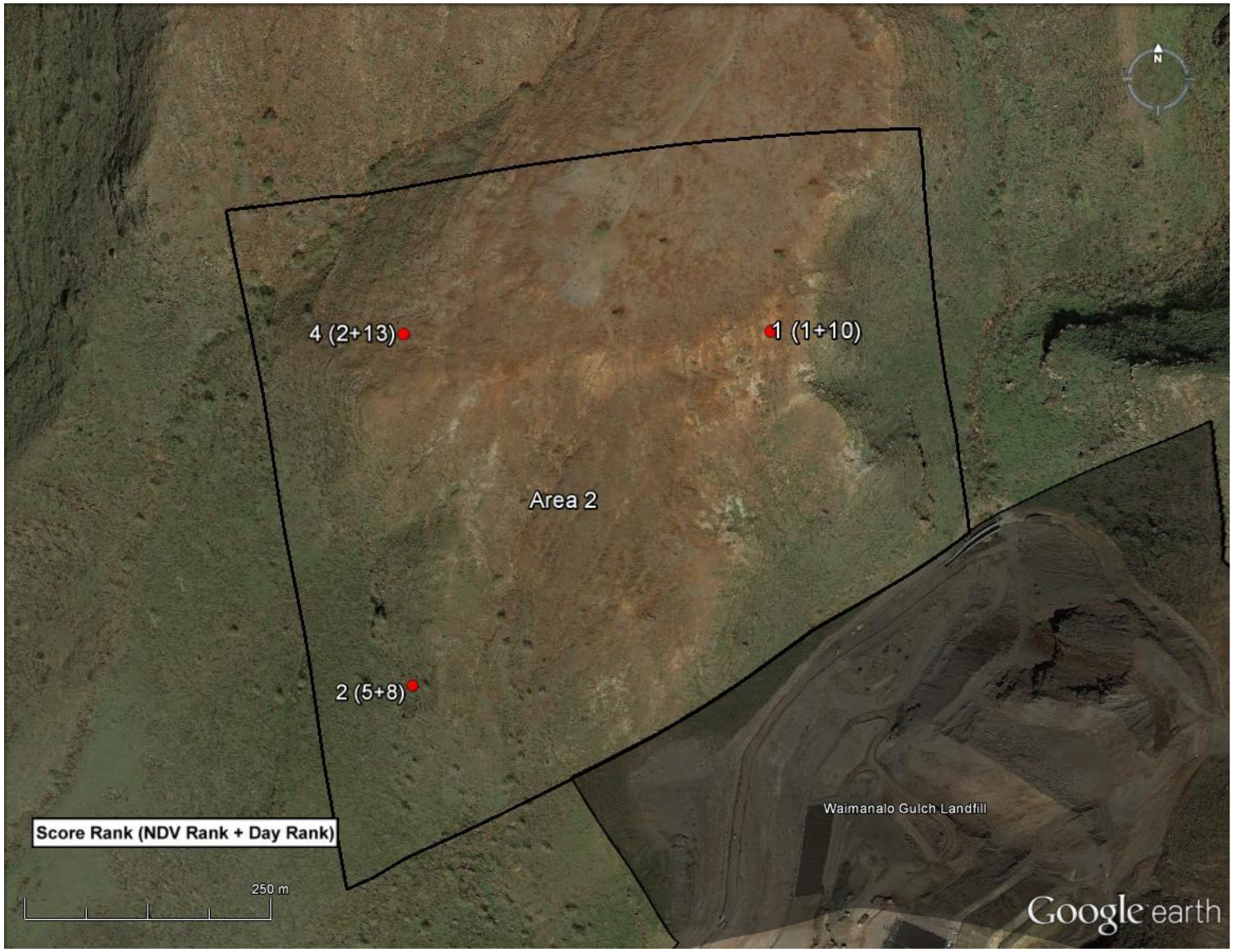
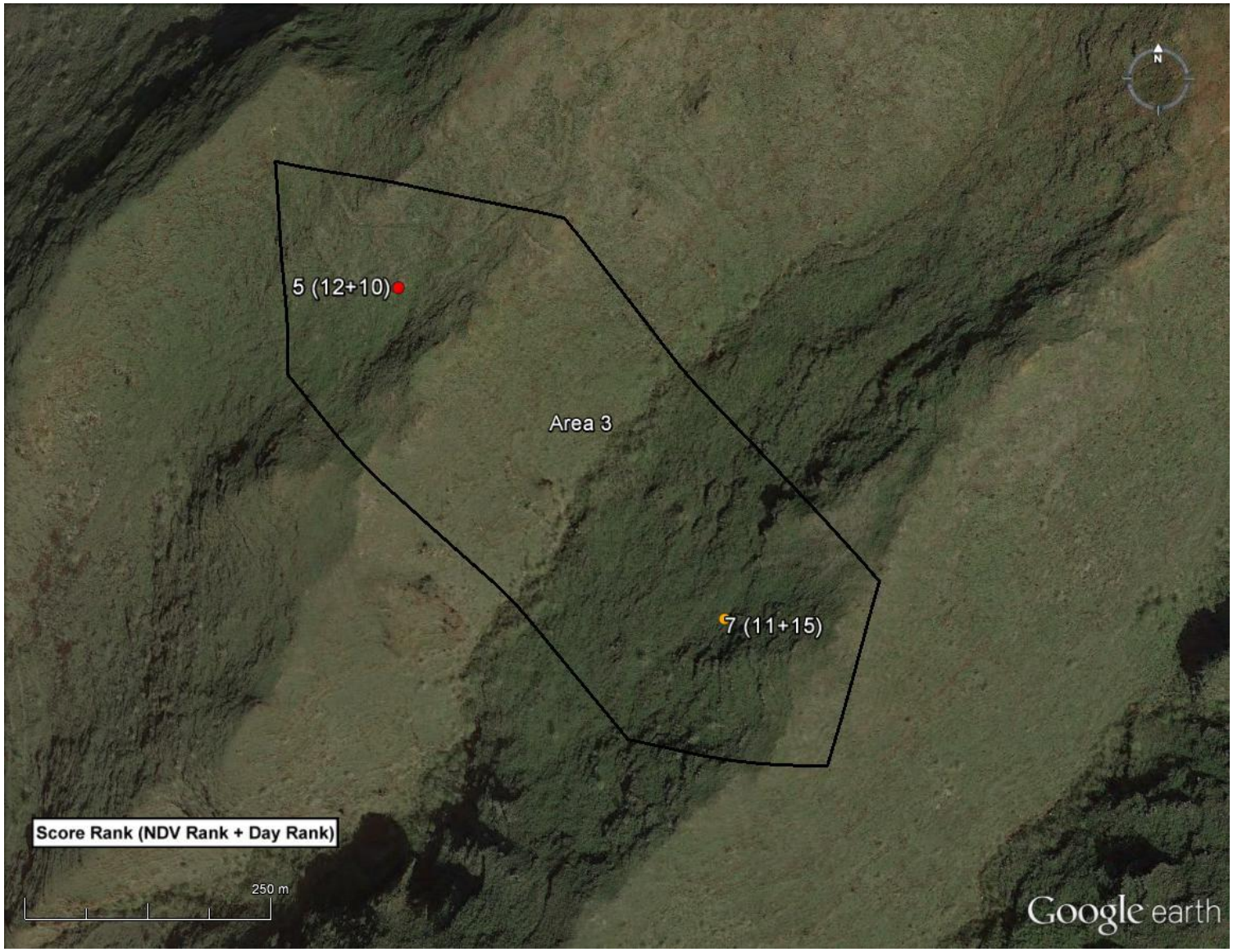


FIGURE 3.2-4 AREA 3 POTENTIAL MONITOR LOCATION



4.0 REFERENCES

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40 CFR 51 - Appendix W. Guideline on Air Quality Models.

Appendix A: Modeling Files Catalogue

TABLE A-1 AERMET PROCESSING FILES

Filename	File Type	Description
KAHE_93-94_S1.INP	Input	Stage 1 input file
KAHE_93-94_S2.INP	Input	Stage 2 input file
KAHE_93-94_S3.INP	Input	Stage 3 input file
22536_93-94.UA	Input	Upper Air Observations from Līhu‘e Airport
22521_93-94.DAT	Input	HNL Airport surface data
KAHE_93-94_S1.MSG	Output	Stage 1 processing information
KAHE_93-94_S1.RPT	Output	Stage 1 summary report
OSQAOUT.DSK	Output	Extracted and QAed surface observations
SFEXOUT.DSK	Output	Extracted surface observations
SFQAOUT.DSK	Output	QAed surface observations
UAEXOUT.DSK	Output	Extracted NWS upper air data
UAQAOUT.DSK	Output	QAed upper air data
KAHE_93-94_S2.MSG	Output	Stage 2 processing information
KAHE_93-94_S2.RPT	Output	Stage 2 summary report
MERGE.DSK	Output	Merged upper air and surface data
KAHE_93-94_S3.MSG	Output	Stage 3 processing information
KAHE_93-94_S3.RPT	Output	Stage 3 summary report
KAHE_93-94.SFC	Output	AERMOD input met. surface data (site-specific data period)
KAHE_93-94.PFL	Output	AERMOD input met. profile data (site-specific data period)
KAHE_SS_12-14.SFC	Output	AERMOD input met. surface data (2012-2014)
KAHE_SS_12-14.PFL	Output	AERMOD input met. profile data (2012-2014)

TABLE A-2 AERMAP PROCESSING FILES

Filename	File Type	Description
Oahu_west_45720481.tif	Input	USGS 1/3 Degree NED covering western O'ahu, downloaded July 17, 2012
KAHE_SO2_F.INP	Input	Initial receptor grid (Grid 1) input file
KAHE_SO2_F.xy	Input	Receptor Grid 1 list of receptor locations
KAHE_SO2_F.out	Output	Grid 1 output file
KAHE_SO2_F.RE	Output	Receptor Grid 1 receptor output file
KAHE_SO2_C.INP	Input	Coarse receptor grid (Grid C) input file
KAHE_SO2_C.xy	Input	Receptor Grid C list of receptor locations
KAHE_SO2_C.out	Output	Grid C output file
KAHE_SO2_C.RE	Output	Receptor Grid C receptor output file

TABLE A-3 BPIPPRM PROCESSING FILES

Filename	File Type	Description
KAHE_BOILER_BPIPPRM.INP	Input	Input BPIPPRM file
KAHE_BOILER_BPIPPRM.OUT	Output	BPIPPRM output information
KAHE_BOILER_BPIPPRM.SUM	Output	BPIPPRM summary file
KAHE_BOILER_BPIPPRM.SO	Output	BPIPPRM output information; Input file for AERMOD

TABLE A-4 AERMOD MODELING RUN LOG

Run ID	Averaging Period	Receptor Grid	Comments
KAHE_NSO2_F	1-hr	Grid 1	Modeled impacts based on normalized 2012-2014 actual SO_2 emissions and actual stack parameters
KAHE_NSO2_FC	1-hr	Grid 1 & Coarse Grid	Modeled impacts based on normalized 2012-2014 actual SO_2 emissions and actual stack parameters

Appendix B: Detailed Scoring Calculations

TABLE B-1 DETAILED SCORING CALCULATIONS

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
591450.00	2362750.00	306.03	943.34	100%	1	19	10	11	1
591200.00	2362500.00	245.62	943.34	85%	5	21	8	13	2
591950.00	2362500.00	295.84	943.34	81%	7	22	6	13	2
591200.00	2362750.00	288.00	943.34	91%	2	17	13	15	4
590200.00	2363750.00	285.46	943.34	76%	12	19	10	22	5
591950.00	2362250.00	259.85	943.34	89%	3	12	19	22	5
590450.00	2363500.00	274.83	943.34	78%	11	15	15	26	7
591950.00	2362750.00	318.48	943.34	83%	6	11	21	27	8
590950.00	2363250.00	304.84	943.34	74%	15	16	14	29	9
591700.00	2362000.00	224.93	943.34	67%	26	48	3	29	9
590700.00	2363750.00	329.80	943.34	75%	14	6	28	42	11
590450.00	2364000.00	341.89	943.34	68%	25	8	25	50	12
589950.00	2363750.00	237.22	943.34	62%	36	15	15	51	13
591200.00	2363000.00	320.22	943.34	73%	18	3	35	53	14
590700.00	2363000.00	245.52	943.34	64%	31	9	23	54	15
590200.00	2363500.00	243.90	943.34	65%	28	7	27	55	16
591200.00	2363500.00	354.48	943.34	71%	21	4	34	55	16
592200.00	2363000.00	341.78	943.34	75%	13	2	42	55	16
592200.00	2362750.00	306.47	943.34	73%	17	2	42	59	19
592700.00	2363000.00	373.80	943.34	64%	32	3	35	67	20
591700.00	2363000.00	303.02	943.34	85%	4	0	65	69	21
592450.00	2362250.00	267.51	943.34	73%	16	1	53	69	21
592450.00	2363000.00	366.90	943.34	65%	30	2	42	72	23
591450.00	2363000.00	325.03	943.34	80%	8	0	65	73	24
591950.00	2363000.00	316.54	943.34	79%	9	0	65	74	25
591950.00	2363250.00	313.47	943.34	79%	10	0	65	75	26
592450.00	2362500.00	286.01	943.34	70%	22	1	53	75	26
593200.00	2362500.00	306.22	943.34	59%	45	5	30	75	26
592700.00	2362750.00	333.73	943.34	63%	34	2	42	76	29
591200.00	2363250.00	320.33	943.34	63%	35	2	42	77	30
592700.00	2362500.00	288.39	943.34	66%	27	1	53	80	31
592200.00	2362500.00	274.52	943.34	73%	19	0	65	84	32
591700.00	2363250.00	359.14	943.34	72%	20	0	65	85	33
591450.00	2363250.00	358.17	943.34	56%	51	3	35	86	34
590700.00	2364000.00	316.47	943.34	70%	23	0	65	88	35
592450.00	2362750.00	320.52	943.34	69%	24	0	65	89	36
590450.00	2364250.00	333.68	943.34	65%	29	0	65	94	37
591950.00	2362000.00	224.88	943.34	59%	43	1	53	96	38
591700.00	2362750.00	259.57	943.34	64%	33	0	65	98	39
592950.00	2362500.00	272.72	943.34	62%	37	0	65	102	40
591200.00	2363750.00	327.78	943.34	62%	38	0	65	103	41
590700.00	2363500.00	263.74	943.34	61%	39	0	65	104	42
590200.00	2364000.00	269.96	943.34	61%	40	0	65	105	43
592200.00	2363250.00	380.30	943.34	61%	41	0	65	106	44
590450.00	2363750.00	262.08	943.34	60%	42	0	65	107	45
592450.00	2363250.00	403.26	943.34	54%	54	1	53	107	45
590450.00	2363250.00	231.92	943.34	54%	56	1	53	109	47
592200.00	2362250.00	235.82	943.34	59%	44	0	65	109	47
590700.00	2364500.00	335.62	943.34	59%	46	0	65	111	49
590950.00	2362750.00	229.39	943.34	44%	81	5	30	111	49
592700.00	2362250.00	253.65	943.34	58%	47	0	65	112	51
593200.00	2362750.00	328.89	943.34	57%	48	0	65	113	52
592950.00	2363000.00	361.69	943.34	57%	49	0	65	114	53
592950.00	2362750.00	318.82	943.34	56%	50	0	65	115	54
591200.00	2364000.00	348.33	943.34	55%	52	0	65	117	55

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
590700.00	2364250.00	378.81	943.34	55%	53	0	65	118	56
590950.00	2363000.00	243.15	943.34	46%	77	2	42	119	57
593450.00	2362750.00	304.94	943.34	54%	55	0	65	120	58
593450.00	2362500.00	282.87	943.34	53%	57	0	65	122	59
592700.00	2363250.00	408.37	943.34	53%	58	0	65	123	60
592200.00	2363500.00	369.02	943.34	53%	59	0	65	124	61
590950.00	2364000.00	373.54	943.34	52%	60	0	65	125	62
593200.00	2363250.00	374.84	943.34	52%	61	0	65	126	63
593200.00	2363000.00	347.41	943.34	51%	62	0	65	127	64
590950.00	2363750.00	289.80	943.34	51%	63	0	65	128	65
590950.00	2363500.00	269.64	943.34	51%	64	0	65	129	66
593200.00	2362250.00	272.41	943.34	51%	65	0	65	130	67
593700.00	2362500.00	288.51	943.34	50%	66	0	65	131	68
592950.00	2363250.00	389.29	943.34	49%	67	0	65	132	69
591450.00	2364000.00	414.83	943.34	49%	68	0	65	133	70
591450.00	2363500.00	396.15	943.34	49%	69	0	65	134	71
593700.00	2362750.00	305.51	943.34	48%	70	0	65	135	72
590950.00	2364250.00	368.43	943.34	48%	71	0	65	136	73
591950.00	2361750.00	195.86	943.34	34%	125	18	12	137	74
593450.00	2363250.00	381.71	943.34	48%	72	0	65	137	74
590950.00	2364750.00	314.99	943.34	48%	73	0	65	138	76
592950.00	2362250.00	243.93	943.34	47%	74	0	65	139	77
593450.00	2363000.00	336.15	943.34	47%	75	0	65	140	78
593950.00	2362750.00	293.49	943.34	46%	76	0	65	141	79
591950.00	2363500.00	406.72	943.34	44%	78	0	65	143	80
593950.00	2362500.00	275.63	943.34	44%	79	0	65	144	81
594200.00	2362750.00	291.41	943.34	44%	80	0	65	145	82
593950.00	2363000.00	319.65	943.34	44%	82	0	65	147	83
593700.00	2363250.00	369.27	943.34	43%	83	0	65	148	84
593700.00	2363000.00	320.84	943.34	43%	84	0	65	149	85
594200.00	2363000.00	313.81	943.34	43%	85	0	65	150	86
591450.00	2364250.00	418.98	943.34	43%	86	0	65	151	87
593450.00	2362250.00	255.88	943.34	42%	87	0	65	152	88
593950.00	2363500.00	371.41	943.34	42%	88	0	65	153	89
593700.00	2362250.00	274.92	943.34	41%	89	0	65	154	90
593200.00	2362000.00	242.77	943.34	41%	90	0	65	155	91
593200.00	2363500.00	433.32	943.34	41%	91	0	65	156	92
591950.00	2365000.00	373.78	943.34	40%	92	0	65	157	93
592450.00	2362000.00	216.26	943.34	40%	93	0	65	158	94
594200.00	2362500.00	268.56	943.34	40%	94	0	65	159	95
594450.00	2362750.00	270.53	943.34	40%	95	0	65	160	96
593950.00	2363250.00	336.95	943.34	40%	96	0	65	161	97
592950.00	2363500.00	437.50	943.34	40%	97	0	65	162	98
592700.00	2362000.00	219.15	943.34	39%	98	0	65	163	99
594700.00	2362750.00	283.47	943.34	38%	99	0	65	164	100
591700.00	2363500.00	389.70	943.34	37%	112	1	53	165	101
592700.00	2363500.00	442.35	943.34	38%	100	0	65	165	101
594200.00	2363250.00	339.95	943.34	38%	101	0	65	166	103
591700.00	2365000.00	317.22	943.34	38%	102	0	65	167	104
591450.00	2363750.00	416.36	943.34	38%	103	0	65	168	105
594450.00	2363250.00	282.99	943.34	38%	104	0	65	169	106
594200.00	2363750.00	367.67	943.34	38%	105	0	65	170	107
591200.00	2364250.00	424.70	943.34	38%	106	0	65	171	108
594950.00	2363000.00	280.39	943.34	37%	107	0	65	172	109
593700.00	2363500.00	399.48	943.34	37%	108	0	65	173	110

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
592950.00	2362000.00	221.52	943.34	37%	109	0	65	174	111
594700.00	2363000.00	292.60	943.34	37%	110	0	65	175	112
594450.00	2363000.00	269.50	943.34	37%	111	0	65	176	113
591200.00	2364750.00	381.06	943.34	37%	113	0	65	178	114
591200.00	2362000.00	171.46	943.34	26%	174	24	5	179	115
594200.00	2364250.00	363.60	943.34	37%	114	0	65	179	115
592450.00	2363500.00	444.04	943.34	37%	115	0	65	180	117
595200.00	2363000.00	276.45	943.34	36%	116	0	65	181	118
594700.00	2363250.00	306.98	943.34	36%	117	0	65	182	119
593950.00	2363750.00	371.26	943.34	36%	118	0	65	183	120
594950.00	2362750.00	279.98	943.34	36%	119	0	65	184	121
594200.00	2363500.00	325.66	943.34	35%	120	0	65	185	122
593450.00	2363500.00	447.91	943.34	35%	121	0	65	186	123
594950.00	2363250.00	296.52	943.34	35%	122	0	65	187	124
593700.00	2362000.00	242.76	943.34	35%	123	0	65	188	125
592950.00	2361750.00	211.38	943.34	32%	136	1	53	189	126
594450.00	2363750.00	329.72	943.34	35%	124	0	65	189	126
594450.00	2362500.00	258.45	943.34	34%	126	0	65	191	128
593700.00	2363750.00	429.36	943.34	34%	127	0	65	192	129
594700.00	2362500.00	266.42	943.34	33%	128	0	65	193	130
591450.00	2364750.00	415.09	943.34	33%	129	0	65	194	131
594450.00	2363500.00	328.55	943.34	33%	130	0	65	195	132
590950.00	2364500.00	442.73	943.34	33%	131	0	65	196	133
593950.00	2362250.00	244.21	943.34	33%	132	0	65	197	134
594700.00	2363500.00	324.50	943.34	32%	133	0	65	198	135
594450.00	2364000.00	315.01	943.34	32%	134	0	65	199	136
594200.00	2362250.00	253.97	943.34	32%	135	0	65	200	137
593950.00	2364000.00	423.86	943.34	32%	137	0	65	202	138
594200.00	2364000.00	402.60	943.34	31%	138	0	65	203	139
594950.00	2362500.00	271.58	943.34	31%	139	0	65	204	140
594950.00	2363500.00	305.75	943.34	31%	140	0	65	205	141
591200.00	2364500.00	439.66	943.34	31%	141	0	65	206	142
594700.00	2364000.00	312.88	943.34	31%	142	0	65	207	143
590450.00	2364500.00	237.42	943.34	30%	143	0	65	208	144
594950.00	2364000.00	318.09	943.34	30%	144	0	65	209	145
593200.00	2361750.00	212.28	943.34	30%	145	0	65	210	146
594700.00	2363750.00	287.86	943.34	30%	146	0	65	211	147
594700.00	2362250.00	259.47	943.34	30%	147	0	65	212	148
593700.00	2364000.00	442.20	943.34	30%	148	0	65	213	149
594700.00	2364250.00	380.07	943.34	29%	149	0	65	214	150
595200.00	2364000.00	331.35	943.34	29%	150	0	65	215	151
593450.00	2362000.00	211.66	943.34	29%	151	0	65	216	152
590700.00	2364750.00	236.92	952.31	29%	152	0	65	217	153
593700.00	2361750.00	220.60	943.34	28%	153	0	65	218	154
594450.00	2364250.00	421.87	943.34	28%	154	0	65	219	155
591450.00	2361500.00	142.44	943.34	21%	214	22	6	220	156
595200.00	2364250.00	319.10	943.34	28%	155	0	65	220	156
592450.00	2363750.00	470.06	943.34	28%	156	0	65	221	158
593950.00	2364500.00	413.86	943.34	28%	157	0	65	222	159
594950.00	2363750.00	300.52	943.34	28%	158	0	65	223	160
591700.00	2363750.00	449.83	943.34	28%	159	0	65	224	161
594200.00	2364500.00	421.98	943.34	28%	160	0	65	225	162
591700.00	2361750.00	180.47	943.34	26%	184	2	42	226	163
594200.00	2362000.00	232.84	943.34	28%	161	0	65	226	163
593950.00	2362000.00	224.26	943.34	28%	162	0	65	227	165

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
591200.00	2362250.00	174.87	943.34	23%	203	8	25	228	166
594950.00	2364250.00	365.03	943.34	28%	163	0	65	228	166
593950.00	2364250.00	439.13	943.34	28%	164	0	65	229	168
590200.00	2361750.00	3.51	943.34	20%	229	356	1	230	169
592700.00	2361750.00	201.85	943.34	28%	165	0	65	230	169
594450.00	2362000.00	239.98	943.34	27%	166	0	65	231	171
594950.00	2362250.00	252.55	943.34	27%	167	0	65	232	172
590200.00	2363250.00	188.18	943.34	27%	168	0	65	233	173
591200.00	2365000.00	259.51	952.31	27%	169	0	65	234	174
595450.00	2364000.00	339.88	943.34	27%	170	0	65	235	175
591450.00	2365000.00	269.83	952.31	27%	171	0	65	236	176
595450.00	2365000.00	377.00	943.34	27%	172	0	65	237	177
595450.00	2363750.00	313.98	943.34	26%	173	0	65	238	178
593950.00	2361750.00	220.16	943.34	26%	175	0	65	240	179
594950.00	2364500.00	405.81	943.34	26%	176	0	65	241	180
595450.00	2364250.00	289.51	943.34	26%	177	0	65	242	181
595200.00	2363250.00	248.24	943.34	26%	178	0	65	243	182
595700.00	2364250.00	306.45	943.34	26%	179	0	65	244	183
594950.00	2364750.00	412.79	943.34	26%	180	0	65	245	184
594700.00	2362000.00	242.32	943.34	26%	181	0	65	246	185
595700.00	2364500.00	324.04	943.34	26%	182	0	65	247	186
592700.00	2363750.00	480.01	943.34	26%	183	0	65	248	187
595200.00	2364500.00	369.72	943.34	26%	185	0	65	250	188
591700.00	2361500.00	157.94	943.34	20%	230	11	21	251	189
592200.00	2363750.00	452.82	943.34	26%	186	0	65	251	189
594700.00	2364500.00	423.48	943.34	25%	187	0	65	252	191
591700.00	2364750.00	472.16	943.34	25%	188	0	65	253	192
595450.00	2364500.00	357.70	943.34	25%	189	0	65	254	193
591950.00	2363750.00	445.20	943.34	25%	190	0	65	255	194
593450.00	2363750.00	492.31	843.67	25%	191	0	65	256	195
595450.00	2363000.00	242.12	943.34	25%	192	0	65	257	196
591450.00	2364500.00	465.82	943.34	25%	193	0	65	258	197
595450.00	2364750.00	372.95	943.34	24%	194	0	65	259	198
591700.00	2364000.00	459.25	943.34	24%	195	0	65	260	199
595700.00	2365000.00	309.76	943.34	24%	196	0	65	261	200
594450.00	2361750.00	224.73	943.34	24%	197	0	65	262	201
595200.00	2363500.00	248.56	943.34	24%	198	0	65	263	202
595700.00	2364750.00	297.73	943.34	23%	199	0	65	264	203
593200.00	2363750.00	497.61	843.67	23%	200	0	65	265	204
594450.00	2364500.00	454.31	943.34	23%	201	0	65	266	205
593450.00	2361750.00	203.92	943.34	23%	202	0	65	267	206
594700.00	2364750.00	443.60	943.34	22%	204	0	65	269	207
589950.00	2363000.00	162.20	943.34	19%	235	3	35	270	208
595700.00	2362500.00	254.44	943.34	22%	205	0	65	270	208
591700.00	2364250.00	453.26	943.34	22%	206	0	65	271	210
595700.00	2362250.00	245.61	943.34	22%	207	0	65	272	211
595200.00	2362750.00	231.05	943.34	22%	208	0	65	273	212
590700.00	2361500.00	69.98	943.34	15%	270	42	4	274	213
592950.00	2363750.00	497.71	842.06	22%	209	0	65	274	213
594950.00	2362000.00	227.85	943.34	22%	210	0	65	275	215
590700.00	2362750.00	154.58	943.34	17%	246	5	30	276	216
593450.00	2364250.00	474.22	943.34	22%	211	0	65	276	216
590200.00	2364250.00	201.41	943.34	21%	212	0	65	277	218
595200.00	2364750.00	437.44	943.34	21%	213	0	65	278	219
595450.00	2363500.00	239.78	943.34	21%	215	0	65	280	220

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
595450.00	2362750.00	232.68	943.34	21%	216	0	65	281	221
595200.00	2362500.00	227.15	943.34	21%	217	0	65	282	222
590200.00	2361500.00	5.03	943.34	14%	281	89	2	283	223
590200.00	2363000.00	171.70	943.34	21%	218	0	65	283	223
593450.00	2364000.00	497.13	943.34	21%	219	0	65	284	225
594450.00	2362250.00	215.63	943.34	21%	220	0	65	285	226
590700.00	2363250.00	182.88	943.34	21%	221	0	65	286	227
593700.00	2364750.00	442.80	943.34	21%	222	0	65	287	228
592700.00	2364000.00	497.52	943.34	21%	223	0	65	288	229
591950.00	2364000.00	488.42	943.34	21%	224	0	65	289	230
595200.00	2365000.00	444.17	943.34	20%	225	0	65	290	231
591450.00	2361250.00	110.50	943.34	15%	268	9	23	291	232
592450.00	2364000.00	475.41	943.34	20%	226	0	65	291	232
590450.00	2361500.00	33.99	943.34	14%	283	20	9	292	234
595200.00	2362250.00	221.43	943.34	20%	227	0	65	292	234
594700.00	2361750.00	214.81	943.34	20%	228	0	65	293	236
592200.00	2362000.00	178.14	943.34	20%	231	0	65	296	237
595200.00	2363750.00	249.95	943.34	20%	232	0	65	297	238
594450.00	2364750.00	477.22	943.34	19%	233	0	65	298	239
592200.00	2364000.00	492.58	943.34	19%	234	0	65	299	240
589950.00	2362500.00	7.47	952.31	14%	284	14	17	301	241
593700.00	2364250.00	495.60	943.34	19%	236	0	65	301	241
590200.00	2362250.00	8.28	943.34	15%	267	3	35	302	243
591700.00	2364500.00	519.70	943.34	19%	237	0	65	302	243
593950.00	2361500.00	205.75	943.34	19%	238	0	65	303	245
590700.00	2362500.00	109.61	943.34	15%	262	2	42	304	246
593450.00	2361500.00	196.68	943.34	18%	239	0	65	304	246
593700.00	2364500.00	492.21	943.34	18%	240	0	65	305	248
595450.00	2362500.00	219.38	943.34	18%	241	0	65	306	249
592950.00	2364000.00	519.65	843.67	18%	242	0	65	307	250
594950.00	2365000.00	475.57	943.34	18%	243	0	65	308	251
595700.00	2364000.00	250.53	943.34	17%	244	0	65	309	252
595200.00	2362000.00	209.59	943.34	17%	245	0	65	310	253
594450.00	2361500.00	206.89	943.34	17%	247	0	65	312	254
589950.00	2363500.00	167.35	943.34	17%	248	0	65	313	255
592950.00	2361500.00	187.92	943.34	17%	249	0	65	314	256
590450.00	2361250.00	56.09	943.34	13%	297	13	18	315	257
591950.00	2364250.00	495.84	943.34	17%	250	0	65	315	257
594950.00	2361750.00	209.48	943.34	17%	251	0	65	316	259
595700.00	2363000.00	215.03	943.34	17%	252	0	65	317	260
592200.00	2364250.00	509.17	943.34	17%	253	0	65	318	261
592450.00	2361500.00	170.82	943.34	17%	254	0	65	319	262
593200.00	2364000.00	529.03	818.76	17%	255	0	65	320	263
593200.00	2364250.00	529.06	943.34	17%	256	0	65	321	264
590700.00	2362250.00	40.12	943.34	14%	287	3	35	322	265
591950.00	2361500.00	154.14	943.34	16%	257	0	65	322	265
590950.00	2362500.00	148.74	943.34	16%	258	0	65	323	267
595700.00	2362750.00	215.28	943.34	16%	259	0	65	324	268
590950.00	2365000.00	205.33	952.31	16%	260	0	65	325	269
592450.00	2364250.00	517.97	943.34	16%	261	0	65	326	270
590200.00	2361250.00	2.46	943.34	12%	309	12	19	328	271
593950.00	2364750.00	507.24	943.34	15%	263	0	65	328	271
592200.00	2365000.00	466.10	943.34	15%	264	0	65	329	273
594700.00	2365000.00	497.68	943.34	15%	265	0	65	330	274
593700.00	2365000.00	474.40	943.34	15%	266	0	65	331	275

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
592950.00	2364250.00	531.45	943.34	15%	269	0	65	334	276
590450.00	2363000.00	152.13	943.34	15%	271	0	65	336	277
591700.00	2361250.00	112.78	943.34	15%	272	0	65	337	278
591950.00	2364500.00	534.47	943.34	15%	273	0	65	338	279
593450.00	2364500.00	536.77	943.34	15%	274	0	65	339	280
593700.00	2361500.00	184.46	943.34	15%	275	0	65	340	281
592700.00	2364250.00	524.53	943.34	14%	276	0	65	341	282
595450.00	2362250.00	198.32	943.34	14%	277	0	65	342	283
594200.00	2364750.00	515.17	943.34	14%	278	0	65	343	284
590450.00	2362750.00	115.18	943.34	14%	279	0	65	344	285
590200.00	2362500.00	20.00	943.34	14%	280	0	65	345	286
590950.00	2362250.00	86.49	943.34	13%	292	1	53	345	286
592200.00	2361750.00	160.02	943.34	14%	282	0	65	347	288
591450.00	2361000.00	82.92	943.34	11%	313	3	35	348	289
592700.00	2361500.00	161.96	943.34	14%	285	0	65	350	290
592450.00	2361750.00	164.63	943.34	14%	286	0	65	351	291
594700.00	2361500.00	192.44	943.34	14%	288	0	65	353	292
591950.00	2364750.00	543.07	943.34	13%	289	0	65	354	293
593450.00	2361250.00	172.37	943.34	13%	290	0	65	355	294
595200.00	2361750.00	199.89	943.34	13%	291	0	65	356	295
592450.00	2361250.00	152.00	943.34	13%	293	0	65	358	296
591200.00	2361000.00	71.87	943.34	10%	331	6	28	359	297
594450.00	2365000.00	519.88	943.34	13%	294	0	65	359	297
593200.00	2364500.00	537.20	943.34	13%	295	0	65	360	299
595700.00	2363750.00	220.12	943.34	13%	296	0	65	361	300
591950.00	2361250.00	106.16	943.34	13%	298	0	65	363	301
590450.00	2361000.00	11.02	943.34	10%	322	2	42	364	302
592200.00	2364500.00	536.39	943.34	13%	299	0	65	364	302
592700.00	2361250.00	154.40	943.34	13%	300	0	65	365	304
590450.00	2362500.00	44.44	943.34	13%	301	0	65	366	305
592950.00	2361250.00	155.84	943.34	13%	302	0	65	367	306
589950.00	2362750.00	36.83	943.34	13%	303	0	65	368	307
592200.00	2361250.00	86.96	943.34	11%	315	1	53	368	307
590950.00	2362000.00	51.80	943.34	10%	327	2	42	369	309
593200.00	2361500.00	156.78	943.34	12%	304	0	65	369	309
590200.00	2362750.00	46.22	943.34	12%	305	0	65	370	311
594450.00	2361250.00	185.15	943.34	12%	306	0	65	371	312
592200.00	2361500.00	93.84	943.34	12%	307	0	65	372	313
592200.00	2361000.00	86.32	943.34	11%	320	1	53	373	314
594700.00	2361250.00	184.71	943.34	12%	308	0	65	373	314
590950.00	2361750.00	50.56	943.34	9%	344	5	30	374	316
594200.00	2361750.00	175.26	943.34	12%	310	0	65	375	317
593450.00	2364750.00	554.60	943.34	12%	311	0	65	376	318
593200.00	2361250.00	145.33	943.34	11%	312	0	65	377	319
593950.00	2361250.00	163.27	943.34	11%	314	0	65	379	320
594200.00	2365000.00	566.84	943.34	11%	316	0	65	381	321
590450.00	2362250.00	19.90	943.34	11%	317	0	65	382	322
592450.00	2364500.00	564.05	818.76	11%	318	0	65	383	323
591950.00	2361000.00	82.79	943.34	11%	319	0	65	384	324
592450.00	2361000.00	100.30	943.34	10%	321	0	65	386	325
593700.00	2361250.00	145.38	943.34	10%	323	0	65	388	326
594450.00	2361000.00	151.84	943.34	10%	324	0	65	389	327
592950.00	2364500.00	562.01	943.34	10%	325	0	65	390	328
594700.00	2361000.00	153.81	943.34	10%	326	0	65	391	329
595200.00	2361500.00	176.10	943.34	10%	328	0	65	393	330

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
595700.00	2362000.00	178.25	943.34	10%	329	0	65	394	331
594200.00	2361000.00	145.28	943.34	10%	330	0	65	395	332
592700.00	2361000.00	131.92	943.34	10%	332	0	65	397	333
592200.00	2364750.00	586.51	785.55	10%	333	0	65	398	334
589700.00	2363000.00	15.73	952.31	10%	334	0	65	399	335
591700.00	2361000.00	75.32	943.34	10%	335	0	65	400	336
590200.00	2362000.00	3.97	943.34	8%	359	2	42	401	337
592950.00	2361000.00	134.95	943.34	10%	336	0	65	401	337
594200.00	2361250.00	150.89	943.34	10%	337	0	65	402	339
595700.00	2363500.00	187.75	943.34	10%	338	0	65	403	340
590700.00	2361750.00	24.53	943.34	9%	351	1	53	404	341
592700.00	2364500.00	567.90	818.76	10%	339	0	65	404	341
593950.00	2365000.00	590.33	943.34	9%	340	0	65	405	343
589950.00	2364000.00	154.12	943.34	9%	341	0	65	406	344
594200.00	2361500.00	153.52	943.34	9%	342	0	65	407	345
595700.00	2363250.00	178.01	943.34	9%	343	0	65	408	346
593200.00	2361000.00	116.90	943.34	9%	345	0	65	410	347
593450.00	2365000.00	560.57	943.34	9%	346	0	65	411	348
595450.00	2363250.00	178.36	943.34	9%	347	0	65	412	349
595450.00	2362000.00	166.56	943.34	9%	348	0	65	413	350
589950.00	2363250.00	102.77	943.34	9%	349	0	65	414	351
593200.00	2364750.00	575.25	943.34	9%	350	0	65	415	352
593450.00	2361000.00	132.30	943.34	9%	352	0	65	417	353
590700.00	2362000.00	24.41	943.34	8%	353	0	65	418	354
594950.00	2361500.00	156.75	943.34	8%	354	0	65	419	355
589700.00	2363250.00	23.48	952.31	8%	355	0	65	420	356
593700.00	2361000.00	123.64	943.34	8%	356	0	65	421	357
594950.00	2361000.00	135.51	943.34	8%	357	0	65	422	358
592450.00	2364750.00	595.17	785.55	8%	358	0	65	423	359
590700.00	2365000.00	146.11	952.31	8%	360	0	65	425	360
588700.00	2364750.00	2.03	952.31	8%	361	0	65	426	361
594950.00	2361250.00	119.20	943.34	7%	362	0	65	427	362
589450.00	2363500.00	5.75	952.31	7%	363	0	65	428	363
589200.00	2364000.00	3.41	952.31	7%	364	0	65	429	364
593950.00	2361000.00	116.46	943.34	7%	365	0	65	430	365
588700.00	2364500.00	1.00	952.31	7%	366	0	65	431	366
589700.00	2363500.00	53.72	952.31	7%	367	0	65	432	367
589200.00	2363750.00	1.00	952.31	7%	368	0	65	433	368
588950.00	2364250.00	2.00	952.31	7%	369	0	65	434	369
595200.00	2361250.00	128.84	943.34	7%	370	0	65	435	370
595700.00	2361750.00	143.94	943.34	7%	371	0	65	436	371
595450.00	2361500.00	136.02	943.34	7%	372	0	65	437	372
589450.00	2363750.00	8.44	952.31	7%	373	0	65	438	373
595450.00	2361750.00	139.09	943.34	7%	374	0	65	439	374
595450.00	2361250.00	123.43	943.34	7%	375	0	65	440	375
589200.00	2364250.00	3.95	952.31	7%	376	0	65	441	376
595700.00	2361500.00	122.37	943.34	7%	377	0	65	442	377
595700.00	2361250.00	92.34	943.34	7%	378	0	65	443	378
588950.00	2364500.00	7.46	952.31	7%	379	0	65	444	379
588950.00	2364750.00	6.02	952.31	7%	380	0	65	445	380
592950.00	2364750.00	614.99	785.55	7%	381	0	65	446	381
595200.00	2361000.00	110.51	943.34	7%	382	0	65	447	382
592450.00	2365000.00	619.28	785.55	7%	383	0	65	448	383
589700.00	2363750.00	74.30	952.31	7%	384	0	65	449	384
589200.00	2364500.00	9.24	952.31	7%	385	0	65	450	385

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
589700.00	2364000.00	47.88	952.31	7%	386	0	65	451	386
588700.00	2365000.00	5.00	952.31	7%	387	0	65	452	387
588950.00	2365000.00	6.23	952.31	7%	388	0	65	453	388
589450.00	2364000.00	11.04	952.31	7%	389	0	65	454	389
595450.00	2361000.00	99.42	943.34	7%	390	0	65	455	390
589950.00	2364250.00	90.34	952.31	7%	391	0	65	456	391
590450.00	2364750.00	133.91	952.31	7%	392	0	65	457	392
593200.00	2365000.00	626.88	818.76	6%	393	0	65	458	393
589700.00	2364250.00	26.90	952.31	6%	394	0	65	459	394
592700.00	2364750.00	637.75	780.84	6%	395	0	65	460	395
589200.00	2364750.00	9.49	952.31	6%	396	0	65	461	396
589450.00	2364250.00	1.03	952.31	6%	397	0	65	462	397
595700.00	2361000.00	68.01	943.34	6%	398	0	65	463	398
590200.00	2364500.00	115.96	952.31	6%	399	0	65	464	399
589950.00	2364500.00	46.93	952.31	6%	400	0	65	465	400
589200.00	2365000.00	12.24	952.31	6%	401	0	65	466	401
589450.00	2364750.00	18.88	952.31	6%	402	0	65	467	402
589450.00	2364500.00	6.00	952.31	6%	403	0	65	468	403
589450.00	2365000.00	25.94	952.31	6%	404	0	65	469	404
589950.00	2364750.00	31.45	952.31	6%	405	0	65	470	405
589700.00	2364750.00	6.00	952.31	6%	406	0	65	471	406
592700.00	2365000.00	653.81	780.84	6%	407	0	65	472	407
589700.00	2364500.00	6.97	952.31	6%	408	0	65	473	408
589700.00	2365000.00	37.00	952.31	6%	409	0	65	474	409
589950.00	2365000.00	20.98	952.31	6%	410	0	65	475	410
590200.00	2364750.00	70.47	952.31	6%	411	0	65	476	411
592950.00	2365000.00	668.29	780.84	5%	412	0	65	477	412
590200.00	2365000.00	27.91	952.31	5%	413	0	65	478	413
590450.00	2365000.00	90.97	952.31	5%	414	0	65	479	414

Attachment 2: Hawaiian Electric Company Incorporated, 1-Hour SO_2 Modeling to Inform Monitor Placement, Waiau Generating Station, Island of Oahu, Hawaii, August 2015

Hawaiian Electric Company, Inc.

1-Hour SO_2 Modeling to Inform Monitor Placement

Waiau Generating Station

Island of O‘ahu, Hawai‘i

Prepared by

JCA

August 2015

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1.0 INTRODUCTION AND SUMMARY

The Environmental Protection Agency (EPA) published the final *Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS)* in the Federal Register on August 21, 2015 (80 FR 51052). This rule directs state and tribal air agencies (air agencies) to provide data characterizing current air quality in areas with large sources of SO_2 emissions. The rule defines an applicable source as:

> *A stationary source that is (1) not located in a designated nonattainment area, and (2) has actual annual SO_2 emissions data of 2,000 tons or more, or has been identified by an air agency or by the EPA Regional Administrator as requiring further air quality characterization.*

The rule specifies that applicable sources must use either dispersion modeling or ambient monitoring to demonstrate that the area sounding the source is in attainment with the 2010 1-hour SO_2 NAAQS. The EPA has issued the following non-binding draft technical assistance documents (TADs) to assist the air agencies in preparing these demonstrations:

- *SO_2 NAAQS Designations Modeling Technical Assistance Document* (modeling TAD), draft dated December 2013, and
- *SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document* (monitoring TAD), draft dated December 2013.

The Hawaiian Electric Company, Inc. (Hawaiian Electric) Waiau Generating Station's 2014 actual SO_2 emissions exceeded 2,000 tons. Therefore, a source specific attainment demonstration is required for the Waiau Generating Station (Waiau). Hawaiian Electric proposes that the source-oriented monitoring option be used.

Figure 1.0-1 shows the proposed general area for the source-oriented SO_2 monitor based on modeling to inform monitor placement as described in the monitoring TAD. The proposed general area is leased by Sears Logistics Services, Inc. from owner Mun Waiau, LLC. The modeling methodology used for the monitor site selection is discussed in Section 2.0. The monitor site selection process is discussed in Section 3.0.

FIGURE 1.0-1 PROPOSED SOURCE-ORIENTED SO_2 MONITOR LOCATION

2.0 MODELING METHODOLOGY

The modeling in this report is based on the guidance presented in the modeling and monitoring TADs (EPA, 2013a; EPA, 2013b).

2.1. MODEL SELECTION AND OPTIONS

EPA's recommended dispersion model, AERMOD (version 14134), was used for this modeling analysis. AERMOD is a steady-state plume model capable of modeling simple, intermediate, and complex terrain receptors. In the stable boundary layer (nighttime), it assumes the concentration distribution to be Gaussian in both the vertical and horizontal. In the convective boundary layer (daytime) the probability density function describing the horizontal distribution is assumed to be Gaussian, while the vertical distribution is assumed to be bi-Gaussian. AERMOD also contains the PRIME algorithm which incorporates the two fundamental features associated with building downwash: (1) enhanced plume dispersion coefficients due to the turbulent wake, and (2) reduced plume rise caused by a combination of the descending streamlines in the lee of the building and the increased entrainment in the wake (EPA, 2004a and EPA, 2004d).

AERMOD's regulatory default options were used when modeling SO_2 impacts.

AERMOD (starting with version 11059) is capable of calculating the distribution of daily maximum 1-hour values. The daily maximum 1-hour values are calculated when the pollutant ID is either "SO2" or "NO2" and the only short-term averaging period specified is "1-hour".

2.2. STACK PARAMETERS AND EMISSION RATES

The TADs specify the modeling should be based on actual hourly SO_2 emissions and stack parameters. The CTs (W9 and W10) have been burning 500 ppm maximum sulfur fuel which makes their contribution to the total modeled SO_2 impacts minimal. Table 2.2-1 lists the stack locations and stack parameters.

The boiler hourly 2012 through 2014 actual SO_2 emission rates were calculated as each unit's hourly fuel use in pounds multiplied by two times[3] the maximum rolling prior 30-day fuel sulfur content. The hourly 2012 through 2014 actual SO_2 emission rates for the CTs were calculated from each unit's hourly fuel flow in gallons and a 500 ppm fuel sulfur content. The data recovery for the hourly fuel use was 100%.

Actual stack temperatures were based on measured air heater temperatures. The air heaters are the last equipment the flue gas passes through before exiting the stack. Missing actual stack temperatures were determined using linear regression of the available data for the respective unit. Temperature data for unit W3 were not available. Since W3 and W4 are 49 MW Babcock and Wilcox boilers, missing temperature data for W3 were determined using the linear regression equation determined for unit W4. Table 2.2-2 lists the number of hours with missing temperature data for each unit.

The actual hourly exhaust flow rates and velocities were estimated using the Method 19 F-factor and the following equations:

$$Q = F_d * HI\left(\frac{20.9}{20.9 - \%O_{2d}}\right)\left(1 + \frac{\%H_2O}{100}\right)\left(\frac{T_{stack}}{T_{std}}\right)\left(\frac{1\ hr}{3600\ sec}\right)\left(\frac{0.3048^3 m^3}{ft^3}\right)$$

$$V = \frac{Q}{A}$$

[3] The oxidation rate of fuel sulfur to SO_2 based on the ratio of molecular weights (64 lb SO_2/lb-mole / 32 lb S/lb-mole = 2).

Where:

Q	=	Hourly exhaust flow rate (m^3/sec)
F_d	=	F_d factor for oil (9,190 dscf/MMBtu)
HI	=	Hourly heat input (MMBtu/hr)
$\%O_{2d}$	=	Concentration of oxygen on a dry basis (%)
$\%H_2O$	=	Concentration of water vapor (%)
T_{stack}	=	Hourly stack exhaust temperature (K)
T_{std}	=	Standard temperature (293 K)
V	=	Hourly stack velocity (m/s)
A	=	Stack area (m^2)

Concurrent actual O_2 and H_2O concentrations are not available. A review of all available Waiau and Kahe boiler stack test data shows that the O_2 content ranges from 4.1% to 9.4% with an average value of 6.2% and the H_2O content ranges from 8.7% to 11.5% with an average value of 10.3%. Based on performance data for the current version of the CTs (CT - MS7001EA, CT plus generator package - PG7121) the O_2 content was set to 15% and the H_2O content was set to 5.0%. Based on the flow rate equation, the stack exhaust temperature and heat input have the largest overall impact on the estimated flow rate.

As specified in the monitoring TAD, each unit's hourly actual SO_2 emission rates were normalized using the following steps:

1. Determine the total actual SO_2 emission rates from all units for each hour in the data period.
2. Determine the maximum hourly SO_2 emission rate calculated in Step 1.
3. Divide all hourly actual SO_2 emission rates by the SO_2 emission rate identified in Step 2.

The normalized hourly SO_2 emission rates were input into AERMOD using the HOUREMIS keyword in the source pathway.

2.3. METEOROLOGICAL DATA

EPA's meteorological processors for AERMOD, AERMET (version 14134) and AERMINUTE (version 14337), were used to create the required meteorological input files. National Weather Service (NWS) surface data from Honolulu International (HNL) Airport provided the meteorological data for the modeling. The 3-year data collection period was from January 1, 2012 through December 31, 2014. AERMINUTE calculated the hourly wind speed and direction from the 1-minute Automated Surface Observing System (ASOS) data. The hourly values of wind speed and direction were measured at 10 m. Figure 3.3-1 presents a wind rose of the 3 years of data.

The Līhu'e Airport and Hilo International Airport are the only available sources of upper air meteorological data in the state of Hawai'i. The Līhu'e Airport station is operated by the NWS and is located on the Island of Kaua'i As previously recommend by DOH for sources on the Island of O'ahu, the Līhu'e Airport soundings provided the required upper air meteorological data for AERMET.

Appendix A contains a catalogue of the meteorological modeling files.

AERMOD uses several different boundary layer parameters to model how pollutants disperse in the atmosphere. Many of these parameters are not observed, but are estimated from other variables that are more easily measured. To make these estimates, observed near-surface wind and temperature and site-specific surface characteristics are required. AERMET requires the following site-specific surface characteristics:

- Surface roughness length (z_o) – the height above the ground at which horizontal wind velocity is typically zero,
- Noon-time albedo (r) – the fraction of radiation reflected by the surface, and
- Daytime Bowen ratio (B_o) – the ratio of the sensible heat flux (H) to the latent heat flux (λE).

EPA has developed a program called AERSURFACE to calculate the above parameters based on United States Geological Survey (USGS) land use/land cover data. However, the required USGS 1992 National Land Cover Data (NLCD92) is not available for Hawai'i. Section 3.1.2 of the AERMOD Implementation Guide provides the recommended methods for determining surface characteristics. These methods should be followed unless a case-by-case justification can be provided for an alternative method (EPA, 2009a).

The selection of the surface parameters follows the land use procedure provided in the AERMOD Implementation Guide (EPA, 2009a) and the Alaska Department of Environmental Conservation (ADEC) on how to calculate geometric means (ADEC, 2009). The land uses are determined using a geographic information system (GIS) to analyze the USGS 2001 National Land Cover Data (NLCD2001). Table 2.3-1 lists the NLCD2001 land cover categories and the corresponding values for surface roughness length, albedo, and Bowen ratio.

The AERMOD Implementation Guide specifies that the albedo and Bowen ratio should be based on a 10-km by 10-km area centered on the meteorological tower. Figure 2.3-2 shows the 10-km by 10-km area centered on the meteorological tower. Albedo is determined using a simple unweighted arithmetic mean (i.e., no direction or distance dependency). Bowen ratio is determined using a simple unweighted geometric mean (i.e., no direction or distance dependency). Table 2.3-2 lists the area of land cover categories for the 10-km by 10-km domain.

The AERMOD Implementation Guide specifies that the surface roughness length should be based on an inverse distance weighted geometric mean for a recommended upwind fetch of 1 km relative to the meteorological tower. Surface roughness length may vary by sector to account for variations in land cover near the measurement site; however, the sector widths should be no smaller than 30 degrees. Figure 2.3-3 shows the area within a 1-km radius of the meteorological tower and the selected sector boundaries. Table 2.3-3 lists the area of land cover categories for each sector.

Table 2.3-4 shows the calculated values of surface roughness length for each sector and the albedo and Bowen ratio.

2.4. URBAN/RURAL CLASSIFICATION

The selection of either rural or urban dispersion coefficients in the air quality modeling follows the procedure provided in 40 CFR Part 51, Appendix W. Categorizing an area as urban or rural is determined by land use classification or population. A review of the land use surrounding the facility shows that urban land use types are less than 50% of the area within a 3-km radius of the source. However, the population density within a 3-km radius of the source is greater than 75 people/km^2. Since the facility is located in an urbanized area, the area was classified as urban.

The urban option in AERMOD requires information about two parameters: 1) the population of the urban complex and 2) the urban roughness. For relatively isolated urban areas, which Honolulu is, the population input into AERMOD is equal to the published census data corresponding to the Metropolitan Statistical Area (MSA) for that location. As such, a value of 953,207 people, based on the 2010 Census, was used as the population input for all sources

within the modeling analysis. The default value of 1 meter for the urban roughness parameter was used.

2.5. RECEPTOR DATA

The modeling TAD states:

> *For the purposes of modeling for SO_2 designations, the receptor placement strategy differs since the modeling is acting as a surrogate for monitoring. In areas where it is not feasible to place a monitor (water bodies, etc.), receptors can be ignored or not placed in those locations. In any case, receptor placement should be of sufficient density to provide resolution needed to detect significant gradients in the concentrations, with receptors placed closer together near the source to detect local gradients and placed farther apart away from the source* (EPA, 2013a).

Receptor elevations and height scales were derived from the USGS National Elevation Dataset (NED) data using EPA's AERMAP (version 11103) program. Figure 2.5-1 shows the modeling initial grid (grid 1) consisting of 100-m spaced receptors from the center of the property to 2.5 km. Receptors were not located in the following locations because it is infeasible (prohibitive) to locate a monitor in these areas:

- Overwater,
- Wetlands, and
- Within and on the facility boundary.

Also it is infeasible to locate a monitor in developed areas, wooded areas, on roads, and on the jogging trail. Therefore, some receptors in these locations near the facility were excluded from the modeling. Many of the remaining areas inside the modeled domain are infeasible to locate a monitor. The feasibility of these areas will be addressed on a case-by-case basis after the scoring has been completed. Figure 2.5-1 also shows the excluded receptors and the reasoning for their exclusion. Figure 2.5-2 shows a zoomed in view of the receptors near the facility.

To ensure the location of the maximum modeled impacts were identified by the initial grid an additional coarse gird was added. The coarse grid contains 250-m spaced receptors that extend 2.5 km to 6 km from Waiau and 500-m spaced receptors that extend 6 km to 7.5 km from Waiau. Figure 2.5-3 shows the coarse grid receptors.

Appendix A contains a catalogue of files used in the receptor grid processing.

2.6. BUILDING DOWNWASH

For air quality modeling purposes, the stacks were evaluated in terms of their proximity to nearby structures to determine whether stack effluents may be affected by downwash in the turbulent wake of such structures. AERMOD uses the following building parameters to account for downwash:

- BUILDHGT, the building height,
- BUILDWID, the projected width of the building perpendicular to the flow,
- BUILDLEN, the projected length of the building along the flow,
- XBADJ, the along-flow distance from the stack to the center of the upwind face of the projected building, and
- YBADJ, the across-flow distance from the stack to the center of the upwind face of the projected building.

Building parameters were obtained using EPA's Building Profile Input Program for PRIME (BPIPPRM – version 04274). BPIPPRM calculates the building parameters for 36 wind directions based on the physical dimensions of the structures surrounding a source. Equivalent building dimensions (EBDs) determined during a June 1998 wind tunnel study replaced the building parameters for specific wind directions for units W3 through W8.

Off property structures meeting the following requirements should be included in the BPIPPRM processing:

- The structure is less than 800 meters from the source, and
- The structure is located within 5L (five times the lesser of the height or width of the structure) of the source.

For example, the Sears Distribution Center warehouse is located approximately 280 meters from unit W3. The warehouse would need to be 56 meters (184 ft) tall to be included in the modeling. A review of the Honolulu Land Information System[4] (HoLIS) and Google Earth determined that off-site buildings did not need to be included in the BPIPPRM processing. Figure 2.6-1 shows the structures and heights entered into BPIPPRM. Appendix A contains a catalogue of files used in the BPIPPRM processing.

[4] City & County of Honolulu, Department of Planning & Permitting. http://gis.hicentral.com/

TABLE 2.2-1 STACK LOCATIONS AND STACK PARAMETERS

Unit	NAD 83 UTM Coordinates Easting (m)	NAD 83 UTM Coordinates Northing (m)	Base Elevation (ft)	Base Elevation (m)	Stack Height (m)	Stack Diameter (m)	Stack Area (m^2)	Stack Velocity (m/s)	Stack Temperature (K)
W3	607643.18	2365570.42	23.2	7.06	42.0624	3.0480	7.297	Varies	Varies
W4	607663.96	2365560.90	22.8	6.94	42.0624	3.0480	7.297	Varies	Varies
W5	607683.22	2365520.86	16.0	4.89	41.9100	2.7432	5.910	Varies	Varies
W6	607706.44	2365510.42	14.1	4.29	41.9100	2.7432	5.910	Varies	Varies
W7	607775.94	2365477.81	10.0	3.06	41.9100	3.2004	8.044	Varies	Varies
W8	607747.47	2365490.33	13.6	4.16	41.9100	3.2004	8.044	Varies	Varies
W9	607516.36	2365475.43	5.6	1.70	9.6774	4.3053	14.558	Varies	Varies
W10	607557.53	2365457.37	3.0	0.90	9.6774	4.3053	14.558	Varies	Varies

Notes:

1. Stack locations are provided in UTM coordinates (NAD 83, Hawai'i) based on estimates from Google Earth.
2. Stack heights and diameters are from the initial CSP Application.

TABLE 2.2-2 MISSING TEMPERATURE DATA SUMMARY

Year	Hours with Missing Stack Temperature W3	W4	W5	W6	W7	W8	W9	W10
2012	1,304	0	0	0	0	0	0	0
2013	1,268	0	0	0	0	0	0	0
2014	1,143	0	0	0	0	0	207	0
Total	3,715	0	0	0	0	0	207	0

Note: Missing actual stack temperatures were filled in using linear regression of the available data for the respective unit.

TABLE 2.3-1 SURFACE CHARACTERISTIC VALUES FOR NLCD2001 LAND COVER CATEGORIES

Land Cover Category		Surface Roughness		Bowen Ratio		
Name	No.	Length (m)	Albedo	Wet	Average	Dry
Open Water	11	0.001	0.10	0.1	0.1	0.1
Perennial Ice/Snow	12	0.002	0.60	0.5	0.5	0.5
Developed, Open Space	21	0.02	0.15	0.3	0.5	1.5
Developed, Low Intensity	22	0.54	0.16	0.6	0.8	2.0
Developed, Medium Intensity	23	1.00	0.18	1.0	1.5	3.0
Developed, High Intensity	24	0.80	0.18	1.0	1.5	3.0
Barren Land	31	0.05	0.20	1.0	1.5	3.0
Deciduous Forest	41	1.30	0.16	0.2	0.3	0.6
Evergreen Forest	42	1.30	0.12	0.2	0.3	0.6
Mixed Forest	43	1.30	0.14	0.2	0.3	0.6
Shrub/Scrub	52	0.30	0.18	0.8	1.0	2.5
Grasslands/Herbaceous	71	0.10	0.18	0.4	0.8	2.0
Pasture Hay	81	0.15	0.20	0.3	0.5	1.5
Cultivated Crops	82	0.20	0.20	0.3	0.5	1.5
Woody Wetlands	90	0.70	0.14	0.1	0.2	0.2
Emergent Herbaceous Wetlands	95	0.20	0.14	0.1	0.1	0.2

Notes:

1. Surface characteristic values for surface roughness length, albedo, and Bowen ratio are based on values contained in Appendix A of EPA's AERSURFACE User's Guide (January 2008).

2. The relationship between NLCD92 and NLCD2001 land cover categories and numbers are from Table 1 of *USGS's Completion of the National Land Cover Database (NLCD) 1992-2001 Land Cover Change Retrofit Product.*

TABLE 2.3-2 LAND COVER BREAKDOWN FOR BOWEN RATIO AND ALBEDO CALCULATIONS

Land Cover Category		Area (km^2) of Land Cover Categories for Bowen Ratio and Albedo
Name	**No.**	
Open Water	11	47.43
Perennial Ice/Snow	12	--
Developed, Open Space	21	11.94
Developed, Low Intensity	22	8.00
Developed, Medium Intensity	23	8.92
Developed, High Intensity	24	17.96
Barren Land	31	0.31
Deciduous Forest	41	--
Evergreen Forest	42	2.61
Mixed Forest	43	--
Shrub/Scrub	52	2.53
Grasslands/Herbaceous	71	0.11
Pasture Hay	81	--
Cultivated Crops	82	--
Woody Wetlands	90	0.18
Emergent Herbaceous Wetlands	95	0.02

Note: The areas for each land use category and sector were developed using ESRI ArcGIS (Version 10) software and land cover data from the NLCD2001 digital database.

TABLE 2.3-3 LAND COVER BREAKDOWN FOR SURFACE ROUGHNESS LENGTH CALCULATIONS

Land Cover Category		Area (km^2) of Land Cover Categories Surface Roughness Length Sectors							
Name	**No.**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Open Water	11	--	--	0.001	0.005	0.02	--	--	--
Perennial Ice/Snow	12	--	--	--	--	--	--	--	--
Developed, Open Space	21	0.20	0.25	0.23	0.24	0.27	0.16	0.19	0.07
Developed, Low Intensity	22	0.06	0.03	0.02	0.05	0.03	0.04	0.02	0.003
Developed, Medium Intensity	23	0.04	0.02	0.01	0.03	0.01	0.03	0.01	0.02
Developed, High Intensity	24	0.07	0.09	0.07	0.03	0.02	0.15	0.17	0.30
Barren Land	31	--	--	--	--	--	--	--	--
Deciduous Forest	41	--	--	--	--	--	--	--	--
Evergreen Forest	42	0.01	0.01	0.07	0.04	0.04	0.01	--	--
Mixed Forest	43	--	--	--	--	--	--	--	--
Shrub/Scrub	52	--	--	--	0.004	--	--	--	--
Grasslands/Herbaceous	71	--	--	--	--	--	--	--	--
Pasture Hay	81	--	--	--	--	--	--	--	--
Cultivated Crops	82	--	--	--	--	--	--	--	--
Woody Wetlands	90	--	--	--	--	--	--	--	--
Emergent Herbaceous Wetlands	95	--	--	--	--	--	--	--	--

Note: The areas for each land use category and sector were developed using ESRI ArcGIS (Version 10) software and land cover data from the NLCD2001 digital database.

TABLE 2.3-4 SURFACE PARAMETERS

Sector	Sector Arc (Degrees from North) Start	End	Sector Width (Degrees)	Surface Roughness Length (m)	Bowen Ratio Wet	Average	Dry	Albedo
1	0	45	45	0.090				
2	45	90	45	0.079				
3	90	135	45	0.107				
4	135	180	45	0.077	0.26	0.33	0.51	0.14
5	180	225	45	0.046				
6	225	270	45	0.189				
7	270	315	45	0.126				
8	315	360	45	0.299				

Note: The surface moisture conditions for Honolulu International Airport were dry during 2012, average during 2013, and wet during 2014.

FIGURE 2.3-1 HNL AIRPORT WIND ROSE

(10-M LEVEL WINDS ● JANUARY 1, 2012 – DECEMBER 31, 2014)

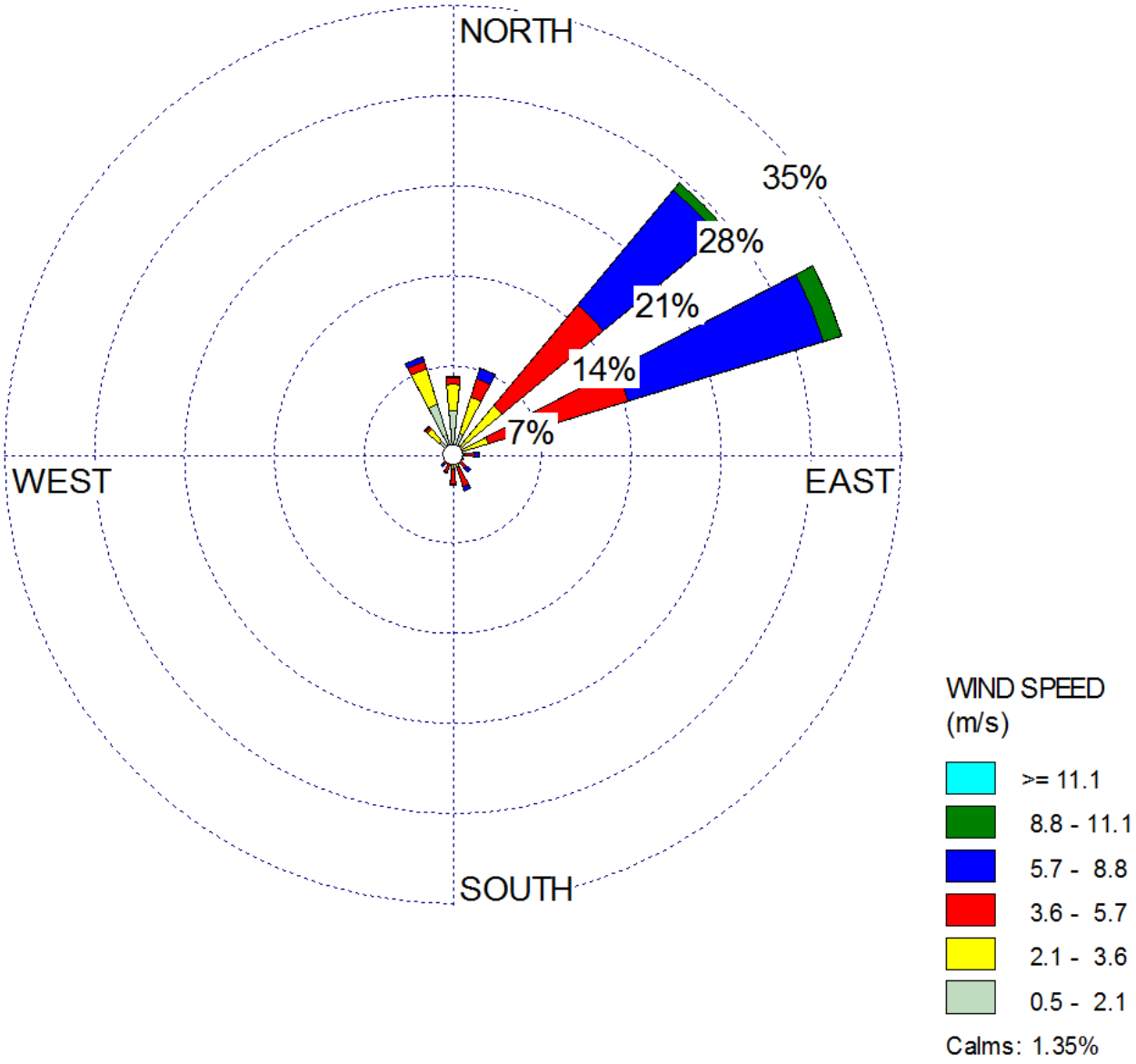


FIGURE 2.3-2 USGS NLCD2001 SURROUNDING THE HNL METEOROLOGICAL TOWER (10 X 10 KM DOMAIN)

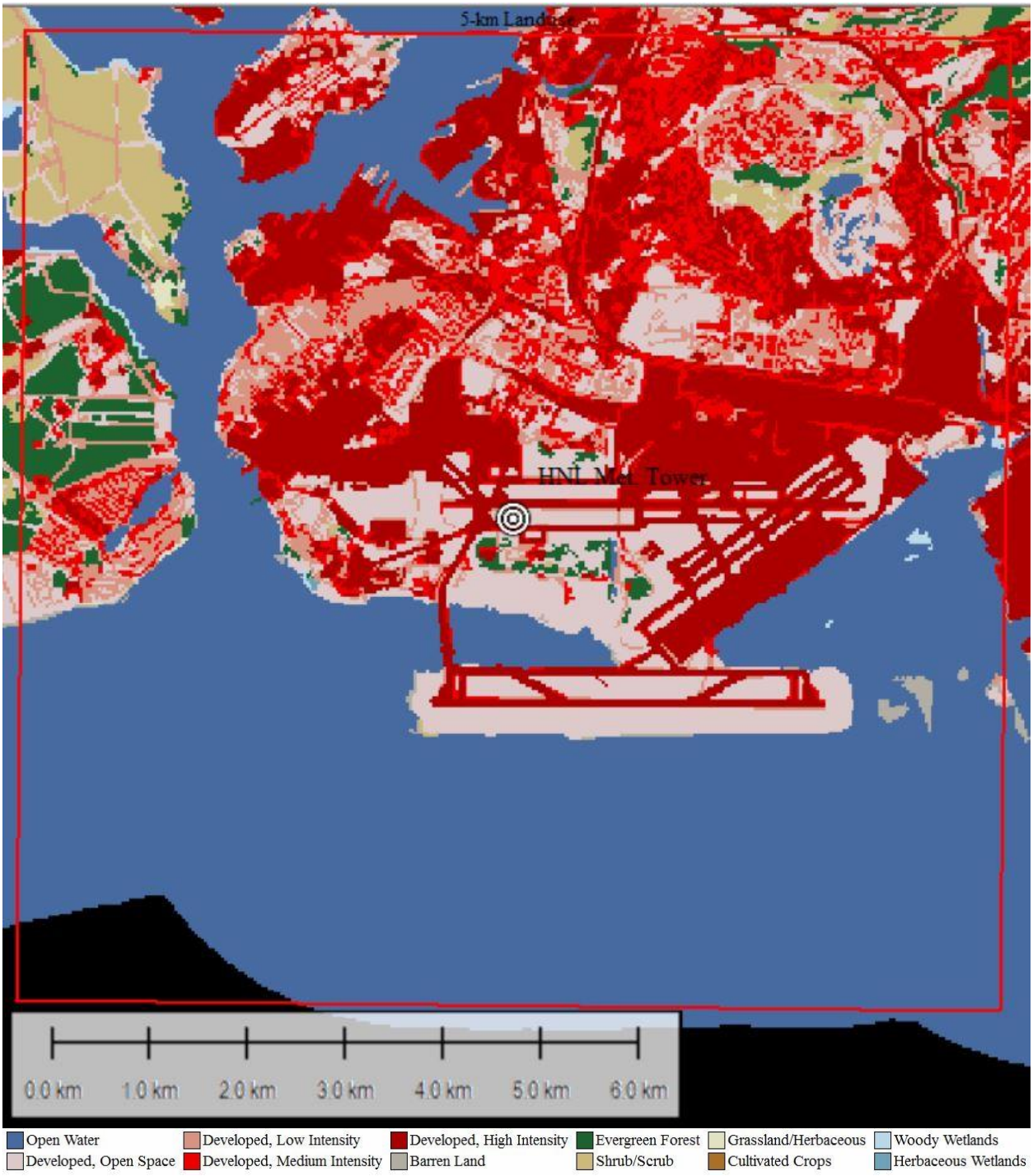


FIGURE 2.3-3 USGS NLCD2001 SURROUNDING THE HNL METEOROLOGICAL TOWER (1-KM RADIUS)

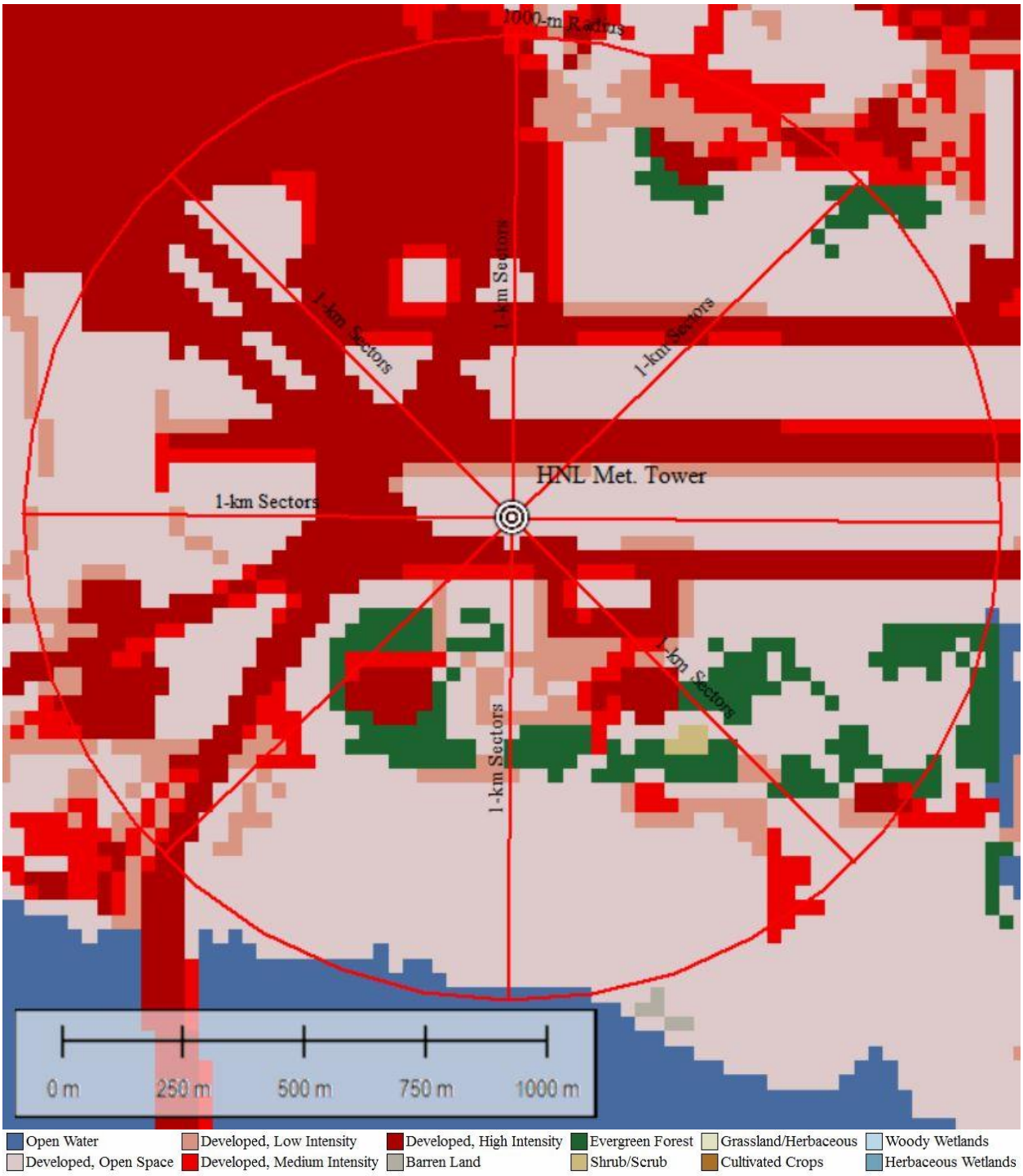


FIGURE 2.5-1 RECEPTOR GRID (GRID 1)

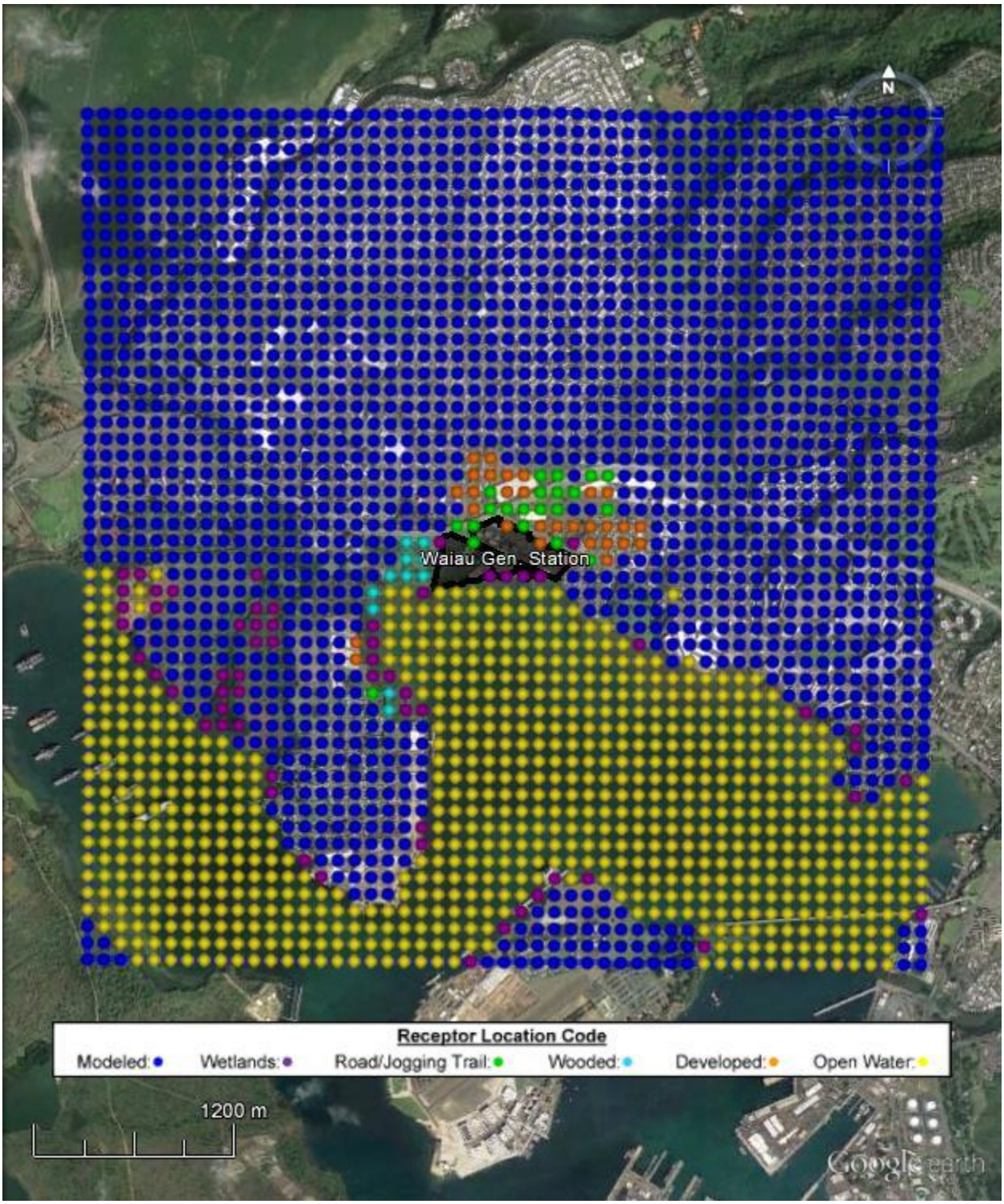


FIGURE 2.5-2 RECEPTOR GRID (GRID 1 – ZOOMED IN)

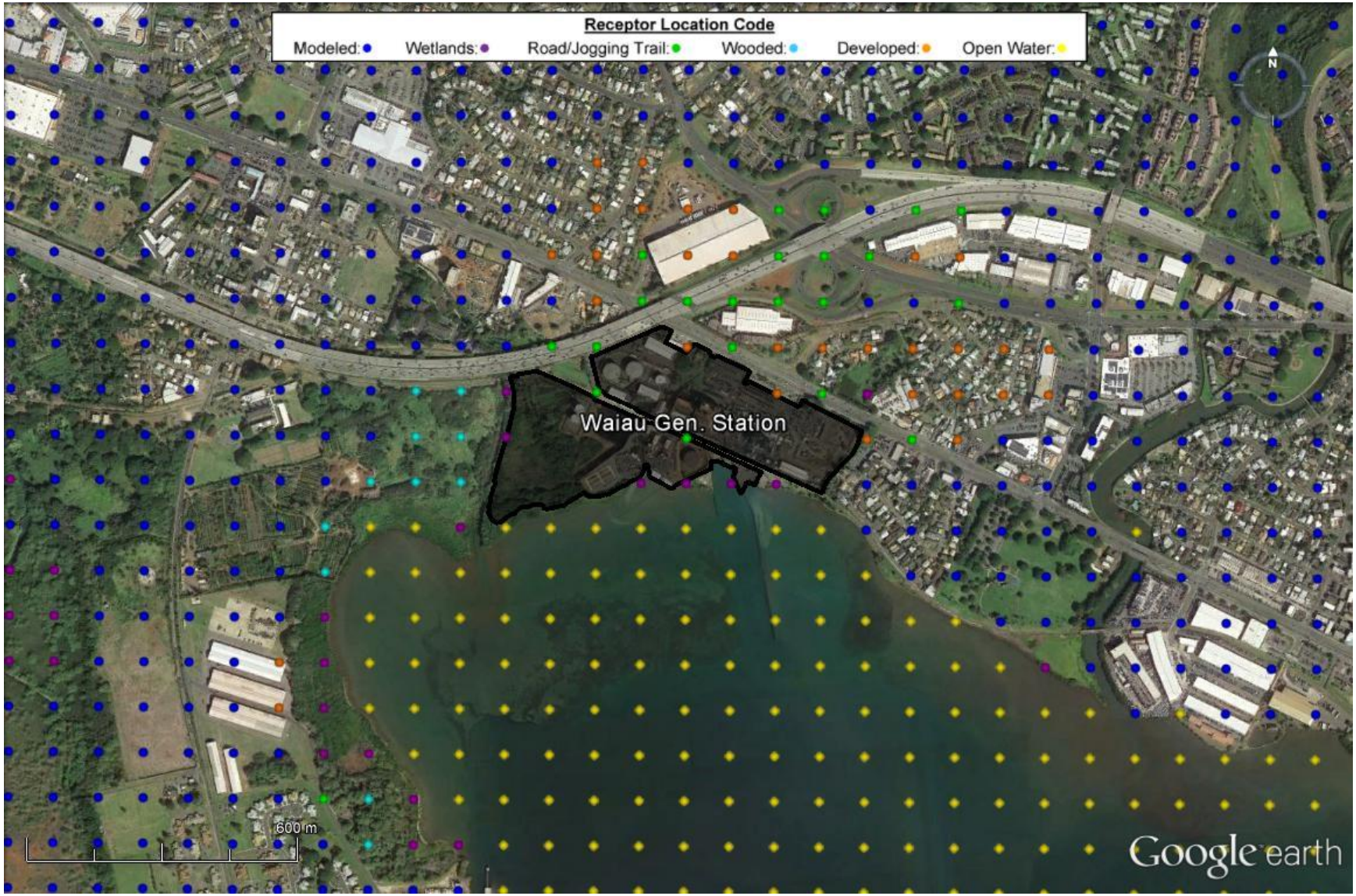


FIGURE 2.5-3 COARSE GRID RECEPTORS

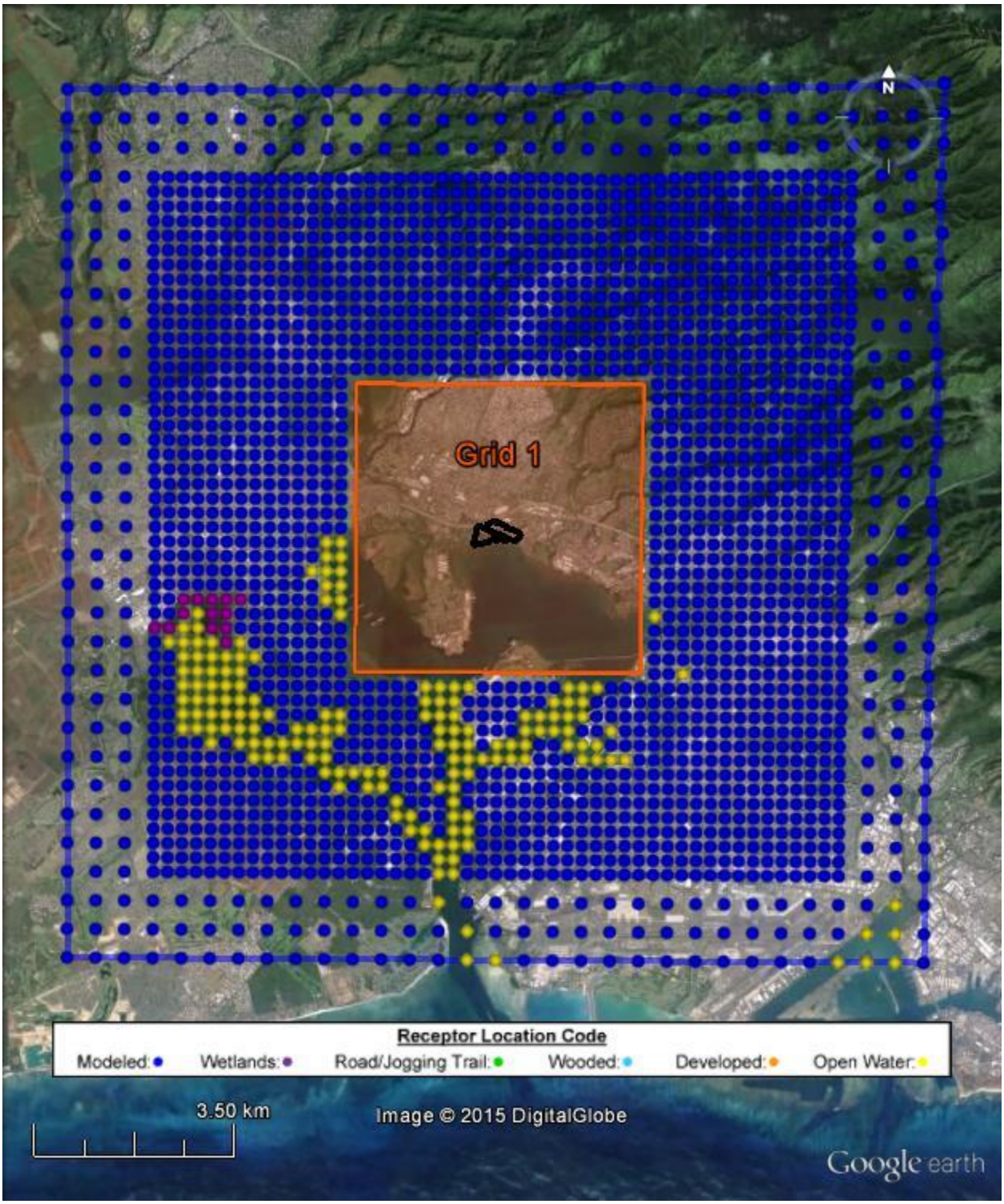
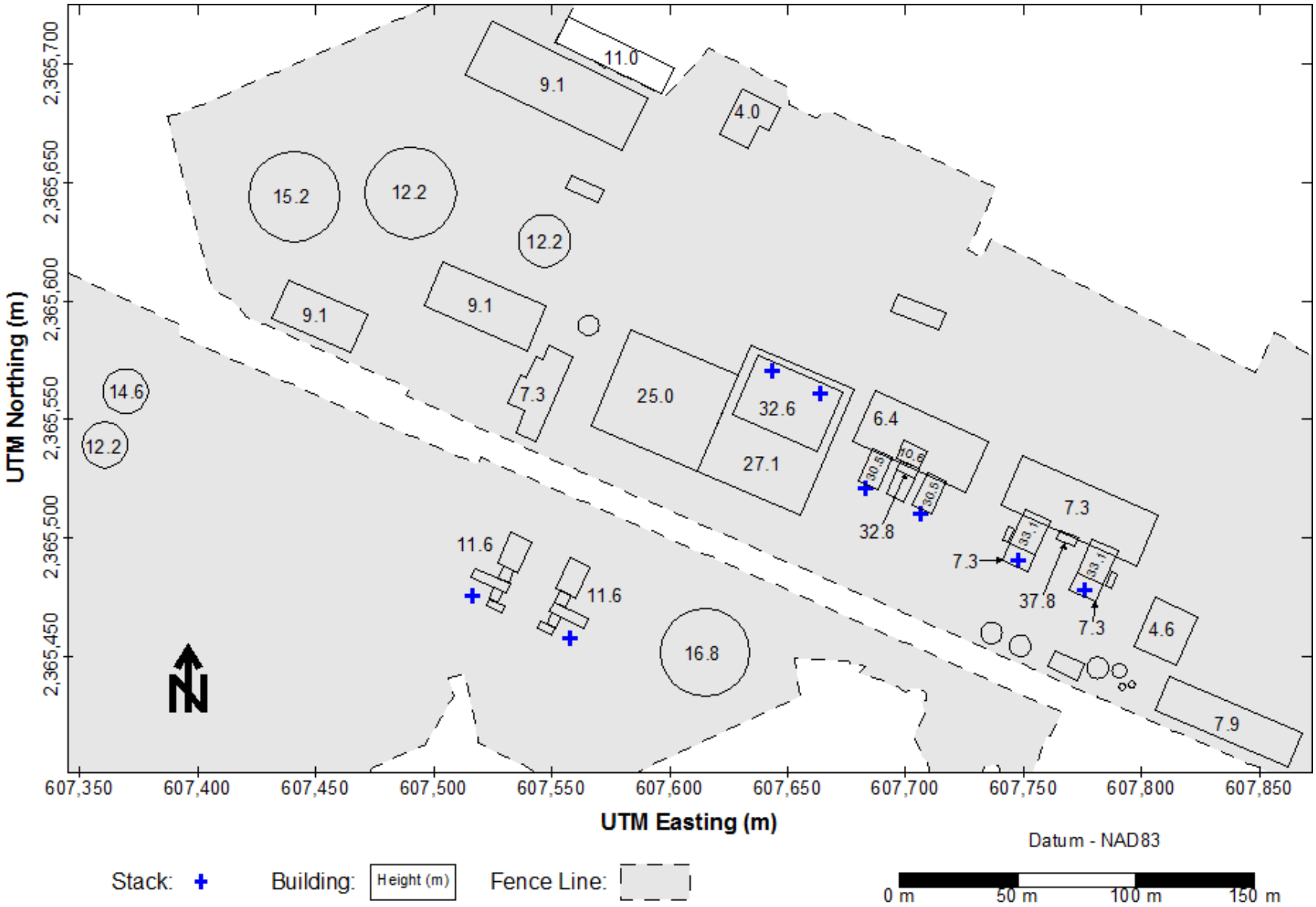


FIGURE 2.6-1 BPIPPRM INPUTS



3.0 MONITOR LOCATION SELECTION

3.1. MONITOR PLACEMENT SCORING

As stated in the monitoring TAD Example of Modeling to Inform Monitoring Placement Using Normalized Emissions (EPA, 2013b), the primary objective of the modeling is to "find a sufficient number of feasible locations with predicted peak and/or relatively high SO_2 concentrations where a permanent monitoring site might be located" with consideration given for the frequency in which the daily maxima occurs at a receptor.

The monitoring TAD (EPA, 2013b) presents a scoring strategy to rank the receptors for consideration of monitor placement. The monitoring TAD states:

> *This scoring strategy can be conducted as follows:*
>
> *1. Calculate the normalized design value at each receptor and rank from highest to lowest receptor. Rank of 1 means the highest design value.*
>
> *2. Using the MAXDAILY output option in AERMOD, determine each day's highest normalized concentration and receptor. The MAXDAILY option in AERMOD outputs each receptor's highest concentration for each modeled day.*
>
> *3. Using the output from step 2, determine the number of days each receptor is the highest concentration for the day among all receptors.*
>
> *4. Rank the results from step 3 from highest to lowest number of days. Rank of 1 means the highest number of days having the daily maximum value.*
>
> *5. For each receptor, add the concentration rank and the day rank. The lowest possible score is 2, meaning the receptor was the highest overall normalized design value and also had the highest number of days where the receptor was the highest concentration for the day.*

Since the hourly SO_2 emissions were normalized, the AERMOD output concentrations are called normalized design values (NDVs). The NDVs are the 3 year average of the 99th percentile (4th rank) of the 1-hour daily maximum concentrations on a receptor-by-receptor basis. Appendix A contains a catalogue of the modeling files. Figure 3.1-1 presents color coded NDVs to illustrate the distribution of the NDVs and Figure 3.1-2 shows a zoomed in view of the Grid 1 NDVs. The plots show that all of the coarse grid receptors had NDVs less than 50% of the maximum NDV. Due to these low NDVs the coarse grid receptors were not included in the following steps. Figure 3.1-3 shows the receptors with the top 200 NDVs. The NDV ranks for the top 200 receptors are listed in Appendix B, Table B-1.

Next, the MAXDAILY output option in AERMOD was used to determine the number of days each receptor had the daily maximum 1-hour concentration for the day among all receptors. The MAXDAILY output was imported into an Access database to perform this calculation and ranking. This modeling was limited to the 200 receptors with the highest NDVs. This limit keeps the AERMOD MAXDAILY output file to a manageable size[5] and focuses the site selection to areas with the highest NDVs.

Figure 3.1-4 presents the cumulative number of days a receptor had the daily maximum 1-hour concentration over the three modeled years. The cumulative number of day ranks for the top 200 receptors are listed in Appendix B, Table B-1. All of the daily maximum 1-hour concentrations were located at one of these 200 receptors.

[5] For 200 receptors and a 3-year (1,096-day) data period, there were 219,200 (200 receptors * 1,096 days) lines of output.

Next, the NDV rank and the cumulative number of days rank were added to calculate the monitor placement score. Figure 3.1-5 shows the monitor placement scores. The monitor placement scores are ranked from lowest to highest to determine the score rank. Therefore, the receptor with the lowest score has a score rank of one, the second lowest score has a score rank of 2, and so on. Figure 3.1-6 shows the receptors with the top 10 score ranks (score ranks one through ten). Appendix B, Table B-1 presents the monitor placement scores and score ranks.

3.2. SITE SELECTION EVALUATIONS

The goal of the evaluation is to find a location at or very near the receptor having the highest score rank. Based on the score ranks, three areas were selected for site feasibility additional evaluations. Figure 3.2-1 shows the following three areas:

- Area 1 (Sears Warehouse) – This area is located north of the facility, is adjacent to residential areas, and contains the receptor with the 1st score rank. Figure 3.2-2 shows a zoomed in aerial photograph of this area adjacent to a transmission line right-of-way. This area appears to have the space needed to meet the Appendix E to 40 CFR §58 siting criteria including the required offset from near buildings and trees. This is the preferred location for an ambient monitoring station.
- Area 2 (Exit Ramp) – This area is located along the Queen Lili‘uokalani Freeway (a.k.a. Interstate H-1) and Moanalua Road south interchange approximately 450 meters east-northeast of the facility. This area contains receptors with the 2nd and 4th score ranks. Figure 3.2-3 shows a zoomed in aerial photograph of this area. This area has steep terrain and is bordered by roads on all sides. Therefore, this site is not a preferred area.
- Area 3 (Pearl Harbor Warehouse) – This area is located across the East Loch, is adjacent to a group of warehouses, and contains the receptor with the 3rd score rank. Figure 3.2-4 shows a zoomed in aerial photograph of this area. This area is located on federal land. Even though the receptor in this area had the maximum number of 1-hour daily maxima, the NDV rank is relatively low.

Based on the score rank and logistics, Area 1 is the preferred area in which to locate an ambient air quality monitor.

FIGURE 3.1-1 NORMALIZED DESIGN VALUES

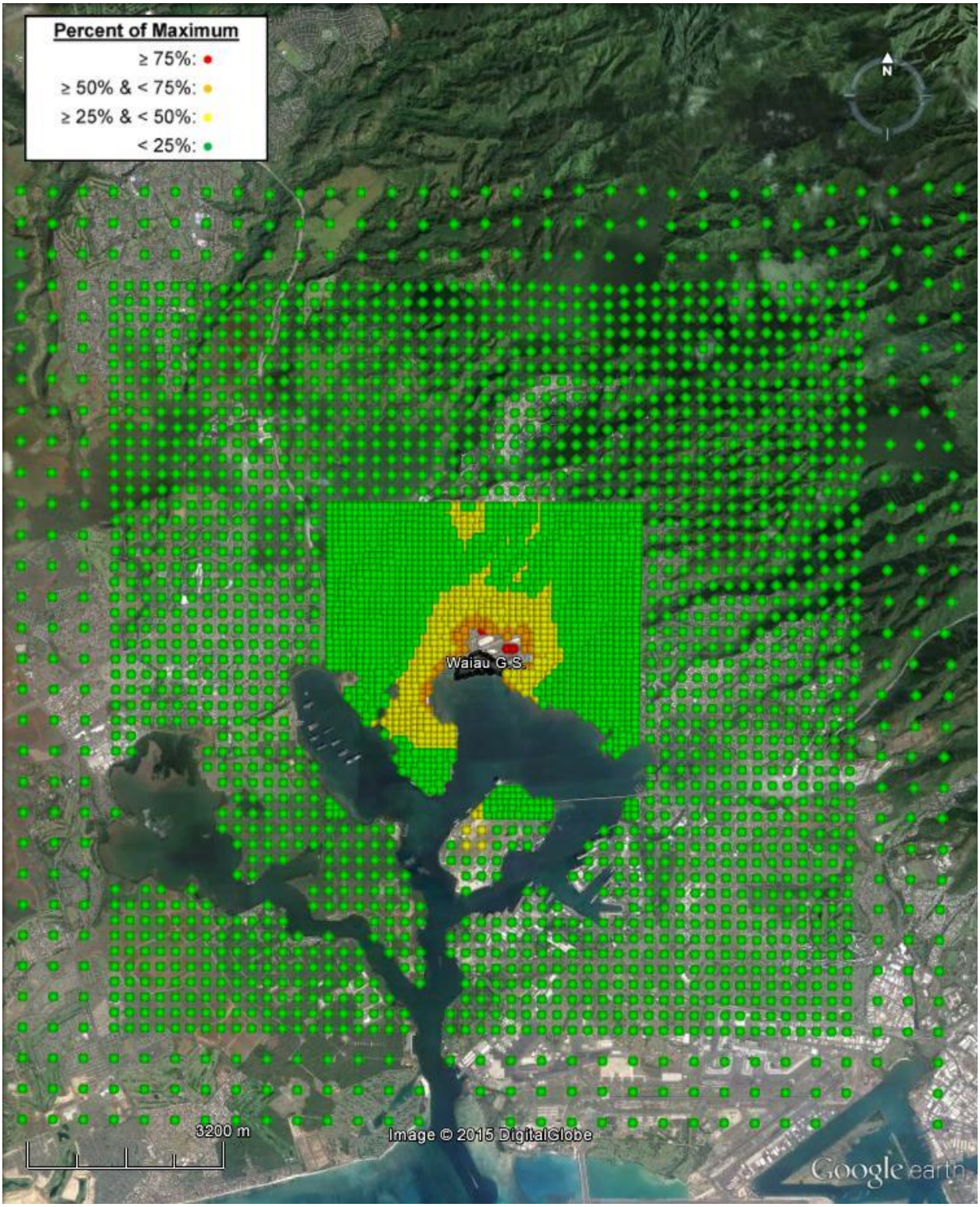


FIGURE 3.1-2 NORMALIZED DESIGN VALUES (ZOOMED IN)

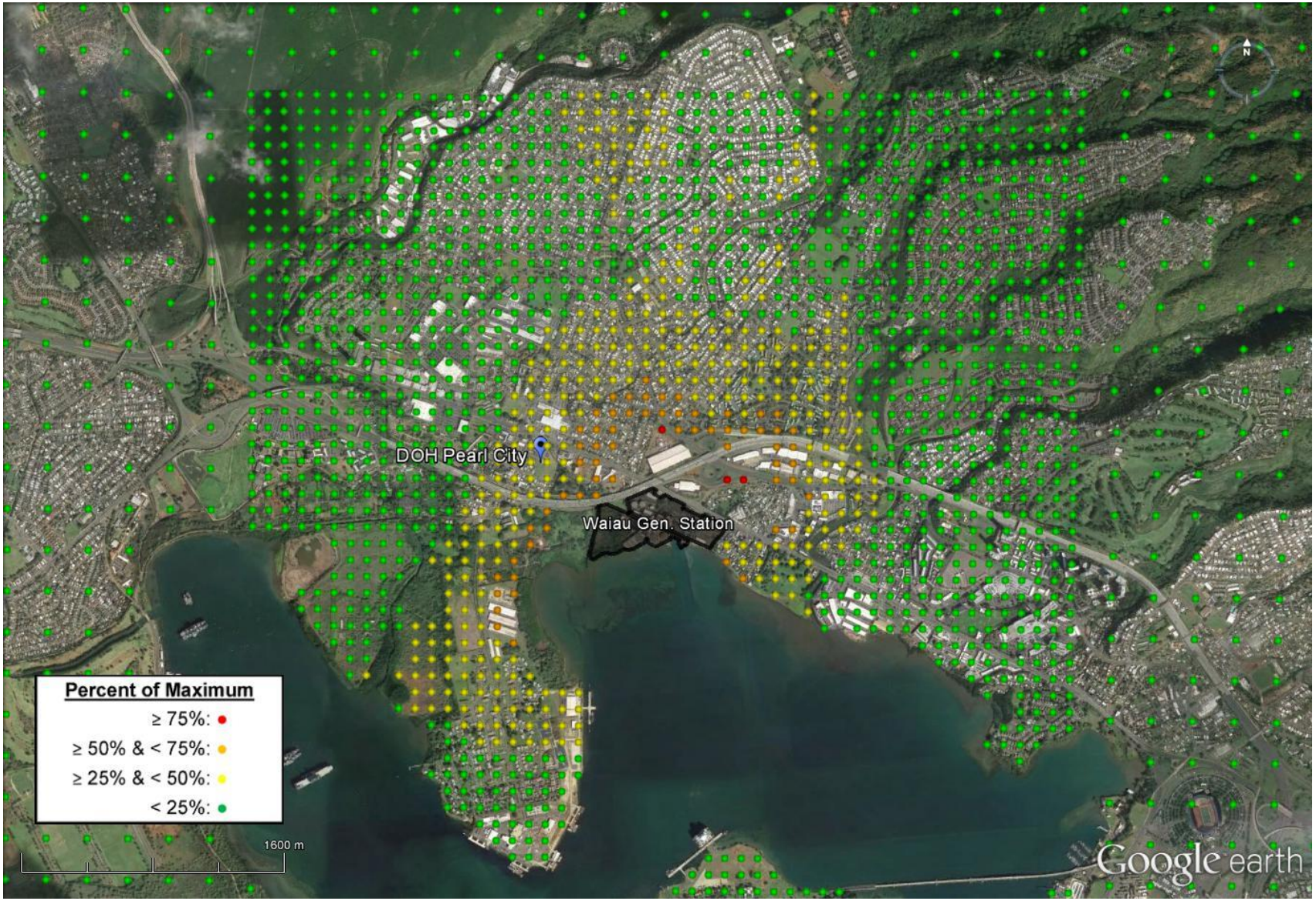


FIGURE 3.1-3 RECEPTORS WITH THE TOP 200 NDVS

FIGURE 3.1-4 CUMULATIVE NUMBER OF DAYS WITH THE DAILY MAXIMUM 1-HOUR NDV

FIGURE 3.1-5 MONITOR PLACEMENT SCORES

FIGURE 3.1-6 TOP 10 MONITOR PLACEMENT SCORE RANKS

FIGURE 3.2-1 POTENTIAL MONITORING LOCATIONS

FIGURE 3.2-2 AREA 1 POTENTIAL MONITOR LOCATION

FIGURE 3.2-3 AREA 2 POTENTIAL MONITOR LOCATION

FIGURE 3.2-4 AREA 3 POTENTIAL MONITOR LOCATION

4.0 REFERENCES

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40 CFR 51 - Appendix W. Guideline on Air Quality Models.

Appendix A: Modeling Files Catalogue

TABLE A-1 AERMINUTE PROCESSING FILES

Filename*	File Type	Description
64050PHNLYYYYMM.dat	Input	1-minute ASOS wind data
AERMINUTE_HNL_YY.INP	Input	Control input file
HNL_1MIN_YY.DAT	Output	Hourly averaged winds (AERMET Stage 2 input file)
HNL_1MIN_YY_COMP.DAT	Output	Standard observations vs. 1-minute data file
HNL_1MIN_YY_SUMM.DAT	Output	Summary file
aerminute_YY.log	Output	Run Log
bad_records_YY.dat	Output	"Bad" data that was not used to calculate hourly averages
check_records_YY.dat	Output	Data that may be suitable for use, once QAed
good_records_YY.dat	Output	"Good" data used to calculate hourly averages

* YYYY is the 4-digit modeled year, YY is the 2-digit modeled year, and MM is the modeled month.

TABLE A-2 AERMET PROCESSING FILES

Filename*	File Type	Description
HNL_YYYY_S1.INP	Input	Stage 1 input file
HNL_YYYY_S2.INP	Input	Stage 2 input file
HNL_YYYY_S3.INP	Input	Stage 3 input file
22536_YY.FSL	Input	Upper Air Observations from Līhu‘e Airport
911820-22521_YY	Input	HNL Airport surface data
HNL_YYYY_S1.MSG	Output	Stage 1 processing information
HNL_YYYY_S1.RPT	Output	Stage 1 summary report
SFEXOUT_YYYY.DSK	Output	Extracted surface observations
SFQAOUT_YYYY.DSK	Output	QAed surface observations
UAEXOUT_YYYY.DSK	Output	Extracted NWS upper air data
UAQAOUT_YYYY.DSK	Output	QAed upper air data
HNL_YYYY_S2.MSG	Output	Stage 2 processing information
HNL_YYYY_S2.RPT	Output	Stage 2 summary report
MERGE_YYYY.DSK	Output	Merged upper air and surface data
HNL_YYYY_S3.MSG	Output	Stage 3 processing information
HNL_YYYY_S3.RPT	Output	Stage 3 summary report
HNL_YYYY.SFC	Output	AERMOD input met. surface data (single year)
HNL_YYYY.PFL	Output	AERMOD input met. profile data (single year)
HNL_2012-2014.SFC	Output	AERMOD input met. surface data (2012-2014)
HNL_2012-2014.PFL	Output	AERMOD input met. profile data (2012-2014)

* YYYY is the 4-digit modeled year and YY is the 2-digit modeled year.

TABLE A-3 AERMAP PROCESSING FILES

Filename	File Type	Description
Oahu_44626486.tif	Input	USGS 1/3 Degree NED covering O'ahu, downloaded June 20, 2012
WAIAU_SO2.INP	Input	Initial grid (Grid 1) AERMAP input file
WAIAU_SO2.xy	Input	List of Grid 1 receptor locations
WAIAU_SO2.out	Output	Grid 1 AERMAP output file
WAIAU_SO2.RE	Output	Grid 1 AERMAP receptor file
WAIAU_SO2_R.xlsx	Spreadsheet	Spreadsheet used to filter/sort WAIAU_SO2.RE receptors
WAIAU_SO2_R.RE	Output	File of Grid 1 receptors located in feasible locations
WAIAU_SO2_Coarse.INP	Input	Coarse grid AERMAP input file
WAIAU_SO2_Coarse.xy	Input	List of coarse grid receptor locations
WAIAU_SO2_Coarse.out	Output	Coarse grid AERMAP output file
WAIAU_SO2_Coarse.RE	Output	Coarse grid AERMAP receptor file
WAIAU_SO2_C.xlsx	Spreadsheet	Spreadsheet used to filter/sort WAIAU_SO2_Coarse.RE receptors
WAIAU_SO2_C.RE	Output	File of coarse grid receptors located in feasible locations

TABLE A-4 BPIPPRM PROCESSING FILES

Filename	File Type	Description
WAIAU_BPIPPRM.INP	Input	Input BPIPPRM file without EBDs
WAIAU_BPIPPRM.OUT	Output	BPIPPRM output information without EBDs
WAIAU_BPIPPRM.SUM	Output	BPIPPRM summary file without EBDs
WAIAU_BPIPPRM_EBD.SO	Output	BPIPPRM output information with EBDs; Input file for AERMOD

TABLE A-5 AERMOD MODELING RUN LOG

Run ID	Averaging Period	Receptor Grid	Comments
WAIAU_NSO2_R	1-hr	Grid 1	Modeled impacts based on normalized 2012-2014 actual SO_2 emissions and actual stack parameters
WAIAU_NTOP200_R	1-hr	Top 200 NDV from Grid 1	Modeled impacts based on normalized 2012-2014 actual SO_2 emissions and actual stack parameters, and the receptors with the top 200 NDVs from "WAIAU_NSO2_R" modeling
WAIAU_NSO2_RC	1-hr	Grid 1 & Coarse Grid	Modeled impacts based on normalized 2012-2014 actual SO_2 emissions and actual stack parameters

Appendix B: Detailed Scoring Calculations

TABLE B-1 DETAILED SCORING CALCULATIONS

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
607600.00	2366100.00	30.94	30.94	84%	3	62	4	7	1
608000.00	2365800.00	13.95	26.02	100%	1	43	8	9	2
606700.00	2365100.00	1.00	1.00	65%	13	168	1	14	3
607300.00	2366000.00	19.47	19.47	75%	4	31	11	15	4
608100.00	2365800.00	12.96	27.01	95%	2	30	13	15	4
607300.00	2365800.00	8.19	14.01	70%	8	34	9	17	6
606700.00	2365200.00	1.00	1.00	63%	17	67	3	20	7
607700.00	2366100.00	26.11	30.35	70%	7	21	16	23	8
607500.00	2366200.00	36.48	36.48	70%	6	13	22	28	9
608000.00	2366000.00	27.88	27.88	67%	11	15	19	30	10
608300.00	2365800.00	13.47	15.52	74%	5	7	28	33	11
608000.00	2365300.00	1.00	1.00	64%	14	14	20	34	12
606900.00	2365500.00	3.00	3.00	62%	22	26	15	37	13
607300.00	2366100.00	26.03	26.03	65%	12	8	27	39	14
606800.00	2365400.00	1.97	1.97	60%	30	31	11	41	15
607200.00	2366000.00	17.47	17.47	64%	15	9	26	41	15
608100.00	2365200.00	1.00	1.00	61%	25	14	20	45	17
606700.00	2364800.00	1.15	1.15	54%	45	138	2	47	18
607100.00	2365700.00	6.51	6.51	62%	19	5	31	50	19
606700.00	2365300.00	1.00	1.00	58%	35	20	17	52	20
607800.00	2366100.00	23.17	23.17	60%	29	12	23	52	20
608300.00	2365900.00	11.99	29.99	68%	9	1	44	53	22
607600.00	2366200.00	34.51	34.51	68%	10	1	44	54	23
607400.00	2366200.00	36.50	36.50	61%	27	7	28	55	24
607200.00	2365700.00	5.00	5.00	59%	33	12	23	56	25
607200.00	2365800.00	9.08	9.08	62%	24	4	32	56	25
608300.00	2365500.00	7.12	7.12	62%	21	3	35	56	25
608300.00	2366000.00	23.00	23.00	62%	20	2	38	58	28
608200.00	2366100.00	31.14	31.14	61%	28	3	35	63	29
606600.00	2364900.00	2.00	2.00	51%	60	57	6	66	30
607700.00	2366200.00	32.89	32.89	61%	26	1	44	70	31
607900.00	2366100.00	24.01	24.01	56%	40	4	32	72	32
607200.00	2365900.00	13.10	13.10	63%	16	0	58	74	33
607500.00	2366300.00	37.00	37.00	63%	18	0	58	76	34
608100.00	2366100.00	34.73	34.73	59%	32	1	44	76	34
608300.00	2366100.00	29.20	29.20	62%	23	0	58	81	36
606600.00	2365000.00	2.00	2.00	53%	52	6	30	82	37
606700.00	2364700.00	2.00	2.00	48%	74	33	10	84	38
608400.00	2365800.00	20.40	23.97	54%	44	1	44	88	39
607200.00	2366100.00	24.99	24.99	60%	31	0	58	89	40
606800.00	2364600.00	2.00	2.00	46%	85	48	7	92	41
608400.00	2365900.00	21.46	23.00	58%	34	0	58	92	41
608500.00	2365700.00	10.94	29.04	53%	48	1	44	92	41
607600.00	2366300.00	36.56	36.56	57%	36	0	58	94	44
608000.00	2366100.00	30.72	30.72	57%	37	0	58	95	45
607300.00	2366200.00	30.42	36.39	57%	38	0	58	96	46
606900.00	2365600.00	5.00	5.00	51%	59	2	38	97	47
607800.00	2366200.00	29.91	33.77	56%	39	0	58	97	47
607400.00	2366300.00	35.95	37.59	55%	41	0	58	99	49
608400.00	2366000.00	25.50	25.50	54%	42	0	58	100	50

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
607200.00	2366200.00	31.95	31.95	54%	43	0	58	101	51
607000.00	2365700.00	8.00	8.00	54%	46	0	58	104	52
606600.00	2365100.00	1.95	1.95	53%	47	0	58	105	53
607100.00	2364500.00	1.00	1.00	44%	100	60	5	105	53
607700.00	2366300.00	35.81	35.81	53%	49	0	58	107	55
608400.00	2365500.00	6.90	6.90	53%	50	0	58	108	56
606600.00	2365200.00	2.00	2.00	53%	51	0	58	109	57
606800.00	2365500.00	3.07	3.07	52%	53	0	58	111	58
607100.00	2365800.00	6.00	6.00	50%	67	1	44	111	58
608500.00	2365600.00	6.50	28.79	48%	73	2	38	111	58
607500.00	2366400.00	32.00	32.00	52%	54	0	58	112	61
608300.00	2366200.00	35.99	52.92	52%	55	0	58	113	62
608000.00	2366200.00	35.51	35.51	51%	56	0	58	114	63
607000.00	2364500.00	1.00	1.00	44%	101	29	14	115	64
607100.00	2366100.00	22.42	36.04	51%	57	0	58	115	64
608500.00	2365800.00	23.97	29.04	47%	77	2	38	115	64
608200.00	2366200.00	35.90	52.03	51%	58	0	58	116	67
606600.00	2364800.00	2.00	2.00	45%	86	4	32	118	68
607300.00	2366300.00	27.34	39.00	50%	61	0	58	119	69
607100.00	2366000.00	15.75	15.75	50%	62	0	58	120	70
607100.00	2365900.00	11.01	11.48	50%	63	0	58	121	71
608400.00	2366100.00	27.88	50.12	50%	64	0	58	122	72
607900.00	2366200.00	26.21	50.05	50%	65	0	58	123	73
608300.00	2365400.00	5.98	5.98	46%	79	1	44	123	73
608100.00	2366200.00	40.94	42.85	50%	66	0	58	124	75
607800.00	2366300.00	38.25	49.97	49%	68	0	58	126	76
606700.00	2365400.00	2.51	2.51	49%	69	0	58	127	77
608400.00	2366200.00	33.49	52.02	49%	70	0	58	128	78
607100.00	2366200.00	30.05	36.04	48%	71	0	58	129	79
607400.00	2366400.00	30.18	30.18	48%	72	0	58	130	80
608300.00	2366300.00	49.01	49.01	45%	87	1	44	131	81
606900.00	2364500.00	1.04	1.04	42%	114	18	18	132	82
608500.00	2365900.00	27.99	27.99	47%	75	0	58	133	83
607600.00	2366400.00	34.94	34.94	47%	76	0	58	134	84
608500.00	2366000.00	31.07	31.07	46%	78	0	58	136	85
607000.00	2365800.00	7.51	7.51	46%	80	0	58	138	86
608200.00	2365400.00	4.95	4.95	43%	103	3	35	138	86
606900.00	2365700.00	7.18	7.18	46%	81	0	58	139	88
606600.00	2365300.00	2.00	2.00	46%	82	0	58	140	89
607200.00	2366300.00	25.39	36.04	46%	83	0	58	141	90
607700.00	2366400.00	38.46	46.05	46%	84	0	58	142	91
608600.00	2365700.00	6.50	30.90	45%	88	0	58	146	92
606500.00	2365200.00	3.00	3.00	45%	89	0	58	147	93
608200.00	2366300.00	49.48	49.48	45%	90	0	58	148	94
607500.00	2366500.00	30.00	30.00	45%	91	0	58	149	95
608200.00	2365200.00	1.00	1.00	45%	92	0	58	150	96
606500.00	2365000.00	2.00	2.00	45%	93	0	58	151	97
608400.00	2365400.00	5.02	5.02	45%	94	0	58	152	98
607000.00	2366000.00	13.23	13.23	44%	95	0	58	153	99
607900.00	2366300.00	35.41	50.05	44%	96	0	58	154	100

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
606700.00	2364600.00	3.00	3.00	43%	111	1	44	155	101
606700.00	2365500.00	4.00	4.00	44%	97	0	58	155	101
606800.00	2365600.00	5.11	5.11	44%	98	0	58	156	103
607300.00	2366400.00	31.20	31.20	44%	99	0	58	157	104
608500.00	2365500.00	2.49	2.49	44%	102	0	58	160	105
606600.00	2364700.00	2.00	2.00	43%	104	0	58	162	106
606500.00	2365100.00	2.00	2.00	43%	105	0	58	163	107
607000.00	2365900.00	7.98	7.98	43%	106	0	58	164	108
607400.00	2366500.00	34.95	34.95	43%	107	0	58	165	109
606500.00	2364900.00	2.00	2.00	43%	108	0	58	166	110
608400.00	2366300.00	39.06	53.06	43%	109	0	58	167	111
607800.00	2366400.00	45.45	49.97	43%	110	0	58	168	112
608100.00	2365300.00	1.85	1.85	40%	125	1	44	169	113
607100.00	2366300.00	23.17	36.04	43%	112	0	58	170	114
607000.00	2366100.00	15.01	36.04	43%	113	0	58	171	115
606800.00	2364500.00	2.43	2.43	39%	134	2	38	172	116
608100.00	2366300.00	47.44	48.93	42%	115	0	58	173	117
608100.00	2365400.00	3.00	3.00	42%	116	0	58	174	118
608000.00	2366300.00	36.56	50.82	42%	117	0	58	175	119
606500.00	2364800.00	2.00	2.00	41%	118	0	58	176	120
607000.00	2366200.00	15.98	36.04	41%	119	0	58	177	121
608600.00	2365600.00	4.09	29.04	41%	120	0	58	178	122
606800.00	2365700.00	8.49	8.49	41%	121	0	58	179	123
607200.00	2366400.00	27.54	27.54	41%	122	0	58	180	124
608500.00	2366100.00	36.46	36.46	41%	123	0	58	181	125
606900.00	2365800.00	10.00	10.00	40%	124	0	58	182	126
606600.00	2365400.00	3.09	3.09	40%	126	0	58	184	127
607100.00	2364400.00	1.00	1.00	37%	160	11	25	185	128
608600.00	2365800.00	12.08	33.63	40%	127	0	58	185	128
608100.00	2366400.00	46.87	48.86	38%	142	1	44	186	130
608300.00	2366400.00	52.00	52.00	40%	128	0	58	186	130
607600.00	2366500.00	32.54	32.54	40%	129	0	58	187	132
608200.00	2365300.00	3.00	3.00	38%	149	2	38	187	132
607700.00	2366500.00	40.32	45.34	40%	130	0	58	188	134
608500.00	2366200.00	38.51	38.51	40%	131	0	58	189	135
607000.00	2366300.00	19.42	36.04	39%	132	0	58	190	136
608300.00	2365100.00	1.00	1.00	39%	133	0	58	191	137
607300.00	2366500.00	35.01	35.01	39%	135	0	58	193	138
607500.00	2366600.00	35.90	36.33	39%	136	0	58	194	139
608500.00	2365400.00	0.97	0.97	39%	137	0	58	195	140
606400.00	2365000.00	2.00	2.00	38%	138	0	58	196	141
607900.00	2366400.00	48.90	48.90	38%	139	0	58	197	142
608000.00	2365400.00	1.09	1.09	38%	140	0	58	198	143
606600.00	2365500.00	5.00	5.00	38%	141	0	58	199	144
608600.00	2366000.00	32.00	32.00	38%	143	0	58	201	145
606600.00	2364600.00	3.00	3.00	38%	144	0	58	202	146
606700.00	2365600.00	6.21	6.21	38%	145	0	58	203	147
608500.00	2366300.00	36.54	60.92	38%	146	0	58	204	148
606500.00	2364700.00	2.00	2.00	38%	147	0	58	205	149
607100.00	2366400.00	21.42	24.66	38%	148	0	58	206	150

TABLE B-1 DETAILED SCORING CALCULATIONS (CONTINUED)

Receptor Location		Receptor	Receptor	Normalized Design Value (NDV)		Cumulative Number of Days		Score	
Easting	Northing	Elevation	Height Scale					Value	
X (m)	Y (m)	Z_{elev} (m)	Z_{hill} (m)	% of Max	Rank (A)	Count	Rank (B)	(A+B)	Rank
607800.00	2366500.00	48.98	48.98	38%	150	0	58	208	151
606500.00	2365300.00	2.99	2.99	37%	151	0	58	209	152
606900.00	2365900.00	9.99	9.99	37%	152	0	58	210	153
606400.00	2365100.00	2.46	2.46	37%	153	0	58	211	154
606400.00	2364900.00	2.00	2.00	37%	154	0	58	212	155
606800.00	2365800.00	12.00	12.00	37%	155	0	58	213	156
606700.00	2365700.00	11.90	11.90	37%	156	0	58	214	157
606400.00	2364800.00	1.46	1.46	37%	157	0	58	215	158
608000.00	2366400.00	39.06	50.12	36%	171	1	44	215	158
606400.00	2365200.00	3.00	3.00	37%	158	0	58	216	160
606700.00	2364500.00	3.00	3.00	37%	159	0	58	217	161
607400.00	2366600.00	38.00	38.00	36%	161	0	58	219	162
606900.00	2364400.00	2.00	2.00	36%	162	0	58	220	163
608600.00	2365900.00	29.11	29.11	36%	163	0	58	221	164
608700.00	2365700.00	4.06	30.85	36%	164	0	58	222	165
606800.00	2364400.00	3.00	3.00	35%	179	1	44	223	166
608400.00	2366400.00	44.00	52.00	36%	165	0	58	223	166
607200.00	2366500.00	31.53	31.53	36%	166	0	58	224	168
606900.00	2366100.00	13.99	13.99	36%	167	0	58	225	169
607000.00	2364400.00	1.00	1.00	36%	168	0	58	226	170
608500.00	2366400.00	46.54	59.82	36%	169	0	58	227	171
608200.00	2366400.00	51.93	51.93	36%	170	0	58	228	172
606500.00	2364600.00	3.00	3.00	36%	172	0	58	230	173
607900.00	2366500.00	50.62	50.62	35%	173	0	58	231	174
606600.00	2364500.00	4.00	4.00	35%	174	0	58	232	175
606900.00	2366000.00	12.00	12.00	35%	175	0	58	233	176
608600.00	2365500.00	0.11	0.11	35%	176	0	58	234	177
607300.00	2366600.00	37.89	37.89	35%	177	0	58	235	178
607000.00	2366400.00	18.00	18.00	35%	178	0	58	236	179
608600.00	2366100.00	37.92	37.92	35%	180	0	58	238	180
607700.00	2366600.00	36.49	36.49	34%	181	0	58	239	181
606900.00	2366200.00	15.55	15.55	34%	182	0	58	240	182
607600.00	2366600.00	32.02	62.03	34%	183	0	58	241	183
606500.00	2365400.00	4.14	4.14	34%	184	0	58	242	184
608300.00	2365300.00	4.00	4.00	34%	185	0	58	243	185
606400.00	2364700.00	1.44	1.44	34%	186	0	58	244	186
608700.00	2365600.00	1.00	1.00	34%	187	0	58	245	187
607800.00	2366600.00	43.51	48.52	34%	188	0	58	246	188
606900.00	2366300.00	17.89	24.26	34%	189	0	58	247	189
608600.00	2366300.00	50.10	50.10	33%	190	0	58	248	190
608600.00	2366200.00	45.42	45.96	33%	191	0	58	249	191
606300.00	2364900.00	1.00	1.00	33%	192	0	58	250	192
608400.00	2366500.00	51.95	60.99	33%	193	0	58	251	193
606600.00	2365600.00	8.20	8.20	33%	194	0	58	252	194
607500.00	2366700.00	44.97	48.73	33%	195	0	58	253	195
608600.00	2365400.00	1.00	1.00	33%	196	0	58	254	196
608700.00	2365800.00	6.56	50.05	33%	197	0	58	255	197
606500.00	2365500.00	5.96	5.96	33%	198	0	58	256	198
606700.00	2365800.00	13.00	13.00	33%	199	0	58	257	199
606300.00	2364800.00	1.00	1.00	33%	200	0	58	258	200

Attachment 3: Hawaiian Electric Company Kahe SO_2 AQMS Site Approval Request, October 2015

Hawaiian Electric Company
Kahe SO_2 AQMS Site Selection
Alternate Sites Approval Request

October 2015

Approval Requested for Alternate Sites 4 and 5

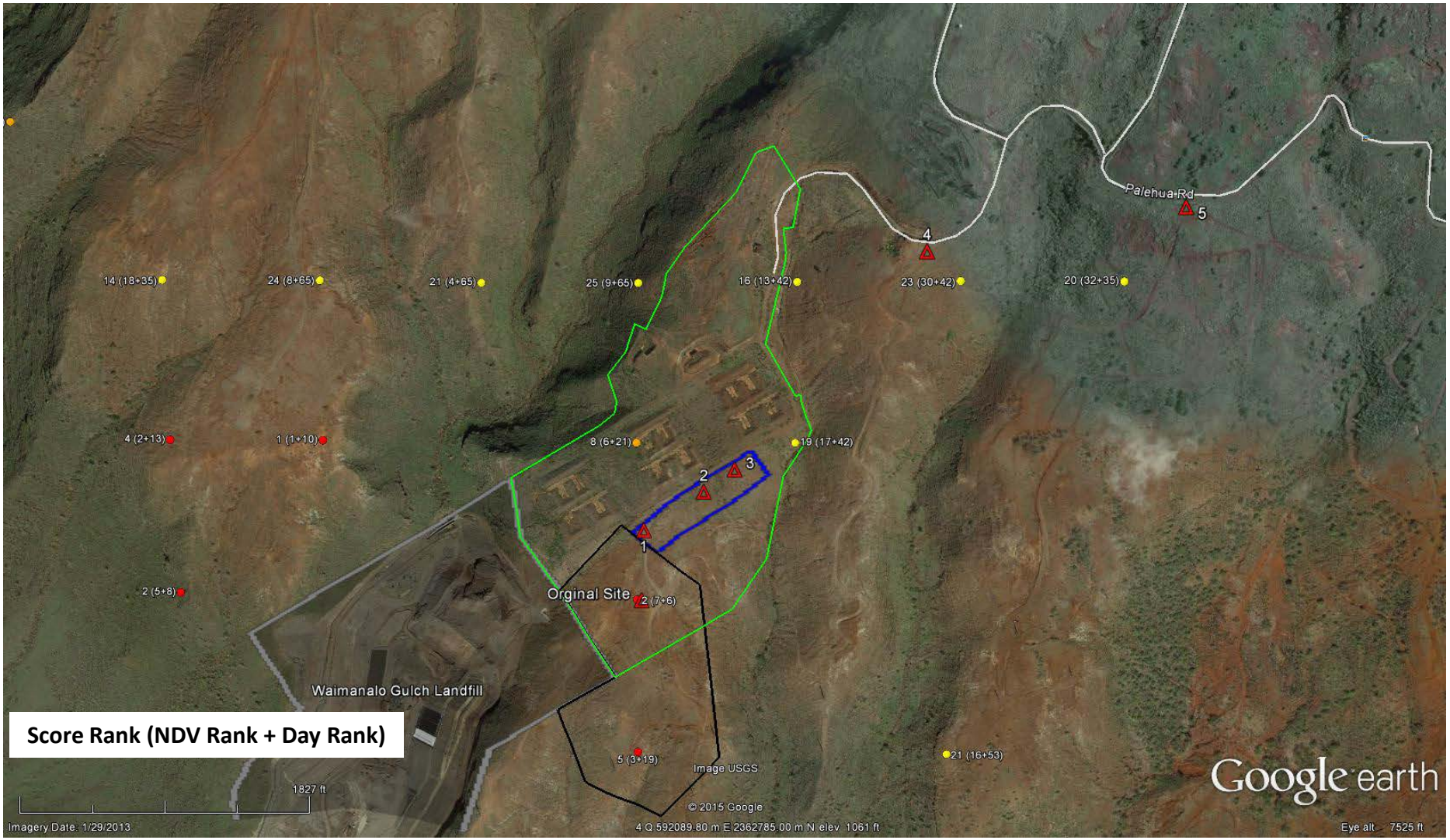
Original approved Area 1 and Alternate Sites 1, 2, and 3 not feasible due to:

- Landowner will not lease land to Hawaiian Electric. Original site and Alternate Sites 1, 2, and 3 owned by same landowner (area delineated by green line on maps on pp. 4 – 5).
- Significant erosion and runoff impacts.
- Significant road improvements needed for safe access.

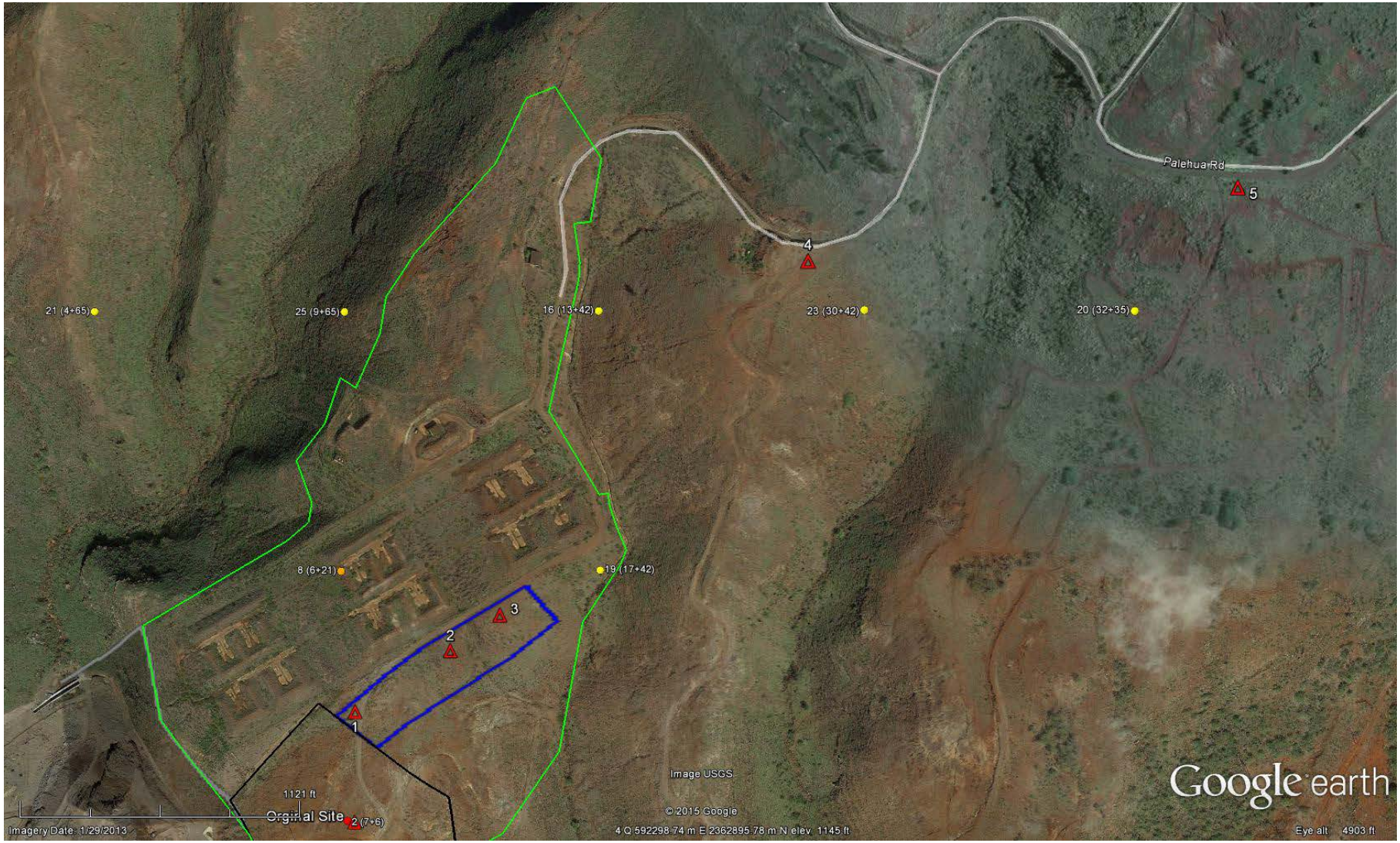
Alternate Sites 4 and 5 Summary

- Approval requested for Alternate Sites 4 and 5.
- Hawaiian Electric will site the monitor at one of the two sites.
- Score Rank (NDV Rank + Day Rank)
  - Alternate Site 4: 20 (30 + 42)
  - Alternate Site 5: 23 (32 + 35)
- Alternate sites are feasible due to following factors:
  - Property owner will likely lease land to Hawaiian Electric.
  - Road work not necessary to provide safe access to sites; sites are along Palehua Road which is paved.
  - Electrical poles may be trucked in on Palehua Road. Electrical tie-in less difficult for Alternate Site 5.
  - Minimal site preparation work is needed.

Original Site in Area 1
& Potential Alternate Sites



Potential Sites – Zoomed



Site Evaluation

Site	Land Lease Agreement	Site Access & Potential Hazards	Site Preparation	Electrical Service	Cultural Sensitivity & Archaeological Impacts
Original Site	Owner will not lease land	Significant road improvements needed - Road washed out - Rock fall hazard	Significant prep needed Runoff and erosion controls needed	Need to fly poles in with helicopter	Unknown at this time
1	Owner will not lease land	Significant road improvements needed - Rock fall hazard	Moderate prep needed Potential drainage issues	Need to fly poles in with helicopter	Unknown at this time
2	Owner will not lease land	Significant road improvements needed - Rock fall hazard	Minimal prep needed	Need to fly poles in with helicopter	Unknown at this time
3	Owner will not lease land	Significant road improvements needed - Rock fall hazard	Minimal prep needed	Need to fly poles in with helicopter	Unknown at this time
4	No challenge anticipated	No improvements needed	Minimal prep needed	Can truck poles in Electrical tie in more difficult than Alternate Site 5	Unknown at this time
5	No challenge anticipated	No improvements needed	Minimal prep needed	Can truck poles in Electrical tie in less difficult than Alternate Site 4	Unknown at this time

Alternate Site 4

Alternate Site 5

Original Site in Area 1 Summary

Site is not feasible due to following factors:

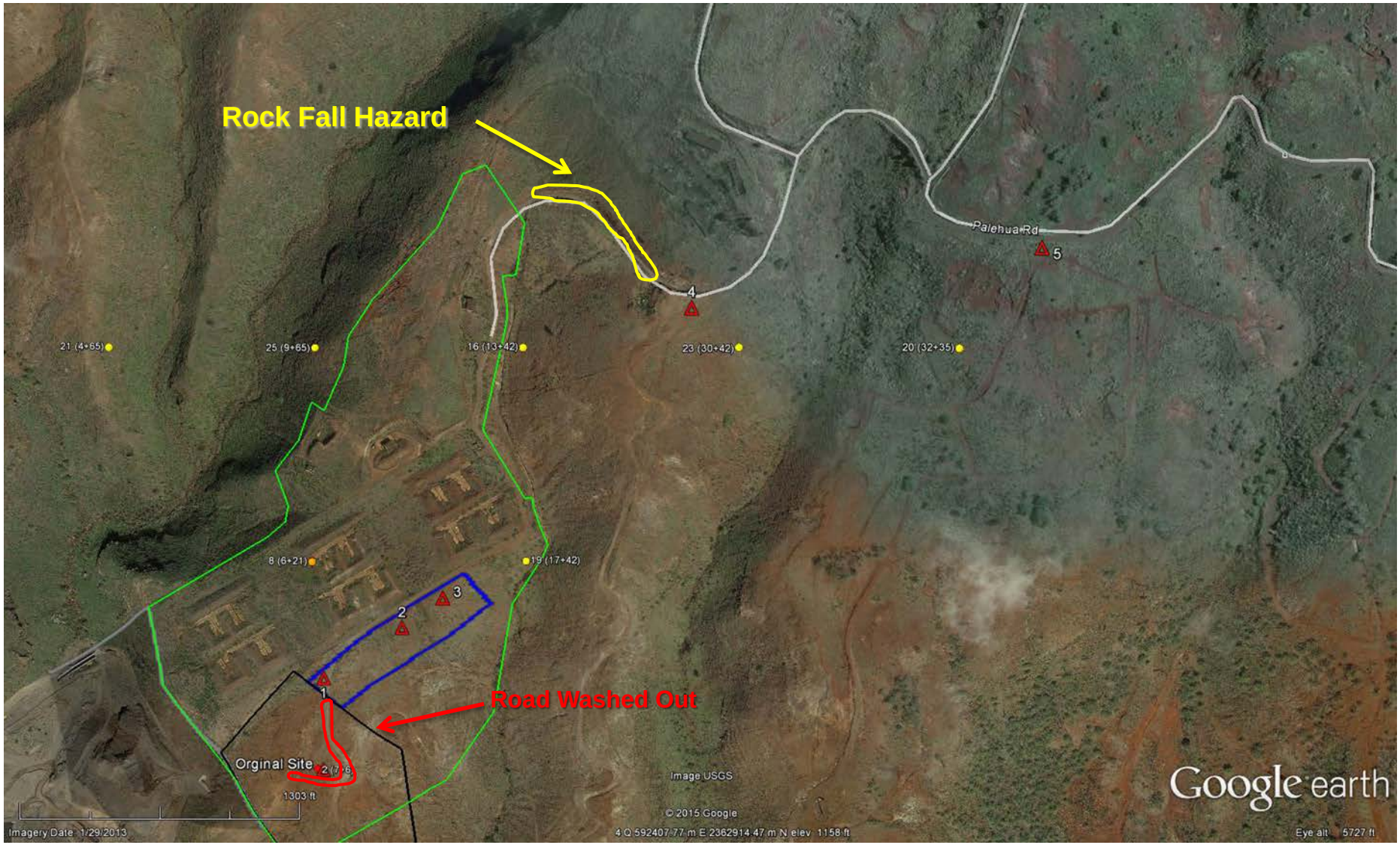
- Property owner will not lease land to Hawaiian Electric due to future plans for property. Original site and Alternate Sites 1, 2, and 3 owned by same landowner.
- Significant road improvement and mitigation of rock fall hazard area necessary to provide safe access to site.
- Electrical poles will need to be flown in by helicopter; access by truck is not possible.
- Site is on sloping terrain and is subject to significant erosion and storm drainage issues.
  - Summer storms due to cyclone activity caused significant erosion.

Alternate Sites 1, 2, and 3 Summary

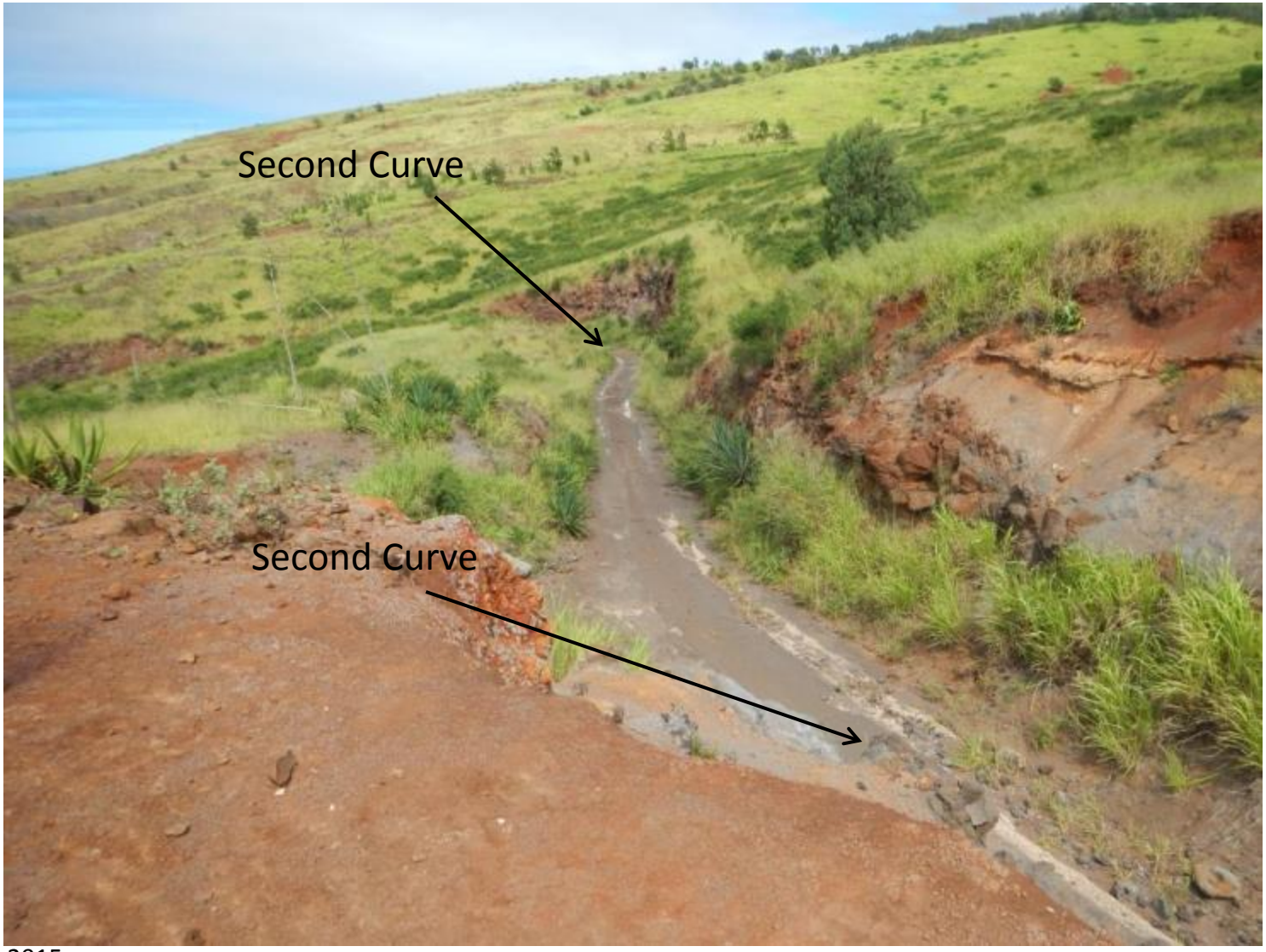
Alternate sites are not feasible due to following factors:

- Property owner will not lease land to Hawaiian Electric due to future plans for property. Original site and Alternate Sites 1, 2, and 3 owned by same landowner.
- Significant road improvement and mitigation of rock fall hazard area necessary to provide safe access to site.
- Electrical poles will need to be flown in by helicopter; access by truck is not possible.

Access to Sites – Safety Consideration

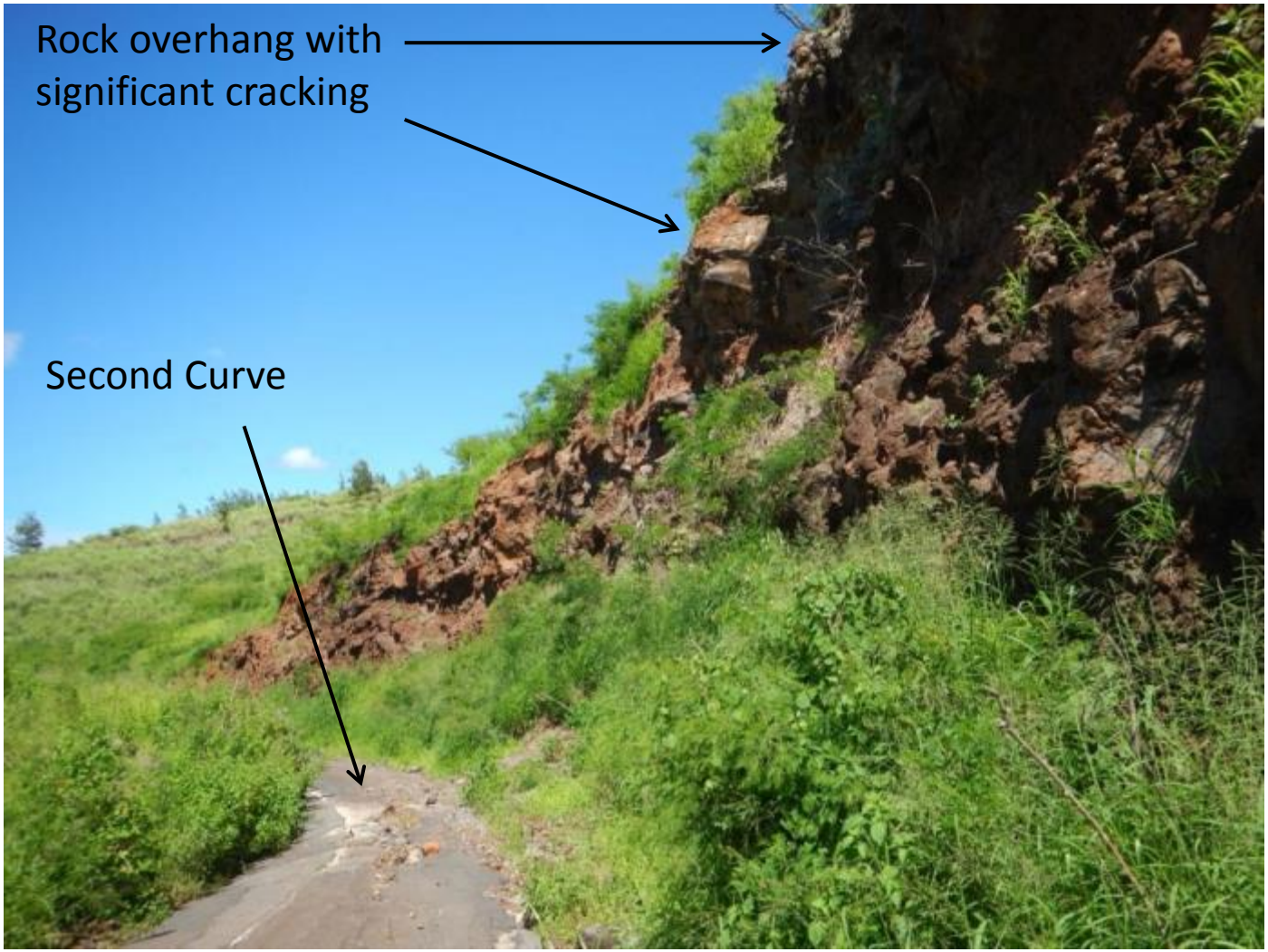


Potential Rock Fall Area (To Original Site & Alt Sites 1, 2, & 3)

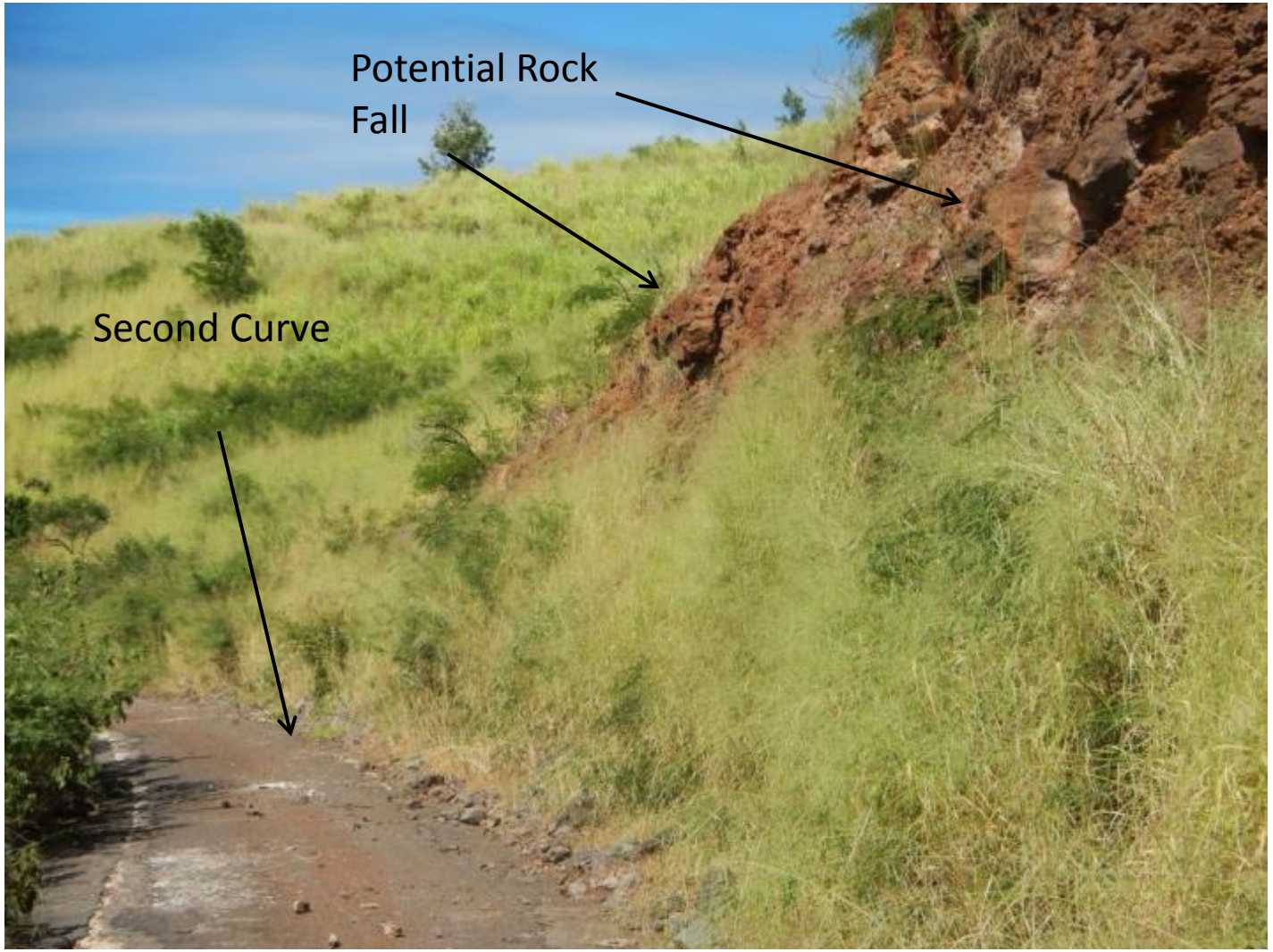


Entering Second Curve

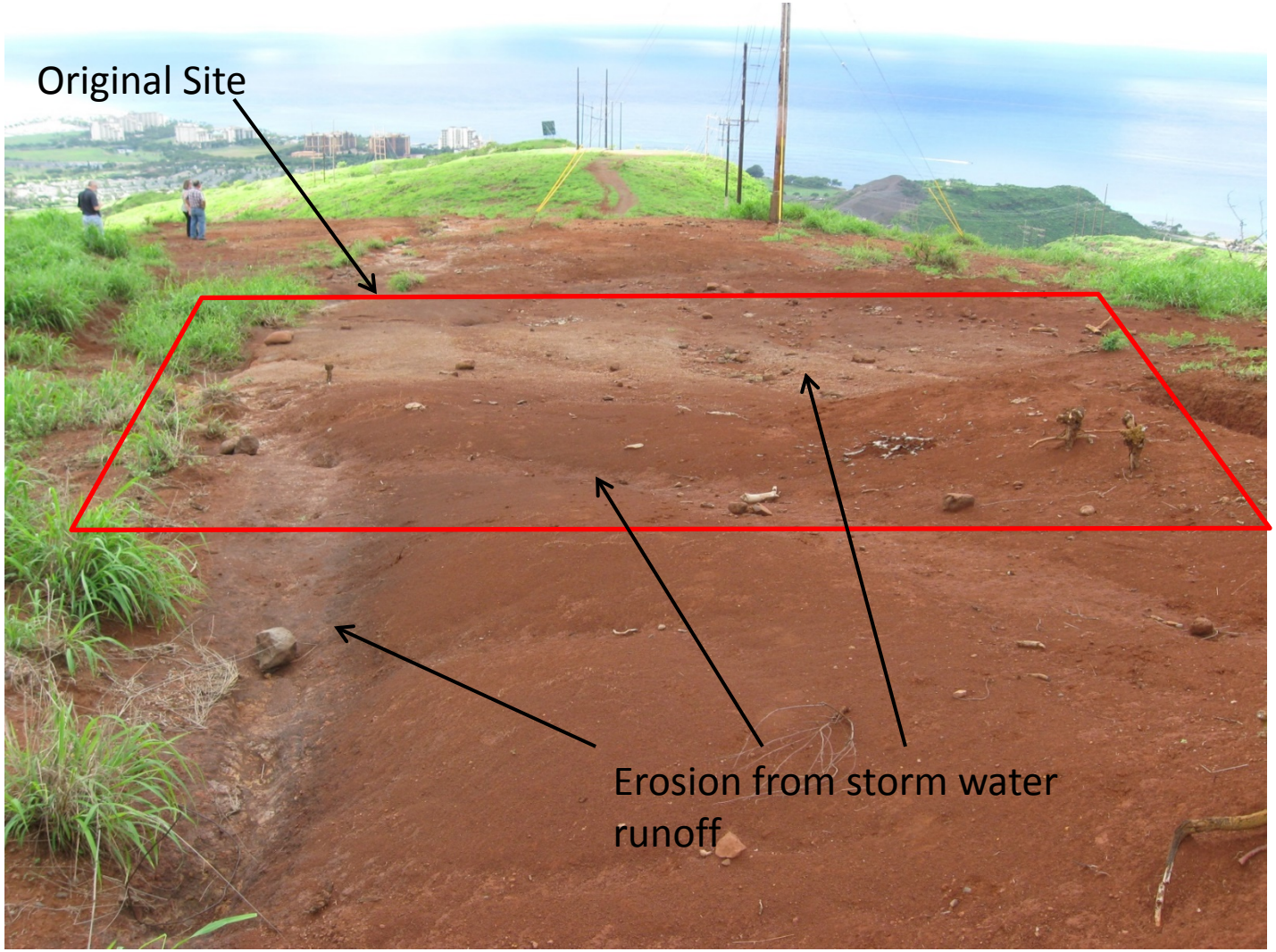
Rock Fall Hazard to Original Site and Alt Sites 1, 2, and 3



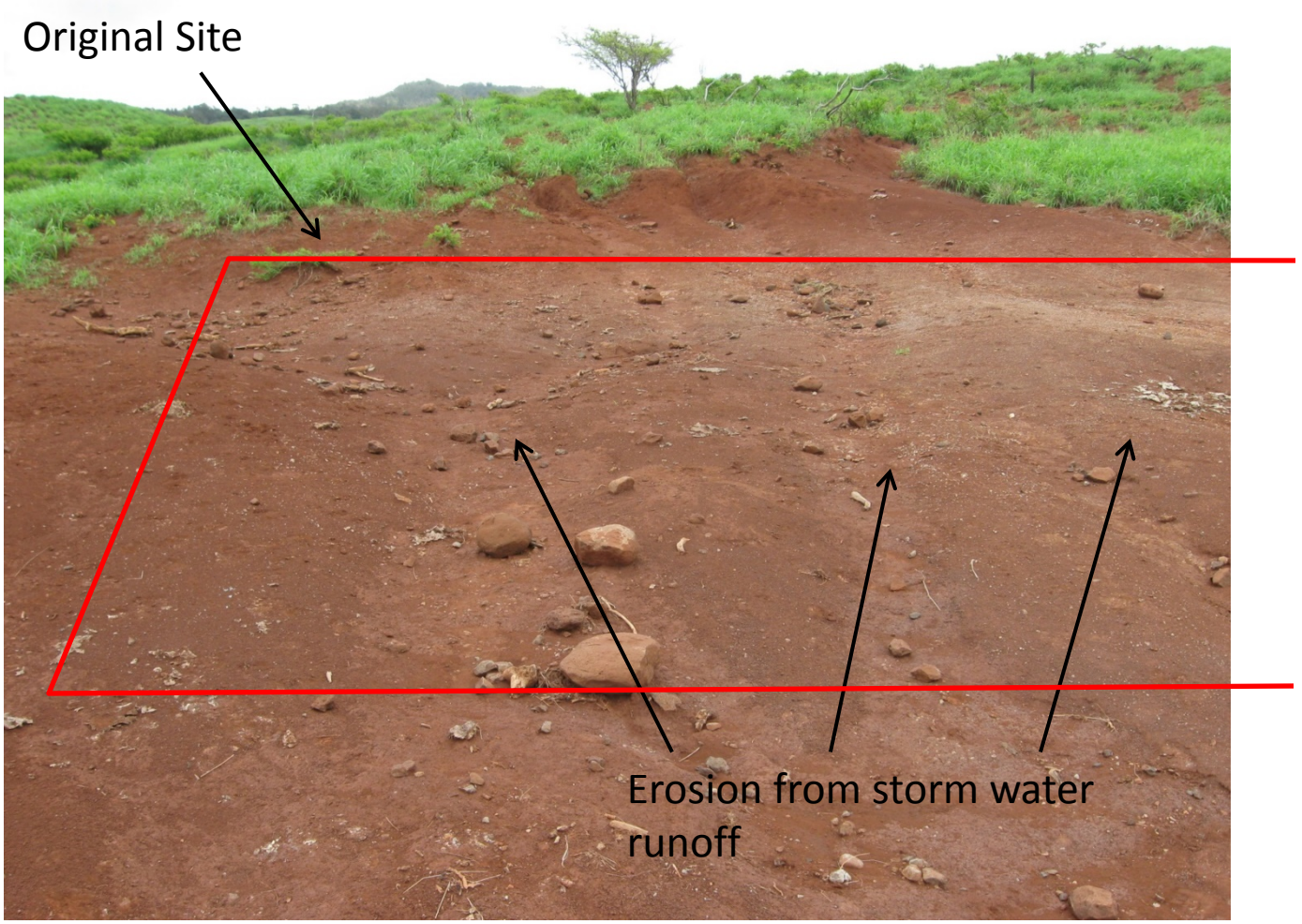
End of Second Curve



Original Site in Area 1
Grading and Erosion Issues (Looking Downhill)

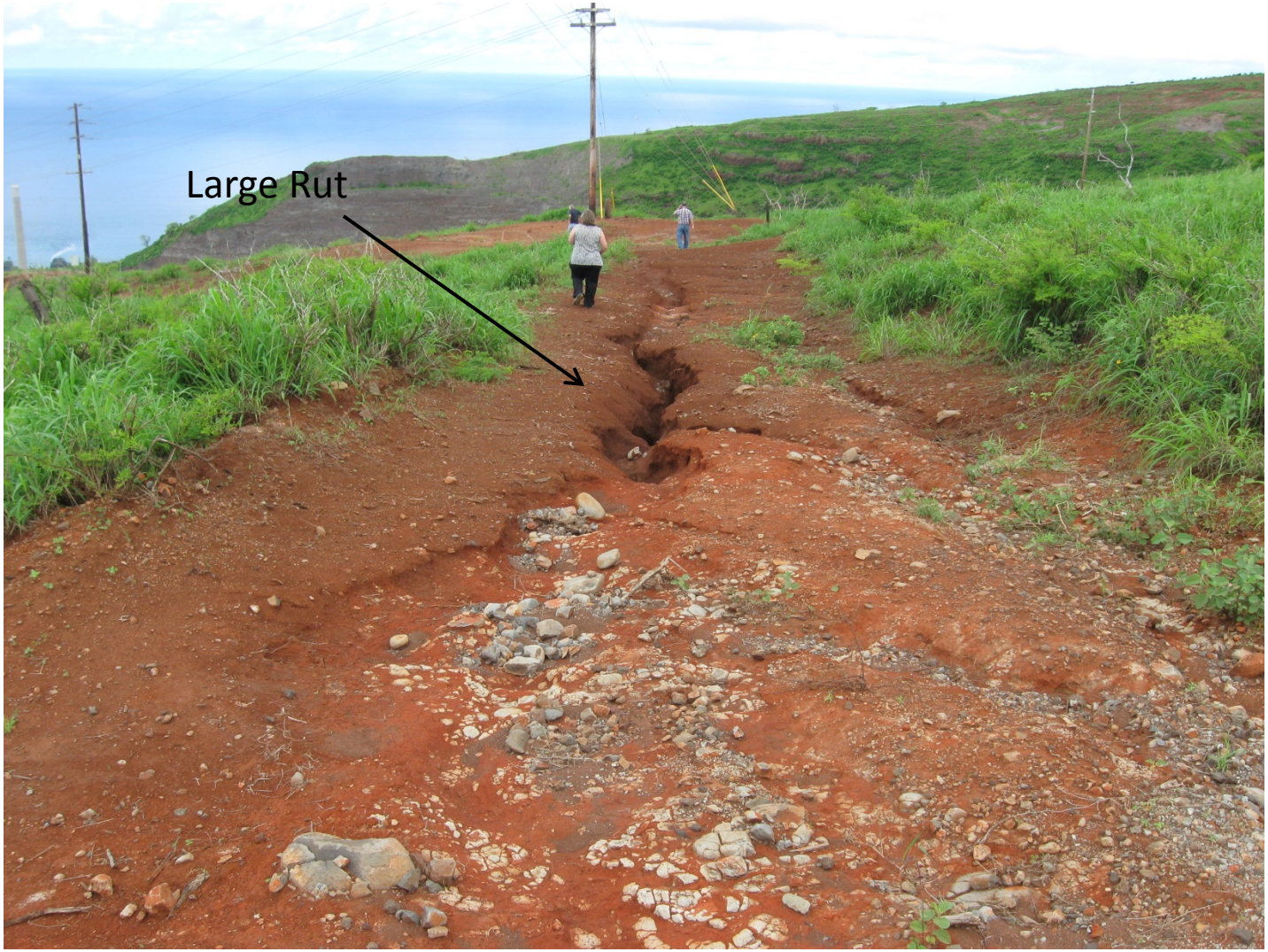


Original Site in Area 1
Grading and Erosion Issues (Looking Uphill)

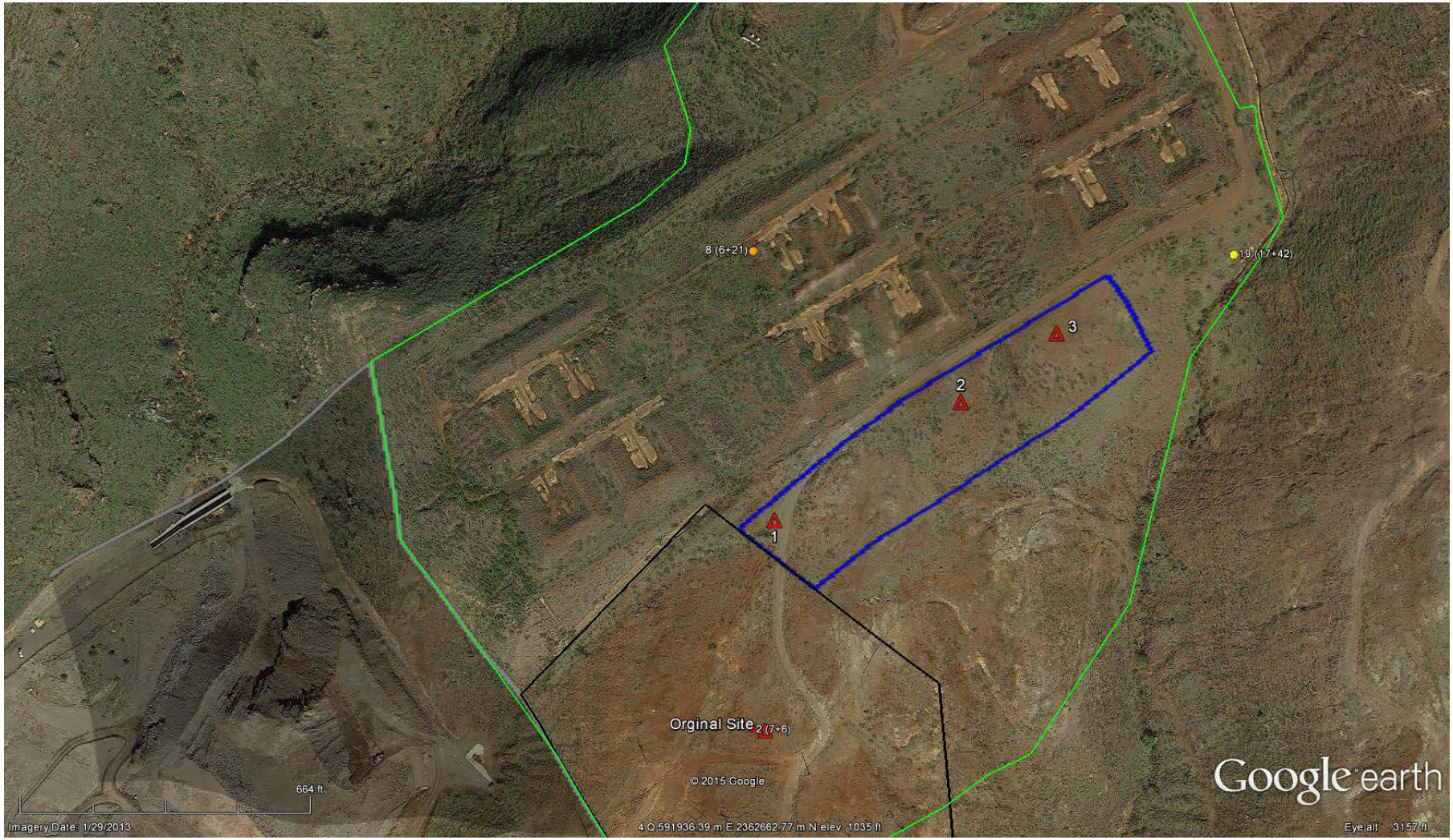


Original Site in Area 1
Road Improvements Needed

Original Site in Area 1
Road Improvements Needed



Alternate Sites 1, 2, and 3



Alternate Site 1

Alternate Site 2

Alternate Site 3

Attachment 4: Hawaiian Electric Company Request for Approval of Alternate Sites for Waiau SO_2 AQMS Site, April 2016

Hawaiian Electric Company

Request for Approval of Alternate Sites for Waiau SO_2 AQMS Site

April 2016

Summary

- Original approved Sears Distribution Center site not feasible because lessor of land parcel containing original site rejected multiple offers from Hawaiian Electric to sub-lease for the Waiau AQMS
- Hawaiian Electric now requests approval for Alternate Sites 1A and 1B

Approval Requested for Alternate Sites 1A and 1B

Original approved Sears Distribution Center site not feasible due to:

- Sears/Innovel Logistics leases the property from Mun LLC (the owner)
- Mun requires the lessee to agree to a sub-lease for Hawaiian Electric
- Sears/Innovel rejected Hawaiian Electric's first offer (market-based with annual payments), second offer (five times market and front-end loaded), and a request for a counter-offer (name your price)
- Hawaiian Electric now requests approval for Alternate Sites 1A and 1B

Rationale for Current Approval Request – Two Alternate Sites

- Both sites are feasible and ranked highly for monitor placement based on EPA's evaluation methodology
- Approval for three alternate sites is requested to allow flexibility and expeditious installation for monitoring stations to meet regulatory in-service date requirement of January 1, 2017
- Time window for design and installation of the monitoring station is narrowing, need as much time as possible to meet in-service deadline
- Pending approval, Hawaiian Electric may locate the monitor at one of the two sites

Alternate Site 1A – Weinberg Property

- Approval requested for Alternate Site 1A
- Score Rank (NDV Rank + Day Rank) = 6 (8 + 9)
- Site 1A is feasible due to following factors:
  - Property lease not an issue
    - Hawaiian Electric currently leases the 1A property where Site 1A is located and is exercising an option to extend the existing lease for five years, with an option to extend the lease another five years
    - Hawaiian Electric owns the Alternate Site 1B property
  - Property has an existing perimeter fence and surveillance cameras, with good security
  - Easier to provide electrical service for this site
  - Minimal site preparation work is needed

Alternate Site 1B – Adjacent to the Weinberg Property

- Approval requested for Alternate Site 1B
- Score Rank (NDV Rank + Day Rank) = 6 (8 + 9)
- Alternate site 1B is feasible due to the following factors:
  - Hawaiian Electric owns the property
  - Minimal site preparation work is needed
  - Electrical service can be provided to the monitoring station
- Other factors to be evaluated:
  - Site access for ongoing monitoring station operation and maintenance

Original Approved Site and Proposed Alternate Sites

FIGURE 3.1-6 TOP 10 MONITOR PLACEMENT SCORE RANKS

Waiau Generating Station 27 August 2015

Alternate Sites 1A and 1B

Site Evaluation

Site	Safety/ Site Access	Lease Agreement	Electrical Service	Site Work
Original Site (Sears/Innovel Logistics leased site)	Existing perimeter fencing around the property. Security fencing will need to be installed.	Current lessee will not sublease land to Hawaiian Electric.	Need to replace an existing pole in a residential property and install new service from this pole.	Minimal grading required.
Alternate Site 1A – Weinberg Property	Existing perimeter fencing around the property. No additional fencing around the station is needed. Gate card access to be installed in the future.	No challenge anticipated. Property owner agreed that an AQMS is an allowable use of the property. Hawaiian Electric is currently leasing the property and plans to extend the lease for at least 5 years	An electrical pole is near site.	Minimal grading required.
Alternate Site 1B – Hawaiian Electric Property	Security fencing will need to be installed. Near term site access from the Weinberg property. Site access for long-term O&M to be evaluated.	Hawaiian Electric owns the property.	An electrical pole is near site.	More grading required than Alternate Site 1A.

Attachment 5: U.S. EPA Region IX Concurrence with Sources Identified to be Characterized Under SO_2 Data Requirements Rule, March 18, 2016

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 95105-3901

MAR 1 8 2016

OFFICE OF THE
REGIONAL ADMINISTRATOR

Keith Kawaoka
Deputy Director for Environmental Health
Hawaii Department of Health
1250 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Kawaoka:

On behalf of the U.S. Environmental Protection Agency (EPA), I would like to thank you for your January 8, 2016 submittal identifying sources to be characterized under the sulfur dioxide (SO_2) Data Requirements Rule (DRR).[1] The EPA has reviewed your agency's submittal and concurs with the list of sources provided. As such, the EPA is not adding other sources to the list for Hawaii at this time. This letter provides additional information about the next steps in this source characterization effort, which will result in important data that states and the EPA will use to protect public health.

On August 21, 2015, the EPA finalized the DRR, which requires state air agencies to characterize ambient SO_2 levels in areas with large sources of SO_2 emissions to help implement the 1-hour SO_2 National Ambient Air Quality Standard (NAAQS). Under the DRR, state air agencies must, at a minimum, model or monitor air quality around sources that emit 2,000 tons per year (tpy) or more of SO_2 and that are not located in an area already designated nonattainment. For a source listed because it emitted more than 2,000 tpy, an air agency may avoid this requirement by adopting federally enforceable emission limits by January 13, 2017, that ensure that the source will emit less than 2,000 tpy of SO_2.

Under the DRR implementation schedule, state air agencies were required to submit to the EPA by January 15, 2016, a list that identifies all sources within its jurisdiction with SO_2 emissions of 2,000 tpy or more during the most recent year for which emissions data are available. Air agencies or the EPA may also include additional sources on a state's source list with SO_2 emissions below 2,000 tpy to ensure that air quality around such sources is appropriately characterized. As stated previously, the EPA is not adding other sources to the list at this time.

The next key milestone for purposes of DRR implementation is July 1, 2016, the date by which each air agency must identify, for each listed source, the approach it will use to characterize air quality in the respective area (air quality modeling, ambient monitoring, or establishment of a federally enforceable emission limit).

[1] "Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS); Final Rule," 80 *Federal Register* 51052, August 21, 2015.

For sources that an air agency decides to evaluate through air quality modeling, the DRR requires the air agency to submit to the EPA Regional Administrator a modeling protocol by July 1, 2016, and the completed modeling analysis by January 13, 2017. For sources that an air agency decides to evaluate through ambient monitoring, the air agency will need to identify appropriate sites to characterize peak 1-hour SO_2 concentrations, and may need to relocate existing monitors or install new monitors at such sites. As further required under the DRR, the air agency must submit information about monitoring sites to the EPA Regional Administrator by July 1, 2016, as part of its annual monitoring network plan and in accordance with the EPA's monitoring requirements specified in 40 CFR part 58. The air agency must also ensure that ambient monitors will be operational by January 1, 2017.

As noted earlier, in lieu of characterizing air quality around a source with SO_2 emissions at or above 2,000 tpy, air agencies may indicate by the July 1, 2016, deadline that they will adopt federally enforceable emissions limitations that will limit the SO_2 emissions of a source to below 2,000 tpy. Such limits must be adopted and effective by January 13, 2017. The DRR requires that an air agency provide a description of the requirements and emission limits that the air agency intends to apply for the affected sources in their July 1, 2016, submittal.

We look forward to a continued dialogue with you and your staff as you prepare the required submittals that are due on July 1, 2016. To assist in this process, we are available to discuss any technical issues that you may have concerning modeling, monitoring, or emissions limits in order to assist you in meeting this requirement.

Please note that a copy of each state air agency's submittal and a compiled national list of sources subject to DRR requirements are posted on EPA's SO_2 implementation website at *www3.epa.gov/airquality/sulfurdioxide/implement.html*. We also plan to post this letter on that site in the near future.

Again, thank you for your letter and for your efforts to implement this important standard. For additional information concerning the DRR, please visit our SO_2 implementation website listed above. For additional information regarding designations under the SO_2 standard, please visit our website at *www.epa.gov/so2designations*. Should you have any questions, please do not hesitate to call me, or have your staff contact Kerry Drake, Associate Director, Air Division, of my staff at (415) 947-4157 or Drake.Kerry@epa.gov.

Sincerely,

Jared Blumenfeld

cc: Nolan Hirai, Branch Manager, Clean Air Branch, Hawaii Department of Health

Appendix A: AES/Kalaeloa Receptor Score Ranking (DOH-CAB Run

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
592147.5	2355818.2	0.47121	14	1	361	15	1	1
592147.5	2356068.2	0.48108	10	6	42	16	2	2
592897.5	2361318.2	0.6882	2	18	3	20	3	3
592897.5	2361068.2	0.72065	1	19	2	20	3	4
593147.5	2361568.2	0.60785	3	18	3	21	4	5
592397.5	2355568.2	0.43238	20	2	143	22	5	6
592647.5	2361318.2	0.59465	4	21	0	25	6	7
592647.5	2361568.2	0.56243	6	20	1	26	7	8
594397.5	2361318.2	0.57992	5	21	0	26	7	9
592897.5	2361568.2	0.54222	7	20	1	27	8	10
594397.5	2361068.2	0.51597	9	19	2	28	9	11
592397.5	2361568.2	0.52358	8	20	1	28	9	12
592397.5	2361318.2	0.48074	11	21	0	32	10	13
592397.5	2362068.2	0.47837	12	21	0	33	11	14
595147.5	2361568.2	0.47	15	19	2	34	12	15
595397.5	2362068.2	0.47155	13	21	0	34	12	16
591397.5	2361568.2	0.45465	16	20	1	36	13	17
592897.5	2361818.2	0.44542	17	21	0	38	14	18
592397.5	2361818.2	0.43942	18	21	0	39	15	19
591647.5	2361568.2	0.43521	19	21	0	40	16	20
592647.5	2361068.2	0.42761	21	20	1	41	17	21
591897.5	2361568.2	0.42545	22	20	1	42	18	22
592897.5	2355568.2	0.3672	39	5	52	44	19	23
590897.5	2362568.2	0.40944	25	19	2	44	19	24
591147.5	2366068.2	0.41648	23	21	0	44	19	25
595147.5	2361318.2	0.41259	24	21	0	45	20	26
592897.5	2355318.2	0.36076	43	3	106	46	21	27
593147.5	2355318.2	0.36134	42	4	81	46	21	28
591147.5	2365318.2	0.40406	26	21	0	47	22	29
591147.5	2365818.2	0.4014	27	21	0	48	23	30
591147.5	2365568.2	0.39992	28	21	0	49	24	31
590897.5	2366568.2	0.39237	29	21	0	50	25	32
591147.5	2362068.2	0.39221	30	21	0	51	26	33
591147.5	2366318.2	0.39116	31	21	0	52	27	34
592147.5	2361818.2	0.38842	33	20	1	53	28	35
592147.5	2362068.2	0.39016	32	21	0	53	28	36
593147.5	2361318.2	0.38687	34	21	0	55	29	37
591147.5	2362318.2	0.38539	35	21	0	56	30	38
590897.5	2366818.2	0.3752	36	21	0	57	31	39
594147.5	2361568.2	0.37449	37	21	0	58	32	40
593897.5	2361068.2	0.36781	38	21	0	59	33	41
593397.5	2361318.2	0.3641	40	21	0	61	34	42
593647.5	2361318.2	0.3614	41	21	0	62	35	43
595397.5	2361818.2	0.35441	45	20	1	65	36	44
595397.5	2362318.2	0.35524	44	21	0	65	36	45
590647.5	2362818.2	0.34773	48	18	3	66	37	46
594397.5	2361568.2	0.35241	46	21	0	67	38	47
592647.5	2355318.2	0.32666	59	9	16	68	39	48
595397.5	2361568.2	0.35089	47	21	0	68	39	49
593897.5	2361318.2	0.34578	50	20	1	70	40	50
595647.5	2363068.2	0.34723	49	21	0	70	40	51
593147.5	2356318.2	0.31946	62	10	14	72	41	52
592897.5	2360818.2	0.3352	51	21	0	72	41	53
592647.5	2355568.2	0.32885	55	18	3	73	42	54
591147.5	2366568.2	0.33324	52	21	0	73	42	55

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
591397.5	2366318.2	0.33043	53	21	0	74	43	56
591397.5	2361818.2	0.32997	54	21	0	75	44	57
592647.5	2361818.2	0.32843	56	20	1	76	45	58
594147.5	2361068.2	0.32833	57	21	0	78	46	59
593397.5	2361068.2	0.32693	58	21	0	79	47	60
592397.5	2355818.2	0.31407	67	13	8	80	48	61
590897.5	2366318.2	0.32527	60	21	0	81	49	62
593147.5	2355568.2	0.31374	69	13	8	82	50	63
591397.5	2365818.2	0.31988	61	21	0	82	50	64
593147.5	2356568.2	0.30667	76	7	30	83	51	65
594647.5	2361568.2	0.31723	63	21	0	84	52	66
595647.5	2361818.2	0.31598	65	20	1	85	53	67
592897.5	2362068.2	0.31639	64	21	0	85	53	68
593397.5	2356568.2	0.29973	78	8	23	86	54	69
594647.5	2361318.2	0.31383	68	19	2	87	55	70
590647.5	2366568.2	0.31482	66	21	0	87	55	71
591147.5	2366818.2	0.31275	70	21	0	91	56	72
592897.5	2355818.2	0.30854	75	17	4	92	57	73
592647.5	2362068.2	0.31246	71	21	0	92	57	74
594897.5	2361068.2	0.31151	72	21	0	93	58	75
592147.5	2356318.2	0.29068	84	10	14	94	59	76
591897.5	2361818.2	0.31115	73	21	0	94	59	77
591397.5	2365568.2	0.30889	74	21	0	95	60	78
593397.5	2355318.2	0.28386	89	9	16	98	61	79
593397.5	2356318.2	0.28912	87	11	12	98	61	80
593147.5	2361818.2	0.30415	77	21	0	98	61	81
592147.5	2362318.2	0.2985	80	20	1	100	62	82
594147.5	2361318.2	0.2995	79	21	0	100	62	83
594397.5	2360818.2	0.29546	81	21	0	102	63	84
595647.5	2362818.2	0.2947	82	21	0	103	64	85
595647.5	2363318.2	0.29277	83	21	0	104	65	86
592897.5	2356568.2	0.27828	92	13	8	105	66	87
591147.5	2367068.2	0.29041	85	21	0	106	67	88
592147.5	2356568.2	0.27791	93	14	7	107	68	89
594397.5	2362068.2	0.29027	86	21	0	107	68	90
591647.5	2361318.2	0.28845	88	20	1	108	69	91
592647.5	2355818.2	0.28015	91	20	1	111	70	92
595147.5	2361818.2	0.28309	90	21	0	111	70	93
591897.5	2356318.2	0.27244	99	14	7	113	71	94
592397.5	2356318.2	0.27503	96	18	3	114	72	95
595397.5	2363318.2	0.27646	94	21	0	115	73	96
590147.5	2364318.2	0.27503	95	21	0	116	74	97
591897.5	2361318.2	0.2739	97	21	0	118	75	98
592397.5	2356068.2	0.27302	98	21	0	119	76	99
590897.5	2367068.2	0.27216	100	21	0	121	77	100
593897.5	2361568.2	0.272	101	21	0	122	78	101
591647.5	2362318.2	0.27119	102	21	0	123	79	102
590647.5	2364818.2	0.27107	103	21	0	124	80	103
590147.5	2363068.2	0.26888	105	20	1	125	81	104
595397.5	2362568.2	0.27076	104	21	0	125	81	105
595897.5	2361818.2	0.26871	106	21	0	127	82	106
594647.5	2361818.2	0.26869	107	21	0	128	83	107
593397.5	2356818.2	0.26148	114	15	6	129	84	108
590397.5	2366318.2	0.26651	108	21	0	129	84	109
594897.5	2361568.2	0.26448	112	18	3	130	85	110

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
590647.5	2363068.2	0.26572	109	21	0	130	85	111
594147.5	2360818.2	0.26559	110	21	0	131	86	112
591397.5	2365318.2	0.2654	111	21	0	132	87	113
593147.5	2356818.2	0.26144	115	19	2	134	88	114
590897.5	2365068.2	0.26158	113	21	0	134	88	115
595897.5	2363318.2	0.26109	116	21	0	137	89	116
593647.5	2361568.2	0.2605	117	21	0	138	90	117
593397.5	2361568.2	0.25932	118	21	0	139	91	118
592897.5	2356818.2	0.25633	124	16	5	140	92	119
594397.5	2361818.2	0.25921	119	21	0	140	92	120
594147.5	2361818.2	0.25912	120	21	0	141	93	121
591897.5	2356568.2	0.25635	123	19	2	142	94	122
592897.5	2362318.2	0.25878	121	21	0	142	94	123
591897.5	2362068.2	0.25697	122	21	0	143	95	124
593647.5	2356568.2	0.24793	134	12	10	146	96	125
593147.5	2355818.2	0.25632	125	21	0	146	96	126
593397.5	2361818.2	0.25581	126	21	0	147	97	127
589897.5	2363568.2	0.25326	129	19	2	148	98	128
593897.5	2361818.2	0.25487	127	21	0	148	98	129
593647.5	2356818.2	0.25177	131	18	3	149	99	130
589897.5	2363818.2	0.25329	128	21	0	149	99	131
595397.5	2361318.2	0.25215	130	21	0	151	100	132
594897.5	2360818.2	0.25061	132	21	0	153	101	133
595647.5	2362068.2	0.24688	135	19	2	154	102	134
591397.5	2366568.2	0.25046	133	21	0	154	102	135
596147.5	2363068.2	0.24452	136	21	0	157	103	136
596147.5	2363318.2	0.24428	137	21	0	158	104	137
593647.5	2356318.2	0.24115	141	18	3	159	105	138
596647.5	2367068.2	0.24332	138	21	0	159	105	139
592397.5	2361068.2	0.24315	139	21	0	160	106	140
590647.5	2363318.2	0.24123	140	21	0	161	107	141
592897.5	2356318.2	0.24085	142	20	1	162	108	142
594647.5	2361068.2	0.23753	143	21	0	164	109	143
595647.5	2361568.2	0.23618	145	20	1	165	110	144
596397.5	2362818.2	0.23672	144	21	0	165	110	145
596147.5	2363568.2	0.23274	146	21	0	167	111	146
594147.5	2356568.2	0.22967	152	16	5	168	112	147
595647.5	2363568.2	0.23231	147	21	0	168	112	148
596397.5	2363318.2	0.23201	148	21	0	169	113	149
594647.5	2356318.2	0.22977	151	19	2	170	114	150
593147.5	2357068.2	0.23166	149	21	0	170	114	151
594397.5	2356318.2	0.22736	153	18	3	171	115	152
594397.5	2360568.2	0.23008	150	21	0	171	115	153
593647.5	2355818.2	0.22266	158	16	5	174	116	154
592397.5	2362318.2	0.22666	154	21	0	175	117	155
593397.5	2357068.2	0.22657	155	21	0	176	118	156
596397.5	2362568.2	0.22358	156	21	0	177	119	157
589897.5	2363318.2	0.22346	157	21	0	178	120	158
591647.5	2362568.2	0.22236	159	21	0	180	121	159
593897.5	2356568.2	0.22094	163	18	3	181	122	160
594147.5	2360318.2	0.22172	160	21	0	181	122	161
591897.5	2356818.2	0.22121	161	21	0	182	123	162
590647.5	2366818.2	0.22097	162	21	0	183	124	163
594397.5	2356568.2	0.22073	164	20	1	184	125	164
593397.5	2356068.2	0.21878	166	19	2	185	126	165

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
593647.5	2357068.2	0.21966	165	20	1	185	126	166
594647.5	2356568.2	0.21805	168	20	1	188	127	167
594397.5	2360318.2	0.21839	167	21	0	188	127	168
593397.5	2355818.2	0.2162	174	16	5	190	128	169
596897.5	2364068.2	0.21745	169	21	0	190	128	170
592647.5	2356818.2	0.2171	170	21	0	191	129	171
592897.5	2357068.2	0.21699	171	21	0	192	130	172
596397.5	2363568.2	0.21649	172	21	0	193	131	173
592647.5	2356568.2	0.21636	173	21	0	194	132	174
596147.5	2365068.2	0.21562	175	21	0	196	133	175
595897.5	2362818.2	0.2151	176	21	0	197	134	176
596647.5	2366818.2	0.21501	177	21	0	198	135	177
593897.5	2356818.2	0.21483	178	21	0	199	136	178
591147.5	2361818.2	0.21483	179	21	0	200	137	179
593147.5	2356068.2	0.21479	180	21	0	201	138	180
596647.5	2365068.2	0.21447	181	21	0	202	139	181
594147.5	2356318.2	0.21389	183	20	1	203	140	182
594147.5	2356818.2	0.21396	182	21	0	203	140	183
590897.5	2362818.2	0.21367	184	21	0	205	141	184
594397.5	2356818.2	0.21308	185	21	0	206	142	185
591647.5	2361818.2	0.21262	187	20	1	207	143	186
596647.5	2363818.2	0.2127	186	21	0	207	143	187
592647.5	2356068.2	0.2124	188	21	0	209	144	188
591397.5	2361318.2	0.21228	189	21	0	210	145	189
590647.5	2365068.2	0.20975	190	21	0	211	146	190
592897.5	2356068.2	0.20967	191	21	0	212	147	191
591647.5	2356818.2	0.20959	192	21	0	213	148	192
591397.5	2362068.2	0.20877	193	21	0	214	149	193
596647.5	2365318.2	0.20839	194	21	0	215	150	194
593397.5	2355568.2	0.20547	197	19	2	216	151	195
590397.5	2364568.2	0.20756	195	21	0	216	151	196
596897.5	2364568.2	0.20725	196	21	0	217	152	197
595897.5	2363068.2	0.20443	198	21	0	219	153	198
592147.5	2356818.2	0.20301	200	20	1	220	154	199
596647.5	2366568.2	0.2031	199	21	0	220	154	200
594897.5	2360568.2	0.20208	201	21	0	222	155	201
593897.5	2356318.2	0.20157	203	20	1	223	156	202
598397.5	2366318.2	0.20176	202	21	0	223	156	203
593897.5	2355818.2	0.20049	207	18	3	225	157	204
590397.5	2363068.2	0.20137	204	21	0	225	157	205
594897.5	2356568.2	0.20109	205	21	0	226	158	206
592647.5	2357068.2	0.20068	206	21	0	227	159	207
595647.5	2362318.2	0.19932	208	21	0	229	160	208
590147.5	2363318.2	0.19922	209	21	0	230	161	209
594647.5	2356068.2	0.19854	211	20	1	231	162	210
593897.5	2357068.2	0.19872	210	21	0	231	162	211
597147.5	2365318.2	0.19816	212	21	0	233	163	212
593397.5	2362068.2	0.19749	214	20	1	234	164	213
594897.5	2356068.2	0.19784	213	21	0	234	164	214
598147.5	2366068.2	0.19723	215	21	0	236	165	215
595147.5	2362068.2	0.19712	216	21	0	237	166	216
596647.5	2363568.2	0.19703	217	21	0	238	167	217
597397.5	2365068.2	0.1969	218	21	0	239	168	218
594897.5	2361318.2	0.19689	219	21	0	240	169	219
594897.5	2361818.2	0.19671	220	21	0	241	170	220

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
592397.5	2356568.2	0.19566	222	20	1	242	171	221
592147.5	2361568.2	0.19598	221	21	0	242	171	222
598647.5	2366568.2	0.19565	223	21	0	244	172	223
598897.5	2367318.2	0.1947	224	21	0	245	173	224
596147.5	2361818.2	0.19461	225	21	0	246	174	225
593647.5	2355318.2	0.19419	228	19	2	247	175	226
590147.5	2366068.2	0.19446	226	21	0	247	175	227
593397.5	2357318.2	0.19445	227	21	0	248	176	228
592397.5	2356818.2	0.19355	231	19	2	250	177	229
593147.5	2357318.2	0.19384	229	21	0	250	177	230
596147.5	2362818.2	0.19355	230	21	0	251	178	231
598397.5	2366568.2	0.19344	232	21	0	253	179	232
597897.5	2366068.2	0.19316	233	21	0	254	180	233
594397.5	2355818.2	0.19305	234	21	0	255	181	234
595147.5	2361068.2	0.1927	235	21	0	256	182	235
598897.5	2367068.2	0.19246	236	21	0	257	183	236
599147.5	2367318.2	0.1922	237	21	0	258	184	237
589397.5	2366818.2	0.19216	238	21	0	259	185	238
594397.5	2357068.2	0.1916	239	21	0	260	186	239
596397.5	2367068.2	0.19151	240	21	0	261	187	240
593147.5	2362068.2	0.19129	241	21	0	262	188	241
594897.5	2356318.2	0.19039	244	19	2	263	189	242
591397.5	2365068.2	0.19107	242	21	0	263	189	243
590897.5	2366068.2	0.19088	243	21	0	264	190	244
590897.5	2365568.2	0.19029	245	21	0	266	191	245
595147.5	2356568.2	0.19023	246	21	0	267	192	246
594647.5	2356818.2	0.18937	247	21	0	268	193	247
596897.5	2366318.2	0.18849	248	21	0	269	194	248
596147.5	2362068.2	0.1873	249	21	0	270	195	249
598147.5	2365818.2	0.18704	250	21	0	271	196	250
594647.5	2357068.2	0.18692	251	21	0	272	197	251
592897.5	2357318.2	0.18692	252	21	0	273	198	252
591647.5	2362818.2	0.18665	253	21	0	274	199	253
597147.5	2364818.2	0.18642	254	21	0	275	200	254
597897.5	2365818.2	0.18642	255	21	0	276	201	255
593647.5	2361818.2	0.18628	256	21	0	277	202	256
596647.5	2366318.2	0.18623	257	21	0	278	203	257
596397.5	2365318.2	0.18615	258	21	0	279	204	258
594897.5	2362068.2	0.18603	259	21	0	280	205	259
597647.5	2365818.2	0.18591	260	21	0	281	206	260
597397.5	2365318.2	0.18582	261	21	0	282	207	261
598147.5	2366318.2	0.18499	262	21	0	283	208	262
591647.5	2357068.2	0.18487	263	21	0	284	209	263
598397.5	2366068.2	0.18484	264	21	0	285	210	264
598647.5	2366318.2	0.18455	265	21	0	286	211	265
597897.5	2366318.2	0.18453	266	21	0	287	212	266
596397.5	2362318.2	0.18442	267	21	0	288	213	267
592647.5	2360818.2	0.18417	268	21	0	289	214	268
597147.5	2365068.2	0.18402	269	21	0	290	215	269
594647.5	2360818.2	0.184	270	21	0	291	216	270
596147.5	2362318.2	0.18352	271	21	0	292	217	271
591647.5	2362068.2	0.18256	273	20	1	293	218	272
597147.5	2364318.2	0.18317	272	21	0	293	218	273
594647.5	2355818.2	0.18202	274	21	0	295	219	274
594897.5	2356818.2	0.18177	275	21	0	296	220	275

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
596897.5	2365568.2	0.1813	276	21	0	297	221	276
596647.5	2364818.2	0.18117	277	21	0	298	222	277
594897.5	2355818.2	0.18051	278	21	0	299	223	278
595397.5	2362818.2	0.18049	279	21	0	300	224	279
595147.5	2356318.2	0.18039	280	21	0	301	225	280
594147.5	2357068.2	0.17956	281	21	0	302	226	281
598647.5	2366818.2	0.17953	282	21	0	303	227	282
596647.5	2367318.2	0.17918	283	21	0	304	228	283
594647.5	2360068.2	0.17893	284	21	0	305	229	284
597397.5	2364818.2	0.17886	285	21	0	306	230	285
596397.5	2366568.2	0.17885	286	21	0	307	231	286
596147.5	2364818.2	0.17811	287	21	0	308	232	287
598397.5	2366818.2	0.17778	288	21	0	309	233	288
597397.5	2366068.2	0.17775	289	21	0	310	234	289
592397.5	2357068.2	0.17764	290	21	0	311	235	290
591897.5	2357068.2	0.17718	291	21	0	312	236	291
592647.5	2357318.2	0.17706	292	21	0	313	237	292
593647.5	2357318.2	0.17703	293	21	0	314	238	293
594397.5	2356068.2	0.17654	294	21	0	315	239	294
594147.5	2355818.2	0.17564	295	21	0	316	240	295
597147.5	2366318.2	0.17506	296	21	0	317	241	296
597397.5	2365568.2	0.17491	297	21	0	318	242	297
592647.5	2356318.2	0.17452	298	21	0	319	243	298
596897.5	2364818.2	0.17406	299	21	0	320	244	299
596897.5	2366068.2	0.17393	300	21	0	321	245	300
595147.5	2356818.2	0.17375	301	21	0	322	246	301
591147.5	2362568.2	0.17315	303	20	1	323	247	302
597397.5	2366318.2	0.17326	302	21	0	323	247	303
593897.5	2357318.2	0.17282	304	21	0	325	248	304
596397.5	2364818.2	0.17242	305	21	0	326	249	305
596897.5	2364318.2	0.17168	306	21	0	327	250	306
593647.5	2356068.2	0.17012	309	19	2	328	251	307
595147.5	2362318.2	0.1715	307	21	0	328	251	308
597647.5	2365068.2	0.17095	308	21	0	329	252	309
596897.5	2367068.2	0.16947	310	21	0	331	253	310
595147.5	2360818.2	0.16849	311	21	0	332	254	311
596397.5	2365068.2	0.16817	312	21	0	333	255	312
597647.5	2366818.2	0.16773	313	21	0	334	256	313
597147.5	2366068.2	0.16721	314	21	0	335	257	314
592897.5	2357568.2	0.16716	315	21	0	336	258	315
592147.5	2357068.2	0.16676	316	21	0	337	259	316
595147.5	2356068.2	0.16669	317	21	0	338	260	317
591147.5	2365068.2	0.16667	318	21	0	339	261	318
598147.5	2366568.2	0.16664	319	21	0	340	262	319
597897.5	2365568.2	0.16658	320	21	0	341	263	320
594897.5	2357068.2	0.16657	321	21	0	342	264	321
593647.5	2361068.2	0.16586	322	21	0	343	265	322
597647.5	2366568.2	0.165	323	21	0	344	266	323
593147.5	2361068.2	0.16469	324	21	0	345	267	324
595397.5	2356318.2	0.16457	325	21	0	346	268	325
594147.5	2357318.2	0.16448	326	21	0	347	269	326
597147.5	2366568.2	0.16434	327	21	0	348	270	327
598397.5	2367068.2	0.16416	328	21	0	349	271	328
598647.5	2367318.2	0.16414	329	21	0	350	272	329
594397.5	2357318.2	0.16402	330	21	0	351	273	330

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
589397.5	2365818.2	0.16399	331	21	0	352	274	331
597147.5	2365568.2	0.1639	332	21	0	353	275	332
593397.5	2357568.2	0.16381	333	21	0	354	276	333
594147.5	2356068.2	0.16354	334	21	0	355	277	334
596897.5	2365318.2	0.16291	335	21	0	356	278	335
591897.5	2362318.2	0.1629	336	21	0	357	279	336
592397.5	2357318.2	0.16259	337	21	0	358	280	337
595147.5	2355818.2	0.16249	338	21	0	359	281	338
597147.5	2367068.2	0.16232	339	21	0	360	282	339
593147.5	2357568.2	0.16232	340	21	0	361	283	340
594147.5	2360568.2	0.16172	341	21	0	362	284	341
591647.5	2366568.2	0.16167	342	21	0	363	285	342
598147.5	2366818.2	0.16163	343	21	0	364	286	343
594647.5	2357318.2	0.16152	344	21	0	365	287	344
590647.5	2367068.2	0.16127	345	21	0	366	288	345
594647.5	2355568.2	0.16111	346	21	0	367	289	346
597147.5	2364568.2	0.16096	347	21	0	368	290	347
598647.5	2367068.2	0.16089	348	21	0	369	291	348
596897.5	2367318.2	0.16079	349	21	0	370	292	349
591397.5	2366818.2	0.1605	350	21	0	371	293	350
596897.5	2365818.2	0.16038	351	21	0	372	294	351
596897.5	2365068.2	0.15975	352	21	0	373	295	352
596647.5	2365568.2	0.15918	353	21	0	374	296	353
597647.5	2364818.2	0.159	354	21	0	375	297	354
591397.5	2366068.2	0.15888	355	21	0	376	298	355
598647.5	2366068.2	0.15862	356	21	0	377	299	356
597147.5	2366818.2	0.15853	357	21	0	378	300	357
595397.5	2356818.2	0.15778	358	21	0	379	301	358
595897.5	2363568.2	0.15754	359	21	0	380	302	359
589897.5	2366068.2	0.15744	360	21	0	381	303	360
594397.5	2355318.2	0.15742	361	21	0	382	304	361
595147.5	2357068.2	0.15672	362	21	0	383	305	362
593397.5	2360818.2	0.15644	363	21	0	384	306	363
596397.5	2362068.2	0.15634	364	21	0	385	307	364
594147.5	2355568.2	0.15628	365	21	0	386	308	365
596397.5	2366318.2	0.15624	366	21	0	387	309	366
593647.5	2355568.2	0.15554	368	20	1	388	310	367
590897.5	2363068.2	0.15611	367	21	0	388	310	368
591647.5	2357318.2	0.15523	369	21	0	390	311	369
595147.5	2355568.2	0.15522	370	21	0	391	312	370
593897.5	2362068.2	0.15488	371	21	0	392	313	371
595897.5	2362068.2	0.15487	372	21	0	393	314	372
598897.5	2366568.2	0.15475	373	21	0	394	315	373
596647.5	2365818.2	0.15464	374	21	0	395	316	374
594397.5	2355568.2	0.15453	376	20	1	396	317	375
597647.5	2366068.2	0.15454	375	21	0	396	317	376
593897.5	2355568.2	0.15435	378	19	2	397	318	377
591397.5	2357318.2	0.15444	377	21	0	398	319	378
594897.5	2357318.2	0.154	379	21	0	400	320	379
596147.5	2363818.2	0.15379	380	21	0	401	321	380
594647.5	2360318.2	0.15372	381	21	0	402	322	381
594147.5	2362068.2	0.15349	382	21	0	403	323	382
597647.5	2365318.2	0.15345	383	21	0	404	324	383
595397.5	2356568.2	0.15316	384	21	0	405	325	384
597647.5	2366318.2	0.153	385	21	0	406	326	385

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
593647.5	2360818.2	0.15299	386	21	0	407	327	386
596897.5	2363818.2	0.15276	387	21	0	408	328	387
592647.5	2357568.2	0.15273	388	21	0	409	329	388
596647.5	2364568.2	0.15194	389	21	0	410	330	389
594897.5	2355568.2	0.15172	391	20	1	411	331	390
591897.5	2357318.2	0.15193	390	21	0	411	331	391
593897.5	2356068.2	0.15171	392	21	0	413	332	392
593647.5	2362068.2	0.15104	393	21	0	414	333	393
595147.5	2362568.2	0.151	394	21	0	415	334	394
597397.5	2367318.2	0.15092	395	21	0	416	335	395
592147.5	2357318.2	0.15084	396	21	0	417	336	396
594147.5	2357568.2	0.15071	397	21	0	418	337	397
595147.5	2362818.2	0.1503	398	21	0	419	338	398
595897.5	2363818.2	0.15001	399	21	0	420	339	399
593897.5	2355318.2	0.14974	401	20	1	421	340	400
591397.5	2362318.2	0.14994	400	21	0	421	340	401
599147.5	2367068.2	0.1495	402	21	0	423	341	402
593647.5	2357568.2	0.14948	403	21	0	424	342	403
593897.5	2357568.2	0.14898	404	21	0	425	343	404
596647.5	2366068.2	0.1489	405	21	0	426	344	405
597897.5	2366568.2	0.14885	406	21	0	427	345	406
592397.5	2357568.2	0.14855	407	21	0	428	346	407
590397.5	2363568.2	0.14847	408	21	0	429	347	408
590897.5	2367318.2	0.14841	409	21	0	430	348	409
598147.5	2365568.2	0.14754	410	21	0	431	349	410
596397.5	2366818.2	0.14742	411	21	0	432	350	411
596897.5	2366568.2	0.14695	412	21	0	433	351	412
596397.5	2365568.2	0.14616	413	21	0	434	352	413
598397.5	2367318.2	0.14596	414	21	0	435	353	414
595647.5	2356818.2	0.14578	415	21	0	436	354	415
595397.5	2357068.2	0.14568	416	21	0	437	355	416
598147.5	2367068.2	0.14566	417	21	0	438	356	417
593147.5	2357818.2	0.14519	418	21	0	439	357	418
597397.5	2367068.2	0.14479	419	21	0	440	358	419
593897.5	2362318.2	0.14476	420	21	0	441	359	420
596647.5	2364068.2	0.14476	421	21	0	442	360	421
598397.5	2365818.2	0.14456	422	21	0	443	361	422
592897.5	2362568.2	0.14436	423	21	0	444	362	423
592897.5	2357818.2	0.14427	424	21	0	445	363	424
595647.5	2356318.2	0.14376	425	21	0	446	364	425
594647.5	2357568.2	0.1437	426	21	0	447	365	426
594397.5	2357568.2	0.1437	427	21	0	448	366	427
596647.5	2364318.2	0.1429	428	21	0	449	367	428
594397.5	2362318.2	0.14289	429	21	0	450	368	429
595397.5	2355818.2	0.14243	430	21	0	451	369	430
594147.5	2355318.2	0.1421	432	20	1	452	370	431
595397.5	2356068.2	0.14233	431	21	0	452	370	432
596897.5	2366818.2	0.14206	433	21	0	454	371	433
594397.5	2360068.2	0.14192	434	21	0	455	372	434
596647.5	2362318.2	0.14146	435	21	0	456	373	435
593397.5	2362318.2	0.14132	436	21	0	457	374	436
595147.5	2357318.2	0.1409	437	21	0	458	375	437
594897.5	2357568.2	0.14072	438	21	0	459	376	438
596397.5	2363818.2	0.14066	439	21	0	460	377	439
596147.5	2365318.2	0.1405	440	21	0	461	378	440

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
596647.5	2362818.2	0.13996	441	21	0	462	379	441
593147.5	2362318.2	0.13986	442	21	0	463	380	442
597897.5	2366818.2	0.1397	443	21	0	464	381	443
592147.5	2357568.2	0.13943	444	21	0	465	382	444
591897.5	2362568.2	0.1394	445	21	0	466	383	445
595397.5	2355568.2	0.13917	446	21	0	467	384	446
590147.5	2364068.2	0.13878	447	21	0	468	385	447
590647.5	2366318.2	0.13855	448	21	0	469	386	448
594647.5	2362068.2	0.1385	449	21	0	470	387	449
592647.5	2357818.2	0.13815	450	21	0	471	388	450
591647.5	2365318.2	0.13812	451	21	0	472	389	451
594647.5	2355318.2	0.13812	452	21	0	473	390	452
597897.5	2367318.2	0.1381	453	21	0	474	391	453
591397.5	2357568.2	0.13765	454	21	0	475	392	454
591647.5	2357568.2	0.13731	455	21	0	476	393	455
597147.5	2365818.2	0.13717	456	21	0	477	394	456
595647.5	2362568.2	0.13709	457	21	0	478	395	457
597397.5	2366568.2	0.13707	458	21	0	479	396	458
596397.5	2361818.2	0.13672	460	20	1	480	397	459
593397.5	2357818.2	0.13687	459	21	0	480	397	460
595397.5	2357318.2	0.13653	461	21	0	482	398	461
597147.5	2367318.2	0.13594	462	21	0	483	399	462
597397.5	2366818.2	0.1354	463	21	0	484	400	463
592147.5	2362568.2	0.1349	464	21	0	485	401	464
591897.5	2357568.2	0.13464	465	21	0	486	402	465
592647.5	2362318.2	0.13462	466	21	0	487	403	466
596397.5	2367318.2	0.13461	467	21	0	488	404	467
595147.5	2357568.2	0.13448	468	21	0	489	405	468
593647.5	2357818.2	0.13444	469	21	0	490	406	469
595647.5	2357068.2	0.13442	470	21	0	491	407	470
591897.5	2363068.2	0.13433	471	21	0	492	408	471
590397.5	2363318.2	0.13432	472	21	0	493	409	472
592397.5	2357818.2	0.13413	473	21	0	494	410	473
594647.5	2362318.2	0.13382	474	21	0	495	411	474
597647.5	2367068.2	0.13374	475	21	0	496	412	475
594147.5	2357818.2	0.13342	476	21	0	497	413	476
594147.5	2362318.2	0.13307	477	21	0	498	414	477
594647.5	2360568.2	0.13296	478	21	0	499	415	478
595397.5	2363068.2	0.13292	479	21	0	500	416	479
598147.5	2367318.2	0.13275	480	21	0	501	417	480
594647.5	2362568.2	0.13229	481	21	0	502	418	481
593897.5	2357818.2	0.13218	482	21	0	503	419	482
594647.5	2357818.2	0.13205	483	21	0	504	420	483
597897.5	2367068.2	0.13154	484	21	0	505	421	484
593897.5	2360818.2	0.13153	485	21	0	506	422	485
595647.5	2355818.2	0.13102	486	21	0	507	423	486
592147.5	2357818.2	0.1308	487	21	0	508	424	487
591647.5	2365568.2	0.13062	488	21	0	509	425	488
595397.5	2363568.2	0.12954	489	21	0	510	426	489
591397.5	2367068.2	0.12918	490	21	0	511	427	490
597397.5	2365818.2	0.12892	491	21	0	512	428	491
595647.5	2356568.2	0.12874	492	21	0	513	429	492
593147.5	2358068.2	0.12864	493	21	0	514	430	493
596397.5	2364318.2	0.12835	494	21	0	515	431	494
594397.5	2357818.2	0.12817	495	21	0	516	432	495

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
595647.5	2357318.2	0.12799	496	21	0	517	433	496
593647.5	2360568.2	0.12788	497	21	0	518	434	497
593647.5	2358068.2	0.12743	498	21	0	519	435	498
595897.5	2356568.2	0.12664	499	21	0	520	436	499
590147.5	2363568.2	0.12624	500	21	0	521	437	500
594897.5	2355318.2	0.12613	501	21	0	522	438	501
591397.5	2362568.2	0.12598	502	21	0	523	439	502
591897.5	2357818.2	0.1256	503	21	0	524	440	503
590897.5	2364818.2	0.12513	504	21	0	525	441	504
591397.5	2357818.2	0.12503	505	21	0	526	442	505
591897.5	2362818.2	0.12454	506	21	0	527	443	506
590897.5	2365818.2	0.1244	507	21	0	528	444	507
598147.5	2365318.2	0.12408	508	21	0	529	445	508
592647.5	2358068.2	0.12386	509	21	0	530	446	509
591647.5	2357818.2	0.12378	510	21	0	531	447	510
593397.5	2358068.2	0.12369	511	21	0	532	448	511
589397.5	2366568.2	0.12343	512	21	0	533	449	512
599397.5	2367318.2	0.12276	514	20	1	534	450	513
595647.5	2356068.2	0.12314	513	21	0	534	450	514
595897.5	2356818.2	0.12275	515	21	0	536	451	515
595147.5	2357818.2	0.12271	516	21	0	537	452	516
594897.5	2357818.2	0.12249	517	21	0	538	453	517
595897.5	2357068.2	0.12238	518	21	0	539	454	518
598897.5	2366818.2	0.12219	519	21	0	540	455	519
593897.5	2360318.2	0.12215	520	21	0	541	456	520
592897.5	2358068.2	0.12175	521	21	0	542	457	521
593397.5	2360568.2	0.1215	522	21	0	543	458	522
592397.5	2362568.2	0.12131	523	21	0	544	459	523
595897.5	2364818.2	0.121	524	21	0	545	460	524
591147.5	2362818.2	0.12096	525	21	0	546	461	525
590897.5	2363318.2	0.12095	526	21	0	547	462	526
594897.5	2362318.2	0.1204	527	21	0	548	463	527
595397.5	2357568.2	0.12025	528	21	0	549	464	528
598897.5	2366318.2	0.12009	529	21	0	550	465	529
596647.5	2362068.2	0.11984	530	21	0	551	466	530
596147.5	2356568.2	0.11957	531	21	0	552	467	531
595647.5	2357568.2	0.11933	532	21	0	553	468	532
593897.5	2358068.2	0.11914	533	21	0	554	469	533
594397.5	2362568.2	0.11909	534	21	0	555	470	534
592397.5	2358068.2	0.11896	535	21	0	556	471	535
590397.5	2363818.2	0.1189	536	21	0	557	472	536
596397.5	2363068.2	0.11881	537	21	0	558	473	537
593147.5	2362568.2	0.1187	538	21	0	559	474	538
594647.5	2358068.2	0.11859	539	21	0	560	475	539
592147.5	2358068.2	0.11846	540	21	0	561	476	540
590147.5	2363818.2	0.11799	541	21	0	562	477	541
595397.5	2357818.2	0.11783	542	21	0	563	478	542
595897.5	2356318.2	0.11741	543	21	0	564	479	543
591897.5	2358068.2	0.11711	544	21	0	565	480	544
589397.5	2367068.2	0.11678	545	21	0	566	481	545
590647.5	2363568.2	0.11665	546	21	0	567	482	546
595897.5	2357318.2	0.11658	547	21	0	568	483	547
595897.5	2355818.2	0.11655	548	21	0	569	484	548
596397.5	2366068.2	0.11644	549	21	0	570	485	549
595647.5	2363818.2	0.11607	550	21	0	571	486	550

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
594147.5	2358068.2	0.11603	551	21	0	572	487	551
593147.5	2358318.2	0.11602	552	21	0	573	488	552
593647.5	2358318.2	0.11591	553	21	0	574	489	553
593897.5	2360568.2	0.11574	554	21	0	575	490	554
594897.5	2358068.2	0.11558	555	21	0	576	491	555
593897.5	2358318.2	0.11549	556	21	0	577	492	556
592897.5	2358318.2	0.11536	557	21	0	578	493	557
590647.5	2363818.2	0.11532	558	21	0	579	494	558
598397.5	2365568.2	0.11515	559	21	0	580	495	559
593647.5	2362318.2	0.11515	560	21	0	581	496	560
597647.5	2367318.2	0.11475	561	21	0	582	497	561
594397.5	2358068.2	0.1146	562	21	0	583	498	562
593397.5	2358318.2	0.11436	563	21	0	584	499	563
592647.5	2362568.2	0.11405	564	21	0	585	500	564
594897.5	2363818.2	0.11384	565	21	0	586	501	565
591647.5	2365068.2	0.11377	566	21	0	587	502	566
595897.5	2357568.2	0.11366	567	21	0	588	503	567
594897.5	2362568.2	0.11356	568	21	0	589	504	568
591397.5	2362818.2	0.11343	569	21	0	590	505	569
596147.5	2357068.2	0.11335	570	21	0	591	506	570
596147.5	2362568.2	0.11333	571	21	0	592	507	571
591397.5	2358068.2	0.11279	572	21	0	593	508	572
591647.5	2365818.2	0.11236	573	21	0	594	509	573
590147.5	2366318.2	0.11196	574	21	0	595	510	574
595897.5	2365068.2	0.11186	575	21	0	596	511	575
594647.5	2358318.2	0.11183	576	21	0	597	512	576
595147.5	2363568.2	0.11178	577	21	0	598	513	577
592147.5	2362818.2	0.11178	578	21	0	599	514	578
593897.5	2358568.2	0.11176	579	21	0	600	515	579
598647.5	2365818.2	0.11168	580	21	0	601	516	580
595647.5	2355568.2	0.11152	581	21	0	602	517	581
591647.5	2363068.2	0.11137	582	21	0	603	518	582
596397.5	2365818.2	0.1111	583	21	0	604	519	583
595147.5	2363068.2	0.111	584	21	0	605	520	584
595897.5	2362568.2	0.11074	586	20	1	606	521	585
591147.5	2358068.2	0.11091	585	21	0	606	521	586
594897.5	2360318.2	0.11066	587	21	0	608	522	587
591647.5	2366818.2	0.1106	588	21	0	609	523	588
594147.5	2359068.2	0.1105	589	21	0	610	524	589
592647.5	2358318.2	0.11036	590	21	0	611	525	590
595147.5	2358068.2	0.11014	591	21	0	612	526	591
589647.5	2366068.2	0.11013	592	21	0	613	527	592
593397.5	2362568.2	0.10994	593	21	0	614	528	593
590897.5	2363568.2	0.10988	594	21	0	615	529	594
593897.5	2362568.2	0.10953	595	21	0	616	530	595
593397.5	2358568.2	0.10926	596	21	0	617	531	596
596647.5	2363318.2	0.10905	597	21	0	618	532	597
592397.5	2358318.2	0.10897	598	21	0	619	533	598
594397.5	2358318.2	0.10869	599	21	0	620	534	599
592397.5	2362818.2	0.10855	600	21	0	621	535	600
594147.5	2360068.2	0.10845	601	21	0	622	536	601
595147.5	2363818.2	0.10824	602	21	0	623	537	602
592147.5	2358318.2	0.10811	603	21	0	624	538	603
595897.5	2362318.2	0.10797	604	21	0	625	539	604
594397.5	2362818.2	0.10777	605	21	0	626	540	605

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
596147.5	2357318.2	0.10767	606	21	0	627	541	606
594897.5	2362818.2	0.10767	607	21	0	628	542	607
589897.5	2364068.2	0.10756	608	21	0	629	543	608
594147.5	2358818.2	0.1075	609	21	0	630	544	609
593897.5	2358818.2	0.10729	610	21	0	631	545	610
595897.5	2356068.2	0.10719	611	21	0	632	546	611
597147.5	2364068.2	0.10712	612	21	0	633	547	612
593897.5	2359068.2	0.10709	613	21	0	634	548	613
596147.5	2357568.2	0.10709	614	21	0	635	549	614
590647.5	2364568.2	0.10703	615	21	0	636	550	615
594147.5	2358318.2	0.10702	616	21	0	637	551	616
589897.5	2363068.2	0.10695	617	21	0	638	552	617
595147.5	2363318.2	0.10671	618	21	0	639	553	618
595397.5	2358068.2	0.10658	619	21	0	640	554	619
596397.5	2364568.2	0.10657	620	21	0	641	555	620
595647.5	2357818.2	0.10633	621	21	0	642	556	621
593397.5	2358818.2	0.10615	622	21	0	643	557	622
595147.5	2358318.2	0.10601	623	21	0	644	558	623
595897.5	2361568.2	0.10588	624	21	0	645	559	624
593647.5	2358568.2	0.10586	625	21	0	646	560	625
593897.5	2359318.2	0.10585	626	21	0	647	561	626
596147.5	2356818.2	0.10584	627	21	0	648	562	627
594147.5	2358568.2	0.10576	628	21	0	649	563	628
595647.5	2364068.2	0.1056	629	21	0	650	564	629
594897.5	2358318.2	0.10554	630	21	0	651	565	630
596397.5	2356568.2	0.10542	631	21	0	652	566	631
594397.5	2359568.2	0.10524	632	21	0	653	567	632
593897.5	2359568.2	0.10512	633	21	0	654	568	633
589397.5	2366068.2	0.10502	634	21	0	655	569	634
589897.5	2367318.2	0.10498	635	21	0	656	570	635
592897.5	2358568.2	0.10496	636	21	0	657	571	636
590397.5	2366068.2	0.10493	637	21	0	658	572	637
593647.5	2358818.2	0.10476	638	21	0	659	573	638
594897.5	2358568.2	0.10474	639	21	0	660	574	639
593147.5	2358568.2	0.10444	640	21	0	661	575	640
594147.5	2359318.2	0.10436	641	21	0	662	576	641
593897.5	2359818.2	0.10423	642	21	0	663	577	642
593647.5	2362568.2	0.104	643	21	0	664	578	643
594397.5	2359818.2	0.10366	644	21	0	665	579	644
593897.5	2360068.2	0.10362	645	21	0	666	580	645
594897.5	2360068.2	0.10323	646	21	0	667	581	646
599397.5	2367068.2	0.10315	647	21	0	668	582	647
593647.5	2359068.2	0.10302	648	21	0	669	583	648
596147.5	2366568.2	0.10292	649	21	0	670	584	649
596147.5	2355818.2	0.10288	650	21	0	671	585	650
594147.5	2359568.2	0.10288	651	21	0	672	586	651
594397.5	2359318.2	0.10276	652	21	0	673	587	652
590397.5	2364318.2	0.10269	653	21	0	674	588	653
599147.5	2366818.2	0.1026	654	21	0	675	589	654
591397.5	2358818.2	0.10234	655	21	0	676	590	655
593397.5	2362818.2	0.10231	656	21	0	677	591	656
595397.5	2358318.2	0.10221	657	21	0	678	592	657
593397.5	2359068.2	0.10206	658	21	0	679	593	658
590897.5	2365318.2	0.10202	659	21	0	680	594	659
595897.5	2357818.2	0.1019	660	21	0	681	595	660

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
595647.5	2358068.2	0.10181	661	21	0	682	596	661
590397.5	2366568.2	0.10176	662	21	0	683	597	662
594147.5	2362568.2	0.1017	663	21	0	684	598	663
590647.5	2367318.2	0.10167	664	21	0	685	599	664
593647.5	2360318.2	0.10152	665	21	0	686	600	665
593647.5	2359318.2	0.10143	666	21	0	687	601	666
591897.5	2361068.2	0.10142	667	21	0	688	602	667
594147.5	2359818.2	0.10141	668	21	0	689	603	668
596397.5	2357068.2	0.10134	669	21	0	690	604	669
591147.5	2358818.2	0.10131	670	21	0	691	605	670
592647.5	2358568.2	0.10124	671	21	0	692	606	671
592397.5	2358568.2	0.10113	672	21	0	693	607	672
594397.5	2358568.2	0.10095	673	21	0	694	608	673
594647.5	2362818.2	0.10081	675	20	1	695	609	674
596147.5	2356318.2	0.10085	674	21	0	695	609	675
593647.5	2359568.2	0.10051	676	21	0	697	610	676
595147.5	2360568.2	0.10047	677	21	0	698	611	677
596147.5	2364318.2	0.10046	678	21	0	699	612	678
591147.5	2359068.2	0.10027	679	21	0	700	613	679
595897.5	2355568.2	0.10006	680	21	0	701	614	680
596397.5	2357318.2	0.09997	681	21	0	702	615	681
595897.5	2364068.2	0.09992	682	21	0	703	616	682
590397.5	2366818.2	0.09988	683	21	0	704	617	683
594897.5	2363068.2	0.09984	684	21	0	705	618	684
591147.5	2359318.2	0.09966	685	21	0	706	619	685
595397.5	2361068.2	0.09951	686	21	0	707	620	686
594647.5	2358818.2	0.09948	687	21	0	708	621	687
596147.5	2357818.2	0.09944	688	21	0	709	622	688
597647.5	2365568.2	0.09931	689	21	0	710	623	689
594647.5	2358568.2	0.09905	690	21	0	711	624	690
596647.5	2362568.2	0.09902	691	21	0	712	625	691
595147.5	2358568.2	0.09887	692	21	0	713	626	692
591397.5	2359068.2	0.09886	693	21	0	714	627	693
596147.5	2366818.2	0.09877	694	21	0	715	628	694
596147.5	2356068.2	0.09875	695	21	0	716	629	695
593397.5	2359568.2	0.09851	696	21	0	717	630	696
592147.5	2363068.2	0.09843	697	21	0	718	631	697
593397.5	2359318.2	0.09843	698	21	0	719	632	698
590897.5	2359568.2	0.09839	699	21	0	720	633	699
593647.5	2360068.2	0.09833	700	21	0	721	634	700
595647.5	2358568.2	0.09817	701	21	0	722	635	701
594897.5	2363318.2	0.09782	702	21	0	723	636	702
593647.5	2359818.2	0.09778	703	21	0	724	637	703
592897.5	2358818.2	0.09767	704	21	0	725	638	704
591397.5	2359318.2	0.09761	705	21	0	726	639	705
594397.5	2358818.2	0.09758	706	21	0	727	640	706
594397.5	2363068.2	0.09754	707	21	0	728	641	707
589397.5	2366318.2	0.09745	708	21	0	729	642	708
591647.5	2359068.2	0.09744	709	21	0	730	643	709
590897.5	2359318.2	0.09741	710	21	0	731	644	710
596147.5	2367068.2	0.0972	711	21	0	732	645	711
591897.5	2358818.2	0.0972	712	21	0	733	646	712
595897.5	2366568.2	0.0972	713	21	0	734	647	713
593147.5	2362818.2	0.09712	714	21	0	735	648	714
593147.5	2358818.2	0.09699	715	21	0	736	649	715

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
590897.5	2359068.2	0.09665	717	20	1	737	650	716
590897.5	2359818.2	0.09674	716	21	0	737	650	717
596147.5	2367318.2	0.09615	718	21	0	739	651	718
595147.5	2358818.2	0.09615	719	21	0	740	652	719
596397.5	2357818.2	0.09609	720	21	0	741	653	720
595397.5	2358818.2	0.09592	721	21	0	742	654	721
593397.5	2359818.2	0.09576	722	21	0	743	655	722
598897.5	2366068.2	0.09571	723	21	0	744	656	723
592647.5	2358818.2	0.09569	724	21	0	745	657	724
595897.5	2358068.2	0.09562	725	21	0	746	658	725
591397.5	2359568.2	0.09561	726	21	0	747	659	726
594897.5	2358818.2	0.09554	727	21	0	748	660	727
591647.5	2363318.2	0.09553	728	21	0	749	661	728
593147.5	2360818.2	0.09542	729	21	0	750	662	729
591647.5	2359318.2	0.09536	730	21	0	751	663	730
590647.5	2359818.2	0.0953	731	21	0	752	664	731
594647.5	2359818.2	0.09521	732	21	0	753	665	732
591397.5	2363068.2	0.09516	733	21	0	754	666	733
590397.5	2364818.2	0.09511	734	21	0	755	667	734
591147.5	2359568.2	0.09509	735	21	0	756	668	735
590147.5	2367318.2	0.09495	736	21	0	757	669	736
596397.5	2356818.2	0.09491	737	21	0	758	670	737
596147.5	2355568.2	0.09476	738	21	0	759	671	738
590647.5	2360068.2	0.0947	739	21	0	760	672	739
594397.5	2363318.2	0.09462	740	21	0	761	673	740
592397.5	2358818.2	0.0946	741	21	0	762	674	741
595397.5	2358568.2	0.09452	742	21	0	763	675	742
593147.5	2360568.2	0.09452	743	21	0	764	676	743
594647.5	2359068.2	0.09447	744	21	0	765	677	744
596647.5	2356818.2	0.09445	745	21	0	766	678	745
591147.5	2363068.2	0.0944	746	21	0	767	679	746
592147.5	2363318.2	0.09437	747	21	0	768	680	747
593647.5	2362818.2	0.09432	748	21	0	769	681	748
590647.5	2360318.2	0.0943	749	21	0	770	682	749
594397.5	2359068.2	0.09428	750	21	0	771	683	750
593147.5	2359068.2	0.09408	751	21	0	772	684	751
593397.5	2360068.2	0.09407	752	21	0	773	685	752
596397.5	2357568.2	0.09399	753	21	0	774	686	753
595647.5	2358318.2	0.09392	754	21	0	775	687	754
592647.5	2362818.2	0.09373	755	21	0	776	688	755
595647.5	2359068.2	0.09366	756	21	0	777	689	756
596397.5	2356068.2	0.09364	757	21	0	778	690	757
594897.5	2363568.2	0.09362	758	21	0	779	691	758
596147.5	2364568.2	0.09354	759	21	0	780	692	759
591397.5	2359818.2	0.09347	760	21	0	781	693	760
595147.5	2359068.2	0.09342	761	21	0	782	694	761
591147.5	2363318.2	0.09316	762	21	0	783	695	762
596397.5	2355568.2	0.09311	763	21	0	784	696	763
592147.5	2358818.2	0.09302	764	21	0	785	697	764
596647.5	2357318.2	0.09293	765	21	0	786	698	765
599647.5	2367318.2	0.09292	766	21	0	787	699	766
591897.5	2359068.2	0.09292	767	21	0	788	700	767
590397.5	2360318.2	0.09284	768	21	0	789	701	768
590897.5	2360068.2	0.09278	769	21	0	790	702	769
591647.5	2359568.2	0.09273	770	21	0	791	703	770

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
596397.5	2355818.2	0.0927	771	21	0	792	704	771
591147.5	2359818.2	0.09269	772	21	0	793	705	772
593897.5	2362818.2	0.09255	773	21	0	794	706	773
591897.5	2365568.2	0.09252	774	21	0	795	707	774
596397.5	2364068.2	0.09234	775	21	0	796	708	775
590397.5	2360568.2	0.09228	776	21	0	797	709	776
592897.5	2359068.2	0.09217	777	21	0	798	710	777
595897.5	2367318.2	0.0921	778	21	0	799	711	778
596397.5	2356318.2	0.09201	779	21	0	800	712	779
591897.5	2365318.2	0.09198	780	21	0	801	713	780
591147.5	2360068.2	0.09196	781	21	0	802	714	781
595897.5	2358818.2	0.09175	782	21	0	803	715	782
591897.5	2359318.2	0.09162	783	21	0	804	716	783
591147.5	2363568.2	0.09148	784	21	0	805	717	784
595897.5	2366818.2	0.09146	785	21	0	806	718	785
593397.5	2360318.2	0.09134	786	21	0	807	719	786
596647.5	2357068.2	0.09127	787	21	0	808	720	787
599397.5	2366818.2	0.09126	788	21	0	809	721	788
591397.5	2360068.2	0.09107	789	21	0	810	722	789
592147.5	2359068.2	0.09106	790	21	0	811	723	790
592897.5	2360568.2	0.09093	791	21	0	812	724	791
591397.5	2367318.2	0.0909	792	21	0	813	725	792
590897.5	2360318.2	0.09087	793	21	0	814	726	793
592647.5	2359068.2	0.09082	794	21	0	815	727	794
591147.5	2360318.2	0.09071	795	21	0	816	728	795
590647.5	2360568.2	0.09058	796	21	0	817	729	796
591647.5	2359818.2	0.09056	797	21	0	818	730	797
591897.5	2363318.2	0.09051	798	21	0	819	731	798
592397.5	2359068.2	0.09045	800	20	1	820	732	799
597897.5	2365318.2	0.09051	799	21	0	820	732	800
590397.5	2360818.2	0.09042	801	21	0	822	733	801
594897.5	2359318.2	0.09039	802	21	0	823	734	802
596647.5	2356568.2	0.09038	803	21	0	824	735	803
593147.5	2359318.2	0.09031	804	21	0	825	736	804
595897.5	2358318.2	0.09023	805	21	0	826	737	805
590897.5	2363818.2	0.09023	806	21	0	827	738	806
598397.5	2365318.2	0.09022	807	21	0	828	739	807
594647.5	2363068.2	0.09018	808	21	0	829	740	808
593897.5	2363068.2	0.09012	809	21	0	830	741	809
591147.5	2367318.2	0.08998	810	21	0	831	742	810
592897.5	2359318.2	0.08992	811	21	0	832	743	811
595897.5	2365318.2	0.08976	812	21	0	833	744	812
594897.5	2359068.2	0.08959	813	21	0	834	745	813
596147.5	2358068.2	0.08955	814	21	0	835	746	814
590647.5	2366068.2	0.0895	815	21	0	836	747	815
594647.5	2359318.2	0.08947	816	21	0	837	748	816
596147.5	2365568.2	0.08945	817	21	0	838	749	817
595897.5	2359318.2	0.08944	818	21	0	839	750	818
596647.5	2356318.2	0.08921	819	21	0	840	751	819
590147.5	2366568.2	0.0892	820	21	0	841	752	820
595897.5	2367068.2	0.08911	821	21	0	842	753	821
590647.5	2361318.2	0.08908	822	21	0	843	754	822
591897.5	2359568.2	0.08886	823	21	0	844	755	823
594897.5	2359568.2	0.08882	824	21	0	845	756	824
596897.5	2356818.2	0.08866	825	21	0	846	757	825

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
589647.5	2367318.2	0.08864	826	21	0	847	758	826
591147.5	2360568.2	0.08845	827	21	0	848	759	827
591397.5	2360318.2	0.08825	828	21	0	849	760	828
593147.5	2359568.2	0.08823	829	21	0	850	761	829
590647.5	2360818.2	0.08822	830	21	0	851	762	830
590897.5	2360568.2	0.08819	831	21	0	852	763	831
592897.5	2359568.2	0.08818	832	21	0	853	764	832
593397.5	2363068.2	0.08815	833	21	0	854	765	833
596647.5	2357568.2	0.08808	834	21	0	855	766	834
591647.5	2367068.2	0.08798	835	21	0	856	767	835
592147.5	2359318.2	0.08795	836	21	0	857	768	836
594147.5	2362818.2	0.08792	837	21	0	858	769	837
596647.5	2355818.2	0.08776	838	21	0	859	770	838
595397.5	2359068.2	0.08774	839	21	0	860	771	839
595397.5	2364318.2	0.08773	840	21	0	861	772	840
592397.5	2363068.2	0.08773	841	21	0	862	773	841
590397.5	2361068.2	0.08758	842	21	0	863	774	842
590897.5	2361568.2	0.08756	843	21	0	864	775	843
596397.5	2358068.2	0.08738	844	21	0	865	776	844
594647.5	2359568.2	0.08731	845	21	0	866	777	845
593647.5	2363068.2	0.08727	846	21	0	867	778	846
592397.5	2359318.2	0.08725	847	21	0	868	779	847
595897.5	2364318.2	0.08723	848	21	0	869	780	848
595647.5	2366568.2	0.08716	849	21	0	870	781	849
599897.5	2367318.2	0.08714	850	21	0	871	782	850
591897.5	2359818.2	0.08708	851	21	0	872	783	851
592897.5	2359818.2	0.08673	852	21	0	873	784	852
591647.5	2360068.2	0.08665	853	21	0	874	785	853
595147.5	2359318.2	0.08661	854	21	0	875	786	854
593147.5	2360318.2	0.08646	855	21	0	876	787	855
590897.5	2360818.2	0.08643	856	21	0	877	788	856
594147.5	2363068.2	0.0864	857	21	0	878	789	857
593147.5	2359818.2	0.08636	858	21	0	879	790	858
594647.5	2363318.2	0.08626	859	21	0	880	791	859
593147.5	2360068.2	0.08626	860	21	0	881	792	860
595897.5	2364568.2	0.08607	861	21	0	882	793	861
596647.5	2356068.2	0.08602	862	21	0	883	794	862
595397.5	2364068.2	0.08599	863	21	0	884	795	863
594897.5	2359818.2	0.08593	864	21	0	885	796	864
592397.5	2359568.2	0.08592	865	21	0	886	797	865
596647.5	2357818.2	0.08572	866	21	0	887	798	866
590647.5	2361068.2	0.08572	867	21	0	888	799	867
591897.5	2366818.2	0.08568	868	21	0	889	800	868
592147.5	2359568.2	0.08559	869	21	0	890	801	869
596147.5	2366318.2	0.08553	870	21	0	891	802	870
590397.5	2361318.2	0.08534	871	21	0	892	803	871
596147.5	2359068.2	0.08522	872	21	0	893	804	872
596897.5	2357318.2	0.0852	873	21	0	894	805	873
596897.5	2363068.2	0.08516	874	21	0	895	806	874
592897.5	2362818.2	0.08512	875	21	0	896	807	875
592897.5	2360068.2	0.0849	876	21	0	897	808	876
591147.5	2360818.2	0.0849	877	21	0	898	809	877
596147.5	2364068.2	0.08488	878	21	0	899	810	878
589647.5	2366318.2	0.08484	879	21	0	900	811	879
595647.5	2361318.2	0.08483	880	21	0	901	812	880

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
595397.5	2360818.2	0.08482	881	21	0	902	813	881
590147.5	2361568.2	0.08479	882	21	0	903	814	882
595397.5	2359318.2	0.08476	883	21	0	904	815	883
590897.5	2361068.2	0.08464	884	21	0	905	816	884
596897.5	2356318.2	0.08447	885	21	0	906	817	885
596147.5	2358318.2	0.08446	886	21	0	907	818	886
591897.5	2360068.2	0.08444	887	21	0	908	819	887
593147.5	2363068.2	0.08441	888	21	0	909	820	888
595647.5	2358818.2	0.08441	889	21	0	910	821	889
595397.5	2363818.2	0.08435	890	21	0	911	822	890
596147.5	2361568.2	0.08428	891	21	0	912	823	891
591647.5	2366318.2	0.08424	892	21	0	913	824	892
595647.5	2359318.2	0.08423	893	21	0	914	825	893
595397.5	2359568.2	0.08422	894	21	0	915	826	894
595897.5	2358568.2	0.08411	895	21	0	916	827	895
592397.5	2363318.2	0.08409	896	21	0	917	828	896
592647.5	2359318.2	0.08408	897	21	0	918	829	897
591397.5	2360568.2	0.084	898	21	0	919	830	898
590647.5	2364068.2	0.08391	899	21	0	920	831	899
591897.5	2366568.2	0.08388	900	21	0	921	832	900
595147.5	2360318.2	0.08386	901	21	0	922	833	901
590397.5	2361568.2	0.08379	902	21	0	923	834	902
596147.5	2359568.2	0.08378	903	21	0	924	835	903
593397.5	2363318.2	0.08359	904	21	0	925	836	904
598647.5	2365568.2	0.08356	905	21	0	926	837	905
592897.5	2360318.2	0.08355	906	21	0	927	838	906
594647.5	2363818.2	0.0835	907	21	0	928	839	907
594147.5	2363568.2	0.08345	908	21	0	929	840	908
592147.5	2359818.2	0.08344	909	21	0	930	841	909
595647.5	2364318.2	0.08343	910	21	0	931	842	910
590397.5	2361818.2	0.08336	911	21	0	932	843	911
591397.5	2361068.2	0.08327	912	21	0	933	844	912
590147.5	2361818.2	0.08319	913	21	0	934	845	913
596397.5	2358318.2	0.08318	914	21	0	935	846	914
598897.5	2365818.2	0.08304	915	21	0	936	847	915
596897.5	2357568.2	0.08285	916	21	0	937	848	916
592147.5	2360818.2	0.08284	917	21	0	938	849	917
591897.5	2365068.2	0.08283	918	21	0	939	850	918
595897.5	2359568.2	0.08274	919	21	0	940	851	919
591647.5	2360568.2	0.08273	920	21	0	941	852	920
592397.5	2359818.2	0.08273	921	21	0	942	853	921
590147.5	2362068.2	0.0827	922	21	0	943	854	922
590647.5	2361568.2	0.0825	923	21	0	944	855	923
596897.5	2355818.2	0.08239	924	21	0	945	856	924
596647.5	2358068.2	0.08237	925	21	0	946	857	925
600147.5	2367318.2	0.0822	926	21	0	947	858	926
590397.5	2362068.2	0.0822	927	21	0	948	859	927
591897.5	2360318.2	0.08214	928	21	0	949	860	928
596897.5	2357068.2	0.08202	929	21	0	950	861	929
592897.5	2363068.2	0.08196	930	21	0	951	862	930
592147.5	2360068.2	0.08188	931	21	0	952	863	931
594897.5	2364068.2	0.08184	932	21	0	953	864	932
590147.5	2362318.2	0.0818	933	21	0	954	865	933
590897.5	2361318.2	0.08168	934	21	0	955	866	934
591647.5	2360318.2	0.08164	935	21	0	956	867	935

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
599147.5	2366568.2	0.08161	936	21	0	957	868	936
594147.5	2363318.2	0.08161	937	21	0	958	869	937
594647.5	2363568.2	0.08153	938	21	0	959	870	938
599647.5	2367068.2	0.08148	939	21	0	960	871	939
592647.5	2363068.2	0.08127	940	21	0	961	872	940
592647.5	2359568.2	0.08124	941	21	0	962	873	941
591147.5	2363818.2	0.08121	942	21	0	963	874	942
595147.5	2359818.2	0.08118	943	21	0	964	875	943
591897.5	2367068.2	0.08118	944	21	0	965	876	944
595147.5	2359568.2	0.08114	945	21	0	966	877	945
596897.5	2356568.2	0.08112	946	21	0	967	878	946
590647.5	2361818.2	0.08108	947	21	0	968	879	947
594397.5	2363568.2	0.08103	948	21	0	969	880	948
596397.5	2359818.2	0.081	949	21	0	970	881	949
595647.5	2365318.2	0.08089	950	21	0	971	882	950
595147.5	2360068.2	0.08078	951	21	0	972	883	951
594397.5	2363818.2	0.08073	952	21	0	973	884	952
596147.5	2358818.2	0.08072	953	21	0	974	885	953
596397.5	2359068.2	0.08043	954	21	0	975	886	954
592147.5	2360318.2	0.08034	955	21	0	976	887	955
591647.5	2360818.2	0.08029	956	21	0	977	888	956
590147.5	2362568.2	0.08017	957	21	0	978	889	957
596147.5	2358568.2	0.08005	958	21	0	979	890	958
591897.5	2360568.2	0.07998	959	21	0	980	891	959
592147.5	2361068.2	0.07998	960	21	0	981	892	960
592147.5	2360568.2	0.07998	961	21	0	982	893	961
593147.5	2363318.2	0.07993	962	21	0	983	894	962
592647.5	2359818.2	0.07984	963	21	0	984	895	963
595397.5	2359818.2	0.07978	964	21	0	985	896	964
590397.5	2362318.2	0.0797	965	21	0	986	897	965
593897.5	2363318.2	0.07964	966	21	0	987	898	966
593647.5	2363318.2	0.07962	967	21	0	988	899	967
597397.5	2364318.2	0.0796	968	21	0	989	900	968
591397.5	2364818.2	0.07955	969	21	0	990	901	969
599147.5	2366318.2	0.07944	970	21	0	991	902	970
596647.5	2358318.2	0.07938	971	21	0	992	903	971
589897.5	2362818.2	0.07936	972	21	0	993	904	972
595647.5	2361068.2	0.07935	973	21	0	994	905	973
591647.5	2363568.2	0.0793	974	21	0	995	906	974
597147.5	2356818.2	0.07924	975	21	0	996	907	975
591397.5	2360818.2	0.07923	976	21	0	997	908	976
594397.5	2364068.2	0.07894	977	21	0	998	909	977
596397.5	2359318.2	0.07878	978	21	0	999	910	978
592397.5	2360068.2	0.07873	979	21	0	1000	911	979
595647.5	2365568.2	0.0787	980	21	0	1001	912	980
591147.5	2361068.2	0.07859	981	21	0	1002	913	981
592147.5	2361318.2	0.07848	982	21	0	1003	914	982
595647.5	2364818.2	0.07839	983	21	0	1004	915	983
595897.5	2359068.2	0.07839	984	21	0	1005	916	984
592147.5	2363568.2	0.07822	985	21	0	1006	917	985
592647.5	2360068.2	0.07814	986	21	0	1007	918	986
592647.5	2360568.2	0.07804	987	21	0	1008	919	987
591147.5	2361568.2	0.07803	988	21	0	1009	920	988
596897.5	2356068.2	0.07799	989	21	0	1010	921	989
589647.5	2363318.2	0.07795	990	21	0	1011	922	990

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
597147.5	2357318.2	0.07789	991	21	0	1012	923	991
591897.5	2360818.2	0.07788	992	21	0	1013	924	992
591647.5	2361068.2	0.07787	993	21	0	1014	925	993
590647.5	2362568.2	0.07782	994	21	0	1015	926	994
596897.5	2357818.2	0.07776	995	21	0	1016	927	995
599897.5	2367068.2	0.07754	996	21	0	1017	928	996
597147.5	2357568.2	0.0775	997	21	0	1018	929	997
591897.5	2363568.2	0.07733	998	21	0	1019	930	998
591147.5	2361318.2	0.07725	999	21	0	1020	931	999
589397.5	2367318.2	0.07711	1000	21	0	1021	932	1000
590897.5	2361818.2	0.07706	1001	21	0	1022	933	1001
592647.5	2360318.2	0.07699	1002	21	0	1023	934	1002
596897.5	2358068.2	0.07699	1003	21	0	1024	935	1003
591897.5	2365818.2	0.07695	1004	21	0	1025	936	1004
592397.5	2363568.2	0.07687	1005	21	0	1026	937	1005
595647.5	2359568.2	0.07668	1006	21	0	1027	938	1006
590647.5	2362068.2	0.0766	1007	21	0	1028	939	1007
592397.5	2360318.2	0.07656	1008	21	0	1029	940	1008
593897.5	2363568.2	0.07655	1009	21	0	1030	941	1009
590397.5	2362818.2	0.0765	1010	21	0	1031	942	1010
592147.5	2363818.2	0.07647	1011	21	0	1032	943	1011
596897.5	2358318.2	0.07646	1012	21	0	1033	944	1012
597147.5	2356318.2	0.07646	1013	21	0	1034	945	1013
591397.5	2364068.2	0.07633	1014	21	0	1035	946	1014
589397.5	2363818.2	0.07633	1015	21	0	1036	947	1015
590647.5	2362318.2	0.07631	1016	21	0	1037	948	1016
595647.5	2360068.2	0.07614	1017	21	0	1038	949	1017
595647.5	2359818.2	0.07612	1018	21	0	1039	950	1018
593647.5	2363568.2	0.07603	1019	21	0	1040	951	1019
597647.5	2364568.2	0.07602	1020	21	0	1041	952	1020
596647.5	2363068.2	0.07597	1021	21	0	1042	953	1021
595647.5	2365068.2	0.07596	1022	21	0	1043	954	1022
596647.5	2360068.2	0.07593	1023	21	0	1044	955	1023
591897.5	2367318.2	0.07591	1024	21	0	1045	956	1024
590897.5	2362068.2	0.07588	1025	21	0	1046	957	1025
589647.5	2363568.2	0.07586	1026	21	0	1047	958	1026
592647.5	2363318.2	0.0757	1027	21	0	1048	959	1027
596647.5	2359568.2	0.07558	1028	21	0	1049	960	1028
596147.5	2359818.2	0.07552	1029	21	0	1050	961	1029
596647.5	2359318.2	0.07546	1030	21	0	1051	962	1030
597147.5	2355818.2	0.07545	1031	21	0	1052	963	1031
592397.5	2360568.2	0.07543	1032	21	0	1053	964	1032
595897.5	2365568.2	0.07541	1033	21	0	1054	965	1033
591647.5	2367318.2	0.07533	1034	21	0	1055	966	1034
597147.5	2357068.2	0.07533	1035	21	0	1056	967	1035
596647.5	2358568.2	0.0752	1036	21	0	1057	968	1036
589147.5	2364068.2	0.07517	1037	21	0	1058	969	1037
596397.5	2358568.2	0.07516	1038	21	0	1059	970	1038
594647.5	2364068.2	0.0751	1039	21	0	1060	971	1039
593897.5	2363818.2	0.07508	1040	21	0	1061	972	1040
590397.5	2364068.2	0.07503	1041	21	0	1062	973	1041
590147.5	2362818.2	0.07481	1042	21	0	1063	974	1042
595397.5	2360068.2	0.07458	1043	21	0	1064	975	1043
590897.5	2362318.2	0.07456	1044	21	0	1065	976	1044
596147.5	2366068.2	0.07452	1045	21	0	1066	977	1045

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
594147.5	2363818.2	0.07452	1046	21	0	1067	978	1046
595397.5	2360318.2	0.07441	1047	21	0	1068	979	1047
589147.5	2364318.2	0.07436	1048	21	0	1069	980	1048
591647.5	2364068.2	0.07436	1049	21	0	1070	981	1049
599897.5	2366818.2	0.07434	1050	21	0	1071	982	1050
591397.5	2363318.2	0.07428	1051	21	0	1072	983	1051
592397.5	2363818.2	0.07424	1052	21	0	1073	984	1052
591897.5	2363818.2	0.07412	1053	21	0	1074	985	1053
592397.5	2360818.2	0.07378	1054	21	0	1075	986	1054
596397.5	2361568.2	0.07353	1055	21	0	1076	987	1055
592647.5	2363568.2	0.07352	1056	21	0	1077	988	1056
593647.5	2364068.2	0.07351	1057	21	0	1078	989	1057
594647.5	2364318.2	0.0735	1058	21	0	1079	990	1058
597397.5	2357568.2	0.07344	1059	21	0	1080	991	1059
596147.5	2359318.2	0.07337	1060	21	0	1081	992	1060
590397.5	2362568.2	0.07333	1061	21	0	1082	993	1061
595397.5	2360568.2	0.07331	1062	21	0	1083	994	1062
596897.5	2358568.2	0.07331	1063	21	0	1084	995	1063
595147.5	2364068.2	0.0732	1064	21	0	1085	996	1064
591397.5	2363568.2	0.07318	1065	21	0	1086	997	1065
588897.5	2364568.2	0.07316	1066	21	0	1087	998	1066
591647.5	2363818.2	0.07307	1067	21	0	1088	999	1067
589397.5	2364068.2	0.07304	1068	21	0	1089	1000	1068
595647.5	2360318.2	0.07301	1069	21	0	1090	1001	1069
597147.5	2357818.2	0.0727	1070	21	0	1091	1002	1070
596397.5	2358818.2	0.07258	1071	21	0	1092	1003	1071
592147.5	2365568.2	0.07249	1072	21	0	1093	1004	1072
595147.5	2364318.2	0.07245	1073	21	0	1094	1005	1073
598147.5	2365068.2	0.07238	1074	21	0	1095	1006	1074
590397.5	2367068.2	0.07238	1075	21	0	1096	1007	1075
596897.5	2358818.2	0.0723	1076	21	0	1097	1008	1076
597397.5	2357068.2	0.07222	1077	21	0	1098	1009	1077
595397.5	2366568.2	0.07217	1078	21	0	1099	1010	1078
588897.5	2364818.2	0.07216	1079	21	0	1100	1011	1079
595897.5	2359818.2	0.07213	1080	21	0	1101	1012	1080
597147.5	2356568.2	0.07194	1081	21	0	1102	1013	1081
597147.5	2356068.2	0.07189	1082	21	0	1103	1014	1082
594147.5	2364318.2	0.07175	1083	21	0	1104	1015	1083
595897.5	2361068.2	0.07174	1084	21	0	1105	1016	1084
593397.5	2363568.2	0.0717	1085	21	0	1106	1017	1085
591647.5	2364818.2	0.07162	1086	21	0	1107	1018	1086
591647.5	2364318.2	0.0716	1087	21	0	1108	1019	1087
593897.5	2364068.2	0.07155	1088	21	0	1109	1020	1088
597147.5	2358068.2	0.07155	1089	21	0	1110	1021	1089
595897.5	2366318.2	0.07142	1090	21	0	1111	1022	1090
599647.5	2366818.2	0.07133	1091	21	0	1112	1023	1091
597397.5	2356818.2	0.07126	1092	21	0	1113	1024	1092
592147.5	2365068.2	0.07124	1093	21	0	1114	1025	1093
596897.5	2360318.2	0.07114	1094	21	0	1115	1026	1094
595897.5	2360318.2	0.0711	1095	21	0	1116	1027	1095
591897.5	2364818.2	0.07105	1096	21	0	1117	1028	1096
591147.5	2364818.2	0.07097	1097	21	0	1118	1029	1097
596147.5	2365818.2	0.07096	1098	21	0	1119	1030	1098
597647.5	2357318.2	0.07087	1099	21	0	1120	1031	1099
593897.5	2364318.2	0.07085	1100	21	0	1121	1032	1100

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
596647.5	2361568.2	0.07078	1101	21	0	1122	1033	1101
591397.5	2363818.2	0.07078	1102	21	0	1123	1034	1102
596397.5	2360068.2	0.07074	1103	21	0	1124	1035	1103
597397.5	2357318.2	0.07074	1104	21	0	1125	1036	1104
599397.5	2366568.2	0.07073	1105	21	0	1126	1037	1105
591897.5	2364068.2	0.07058	1106	21	0	1127	1038	1106
592647.5	2363818.2	0.07058	1107	21	0	1128	1039	1107
598147.5	2364818.2	0.07046	1108	21	0	1129	1040	1108
597397.5	2356318.2	0.07044	1109	21	0	1130	1041	1109
593897.5	2364568.2	0.07042	1110	21	0	1131	1042	1110
595897.5	2360568.2	0.07037	1111	21	0	1132	1043	1111
596397.5	2361318.2	0.07032	1112	21	0	1133	1044	1112
597647.5	2357068.2	0.07026	1113	21	0	1134	1045	1113
596897.5	2359568.2	0.07024	1114	21	0	1135	1046	1114
596647.5	2358818.2	0.07021	1115	21	0	1136	1047	1115
595897.5	2360068.2	0.0702	1116	21	0	1137	1048	1116
591647.5	2366068.2	0.07018	1117	21	0	1138	1049	1117
589647.5	2363818.2	0.07013	1118	21	0	1139	1050	1118
589147.5	2365568.2	0.0701	1119	21	0	1140	1051	1119
592897.5	2363318.2	0.07007	1120	21	0	1141	1052	1120
597897.5	2357318.2	0.07005	1121	21	0	1142	1053	1121
597147.5	2358818.2	0.07003	1122	21	0	1143	1054	1122
597147.5	2358318.2	0.07003	1123	21	0	1144	1055	1123
591397.5	2364568.2	0.07002	1124	21	0	1145	1056	1124
592147.5	2365318.2	0.07001	1125	21	0	1146	1057	1125
591397.5	2364318.2	0.07001	1126	21	0	1147	1058	1126
589147.5	2364568.2	0.06994	1127	21	0	1148	1059	1127
589397.5	2364318.2	0.06993	1128	21	0	1149	1060	1128
594897.5	2364318.2	0.06962	1129	21	0	1150	1061	1129
592647.5	2364068.2	0.06954	1130	21	0	1151	1062	1130
590897.5	2364068.2	0.06944	1131	21	0	1152	1063	1131
590647.5	2364318.2	0.06934	1132	21	0	1153	1064	1132
597397.5	2357818.2	0.06934	1133	21	0	1154	1065	1133
597397.5	2355818.2	0.06931	1134	21	0	1155	1066	1134
596147.5	2360068.2	0.06924	1135	21	0	1156	1067	1135
595647.5	2360568.2	0.06923	1136	21	0	1157	1068	1136
596397.5	2359568.2	0.06918	1137	21	0	1158	1069	1137
597647.5	2357568.2	0.0691	1138	21	0	1159	1070	1138
596647.5	2359068.2	0.069	1139	21	0	1160	1071	1139
592147.5	2366818.2	0.06894	1140	21	0	1161	1072	1140
595647.5	2360818.2	0.06894	1141	21	0	1162	1073	1141
600397.5	2367318.2	0.0689	1142	21	0	1163	1074	1142
596897.5	2359068.2	0.06869	1143	21	0	1164	1075	1143
596397.5	2360318.2	0.06863	1144	21	0	1165	1076	1144
590147.5	2364568.2	0.06853	1145	21	0	1166	1077	1145
600147.5	2367068.2	0.06851	1146	21	0	1167	1078	1146
591147.5	2364068.2	0.06847	1147	21	0	1168	1079	1147
597147.5	2359068.2	0.06839	1148	21	0	1169	1080	1148
596897.5	2362318.2	0.06838	1149	21	0	1170	1081	1149
592147.5	2366568.2	0.06833	1150	21	0	1171	1082	1150
593147.5	2363568.2	0.06829	1151	21	0	1172	1083	1151
597397.5	2359068.2	0.06815	1152	21	0	1173	1084	1152
590897.5	2364318.2	0.06793	1153	21	0	1174	1085	1153
597397.5	2358068.2	0.0679	1154	21	0	1175	1086	1154
589647.5	2365818.2	0.06788	1155	21	0	1176	1087	1155

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
592897.5	2363568.2	0.06777	1156	21	0	1177	1088	1156
595897.5	2361318.2	0.06775	1157	21	0	1178	1089	1157
595897.5	2360818.2	0.06766	1158	21	0	1179	1090	1158
589897.5	2364318.2	0.0675	1159	21	0	1180	1091	1159
590897.5	2364568.2	0.06737	1161	20	1	1181	1092	1160
591897.5	2366318.2	0.06745	1160	21	0	1181	1092	1161
589897.5	2364568.2	0.06735	1162	21	0	1183	1093	1162
588897.5	2365068.2	0.06719	1163	21	0	1184	1094	1163
599647.5	2366568.2	0.06714	1164	21	0	1185	1095	1164
589647.5	2364068.2	0.06714	1165	21	0	1186	1096	1165
596147.5	2360568.2	0.06713	1166	21	0	1187	1097	1166
596647.5	2359818.2	0.06709	1167	21	0	1188	1098	1167
597647.5	2357818.2	0.06704	1168	21	0	1189	1099	1168
597897.5	2357068.2	0.06704	1169	21	0	1190	1100	1169
591147.5	2364568.2	0.06693	1170	21	0	1191	1101	1170
591147.5	2364318.2	0.06691	1171	21	0	1192	1102	1171
589147.5	2364818.2	0.06686	1172	21	0	1193	1103	1172
597397.5	2358318.2	0.06684	1173	21	0	1194	1104	1173
596897.5	2359818.2	0.06677	1174	21	0	1195	1105	1174
595647.5	2364568.2	0.06676	1175	21	0	1196	1106	1175
597397.5	2356068.2	0.06664	1176	21	0	1197	1107	1176
592147.5	2364068.2	0.0665	1177	21	0	1198	1108	1177
597397.5	2358568.2	0.06649	1178	21	0	1199	1109	1178
597147.5	2358568.2	0.06649	1179	21	0	1200	1110	1179
592397.5	2365318.2	0.06644	1180	21	0	1201	1111	1180
596897.5	2363568.2	0.06633	1181	21	0	1202	1112	1181
596647.5	2360318.2	0.06629	1182	21	0	1203	1113	1182
592147.5	2365818.2	0.06627	1183	21	0	1204	1114	1183
589897.5	2364818.2	0.06625	1184	21	0	1205	1115	1184
597147.5	2360568.2	0.06622	1185	21	0	1206	1116	1185
597897.5	2357568.2	0.06621	1186	21	0	1207	1117	1186
596147.5	2360318.2	0.0662	1187	21	0	1208	1118	1187
598397.5	2365068.2	0.06619	1188	21	0	1209	1119	1188
595397.5	2364568.2	0.06612	1189	21	0	1210	1120	1189
595647.5	2366818.2	0.06604	1190	21	0	1211	1121	1190
597397.5	2359318.2	0.066	1191	21	0	1212	1122	1191
591897.5	2364318.2	0.06579	1192	21	0	1213	1123	1192
598147.5	2357318.2	0.06576	1193	21	0	1214	1124	1193
589397.5	2364568.2	0.06573	1194	21	0	1215	1125	1194
596147.5	2361318.2	0.06568	1195	21	0	1216	1126	1195
597397.5	2356568.2	0.06564	1196	21	0	1217	1127	1196
596147.5	2360818.2	0.0656	1197	21	0	1218	1128	1197
596897.5	2362818.2	0.06558	1198	21	0	1219	1129	1198
589897.5	2365818.2	0.06553	1199	21	0	1220	1130	1199
596647.5	2360568.2	0.0655	1200	21	0	1221	1131	1200
592397.5	2364068.2	0.06542	1201	21	0	1222	1132	1201
597647.5	2356818.2	0.06531	1202	21	0	1223	1133	1202
595147.5	2364568.2	0.0653	1203	21	0	1224	1134	1203
595647.5	2367318.2	0.06529	1204	21	0	1225	1135	1204
597647.5	2356318.2	0.06519	1205	21	0	1226	1136	1205
597397.5	2358818.2	0.06513	1206	21	0	1227	1137	1206
592397.5	2365568.2	0.06513	1207	21	0	1228	1138	1207
596397.5	2360568.2	0.06505	1208	21	0	1229	1139	1208
596897.5	2360068.2	0.065	1209	21	0	1230	1140	1209
596647.5	2361818.2	0.06494	1210	21	0	1231	1141	1210

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
595647.5	2367068.2	0.06488	1211	21	0	1232	1142	1211
594147.5	2364068.2	0.06488	1212	21	0	1233	1143	1212
594647.5	2364568.2	0.06487	1213	21	0	1234	1144	1213
589647.5	2364318.2	0.06478	1214	21	0	1235	1145	1214
596147.5	2361068.2	0.06474	1215	21	0	1236	1146	1215
597647.5	2358068.2	0.0647	1216	21	0	1237	1147	1216
595397.5	2365318.2	0.06463	1217	21	0	1238	1148	1217
589897.5	2365068.2	0.0646	1218	21	0	1239	1149	1218
589647.5	2364818.2	0.06454	1219	21	0	1240	1150	1219
589647.5	2364568.2	0.06447	1220	21	0	1241	1151	1220
597147.5	2359318.2	0.06446	1221	21	0	1242	1152	1221
597897.5	2357818.2	0.06437	1222	21	0	1243	1153	1222
589647.5	2365068.2	0.06429	1223	21	0	1244	1154	1223
596647.5	2360818.2	0.06415	1224	21	0	1245	1155	1224
597397.5	2364568.2	0.0641	1225	21	0	1246	1156	1225
594397.5	2364318.2	0.06409	1226	21	0	1247	1157	1226
599147.5	2365818.2	0.06406	1227	21	0	1248	1158	1227
596897.5	2360568.2	0.06404	1228	21	0	1249	1159	1228
595147.5	2365318.2	0.06394	1229	21	0	1250	1160	1229
597647.5	2355818.2	0.06393	1230	21	0	1251	1161	1230
597147.5	2359818.2	0.06386	1231	21	0	1252	1162	1231
600397.5	2367068.2	0.0638	1232	21	0	1253	1163	1232
592147.5	2366318.2	0.06378	1233	21	0	1254	1164	1233
591897.5	2366068.2	0.06373	1234	21	0	1255	1165	1234
596397.5	2360818.2	0.06361	1235	21	0	1256	1166	1235
597647.5	2358318.2	0.0636	1236	21	0	1257	1167	1236
596897.5	2359318.2	0.06352	1237	21	0	1258	1168	1237
595397.5	2367068.2	0.06348	1238	21	0	1259	1169	1238
589647.5	2365318.2	0.06345	1239	21	0	1260	1170	1239
595647.5	2366318.2	0.06342	1240	21	0	1261	1171	1240
598147.5	2357568.2	0.06338	1241	21	0	1262	1172	1241
597397.5	2360818.2	0.06337	1242	21	0	1263	1173	1242
590647.5	2365318.2	0.06336	1243	21	0	1264	1174	1243
592147.5	2367068.2	0.06333	1244	21	0	1265	1175	1244
594897.5	2364568.2	0.06331	1245	21	0	1266	1176	1245
597147.5	2360818.2	0.06322	1246	21	0	1267	1177	1246
600647.5	2367318.2	0.06318	1247	21	0	1268	1178	1247
590647.5	2365568.2	0.06317	1248	21	0	1269	1179	1248
589147.5	2365068.2	0.06308	1249	21	0	1270	1180	1249
597147.5	2360318.2	0.06297	1250	21	0	1271	1181	1250
594897.5	2367068.2	0.06294	1251	21	0	1272	1182	1251
594147.5	2364568.2	0.06284	1252	21	0	1273	1183	1252
597647.5	2358568.2	0.06276	1253	21	0	1274	1184	1253
594897.5	2364818.2	0.06275	1254	21	0	1275	1185	1254
599647.5	2366318.2	0.06274	1255	21	0	1276	1186	1255
592897.5	2363818.2	0.06274	1256	21	0	1277	1187	1256
597147.5	2360068.2	0.06273	1257	21	0	1278	1188	1257
590647.5	2365818.2	0.0627	1258	21	0	1279	1189	1258
596897.5	2360818.2	0.06266	1259	21	0	1280	1190	1259
590147.5	2364818.2	0.06265	1260	21	0	1281	1191	1260
595147.5	2366068.2	0.06261	1261	21	0	1282	1192	1261
596897.5	2361068.2	0.06247	1262	21	0	1283	1193	1262
588897.5	2365318.2	0.06246	1263	21	0	1284	1194	1263
597147.5	2363818.2	0.0624	1264	21	0	1285	1195	1264
596397.5	2361068.2	0.06231	1265	21	0	1286	1196	1265

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
589647.5	2366568.2	0.06229	1266	21	0	1287	1197	1266
589647.5	2365568.2	0.06227	1267	21	0	1288	1198	1267
598397.5	2357318.2	0.06221	1268	21	0	1289	1199	1268
598897.5	2365568.2	0.06219	1269	21	0	1290	1200	1269
597647.5	2359318.2	0.06217	1270	21	0	1291	1201	1270
597647.5	2359568.2	0.06215	1271	21	0	1292	1202	1271
597397.5	2361068.2	0.06211	1272	21	0	1293	1203	1272
595147.5	2366318.2	0.0621	1273	21	0	1294	1204	1273
597147.5	2361068.2	0.06208	1274	21	0	1295	1205	1274
597897.5	2364568.2	0.06207	1275	21	0	1296	1206	1275
595397.5	2364818.2	0.062	1276	21	0	1297	1207	1276
596647.5	2361068.2	0.06199	1277	21	0	1298	1208	1277
595397.5	2365068.2	0.06195	1278	21	0	1299	1209	1278
597897.5	2358068.2	0.06193	1279	21	0	1300	1210	1279
597647.5	2359068.2	0.06191	1280	21	0	1301	1211	1280
599897.5	2366568.2	0.06189	1281	21	0	1302	1212	1281
597397.5	2360068.2	0.06188	1282	21	0	1303	1213	1282
589397.5	2364818.2	0.06188	1283	21	0	1304	1214	1283
599397.5	2366318.2	0.06179	1284	21	0	1305	1215	1284
593647.5	2363818.2	0.06174	1285	21	0	1306	1216	1285
596897.5	2363318.2	0.06174	1286	21	0	1307	1217	1286
589897.5	2365318.2	0.06172	1287	21	0	1308	1218	1287
597897.5	2359818.2	0.06171	1288	21	0	1309	1219	1288
599147.5	2366068.2	0.0617	1289	21	0	1310	1220	1289
597897.5	2359568.2	0.0617	1290	21	0	1311	1221	1290
594897.5	2366568.2	0.06167	1291	21	0	1312	1222	1291
595397.5	2365568.2	0.06162	1292	21	0	1313	1223	1292
597397.5	2359568.2	0.06159	1293	21	0	1314	1224	1293
595147.5	2366568.2	0.06158	1294	21	0	1315	1225	1294
597397.5	2360568.2	0.06154	1295	21	0	1316	1226	1295
597647.5	2356068.2	0.0615	1296	21	0	1317	1227	1296
590397.5	2365318.2	0.06143	1297	21	0	1318	1228	1297
595147.5	2364818.2	0.06141	1298	21	0	1319	1229	1298
589897.5	2366318.2	0.06139	1299	21	0	1320	1230	1299
590397.5	2365568.2	0.06136	1300	21	0	1321	1231	1300
597897.5	2356318.2	0.06133	1301	21	0	1322	1232	1301
589397.5	2365568.2	0.06131	1302	21	0	1323	1233	1302
592397.5	2366818.2	0.06127	1303	21	0	1324	1234	1303
597397.5	2361318.2	0.06126	1304	21	0	1325	1235	1304
592397.5	2366568.2	0.06126	1305	21	0	1326	1236	1305
589397.5	2365318.2	0.06126	1306	21	0	1327	1237	1306
597897.5	2356818.2	0.0612	1307	21	0	1328	1238	1307
592147.5	2367318.2	0.06114	1308	21	0	1329	1239	1308
592397.5	2366318.2	0.06113	1309	21	0	1330	1240	1309
595397.5	2365818.2	0.06113	1310	21	0	1331	1241	1310
593397.5	2363818.2	0.06113	1311	21	0	1332	1242	1311
597147.5	2361318.2	0.06108	1312	21	0	1333	1243	1312
597647.5	2361068.2	0.06093	1313	21	0	1334	1244	1313
595147.5	2365068.2	0.06088	1314	21	0	1335	1245	1314
589397.5	2365068.2	0.06086	1315	21	0	1336	1246	1315
598147.5	2357068.2	0.06082	1316	21	0	1337	1247	1316
590397.5	2365068.2	0.06081	1317	21	0	1338	1248	1317
597897.5	2358568.2	0.06079	1318	21	0	1339	1249	1318
597647.5	2364318.2	0.06076	1319	21	0	1340	1250	1319
597397.5	2361568.2	0.06066	1320	21	0	1341	1251	1320

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
598147.5	2359818.2	0.06057	1321	21	0	1342	1252	1321
595147.5	2367068.2	0.06053	1322	21	0	1343	1253	1322
590397.5	2365818.2	0.06053	1323	21	0	1344	1254	1323
598397.5	2360068.2	0.06049	1324	21	0	1345	1255	1324
596647.5	2361318.2	0.06048	1325	21	0	1346	1256	1325
597647.5	2360318.2	0.06042	1326	21	0	1347	1257	1326
600147.5	2366818.2	0.06039	1327	21	0	1348	1258	1327
597147.5	2359568.2	0.06027	1328	21	0	1349	1259	1328
597897.5	2358318.2	0.06026	1329	21	0	1350	1260	1329
597647.5	2361318.2	0.0602	1330	21	0	1351	1261	1330
593397.5	2364068.2	0.06019	1331	21	0	1352	1262	1331
598147.5	2360068.2	0.06017	1332	21	0	1353	1263	1332
596897.5	2361818.2	0.06013	1333	21	0	1354	1264	1333
597647.5	2361568.2	0.06013	1334	21	0	1355	1265	1334
595147.5	2367318.2	0.06004	1335	21	0	1356	1266	1335
590147.5	2365068.2	0.05997	1336	21	0	1357	1267	1336
597647.5	2361818.2	0.05991	1337	21	0	1358	1268	1337
589147.5	2365318.2	0.05988	1338	21	0	1359	1269	1338
597647.5	2358818.2	0.05988	1339	21	0	1360	1270	1339
595147.5	2365568.2	0.05984	1340	21	0	1361	1271	1340
594397.5	2364568.2	0.05982	1341	21	0	1362	1272	1341
591647.5	2364568.2	0.05971	1342	21	0	1363	1273	1342
597647.5	2359818.2	0.05971	1343	21	0	1364	1274	1343
598647.5	2360318.2	0.0597	1344	21	0	1365	1275	1344
597647.5	2360818.2	0.05969	1345	21	0	1366	1276	1345
597147.5	2361568.2	0.05966	1346	21	0	1367	1277	1346
598147.5	2358068.2	0.05966	1347	21	0	1368	1278	1347
598397.5	2357568.2	0.05966	1348	21	0	1369	1279	1348
588897.5	2365568.2	0.05965	1349	21	0	1370	1280	1349
600647.5	2367068.2	0.05959	1350	21	0	1371	1281	1350
592397.5	2364318.2	0.05957	1351	21	0	1372	1282	1351
592397.5	2365818.2	0.05956	1352	21	0	1373	1283	1352
596897.5	2361318.2	0.05952	1353	21	0	1374	1284	1353
592897.5	2364068.2	0.05949	1354	21	0	1375	1285	1354
592647.5	2364318.2	0.05948	1355	21	0	1376	1286	1355
592147.5	2364318.2	0.05946	1356	21	0	1377	1287	1356
590397.5	2367318.2	0.05944	1357	21	0	1378	1288	1357
593147.5	2363818.2	0.05941	1358	21	0	1379	1289	1358
593397.5	2364318.2	0.0594	1359	21	0	1380	1290	1359
597897.5	2359318.2	0.05939	1360	21	0	1381	1291	1360
594647.5	2364818.2	0.05934	1361	21	0	1382	1292	1361
590147.5	2365318.2	0.05932	1362	21	0	1383	1293	1362
597397.5	2361818.2	0.05928	1363	21	0	1384	1294	1363
594897.5	2365318.2	0.05927	1364	21	0	1385	1295	1364
597647.5	2356568.2	0.05926	1365	21	0	1386	1296	1365
596897.5	2361568.2	0.05924	1366	21	0	1387	1297	1366
595147.5	2365818.2	0.05921	1367	21	0	1388	1298	1367
592397.5	2367068.2	0.0592	1368	21	0	1389	1299	1368
588897.5	2365818.2	0.05914	1369	21	0	1390	1300	1369
597897.5	2355818.2	0.05913	1370	21	0	1391	1301	1370
595397.5	2366318.2	0.05911	1371	21	0	1392	1302	1371
589647.5	2366818.2	0.05902	1372	21	0	1393	1303	1372
588897.5	2366068.2	0.05897	1373	21	0	1394	1304	1373
597897.5	2362068.2	0.05893	1374	21	0	1395	1305	1374
590147.5	2366818.2	0.05884	1375	21	0	1396	1306	1375

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
598147.5	2357818.2	0.05881	1376	21	0	1397	1307	1376
597897.5	2360568.2	0.05875	1377	21	0	1398	1308	1377
591897.5	2364568.2	0.05873	1378	21	0	1399	1309	1378
597897.5	2361818.2	0.05871	1379	21	0	1400	1310	1379
597647.5	2362068.2	0.0587	1380	21	0	1401	1311	1380
599647.5	2366068.2	0.05867	1381	21	0	1402	1312	1381
594897.5	2367318.2	0.05866	1382	21	0	1403	1313	1382
598147.5	2356318.2	0.05851	1383	21	0	1404	1314	1383
597897.5	2361568.2	0.05846	1384	21	0	1405	1315	1384
594897.5	2365568.2	0.05844	1385	21	0	1406	1316	1385
589147.5	2366068.2	0.05843	1386	21	0	1407	1317	1386
592897.5	2364318.2	0.05843	1387	21	0	1408	1318	1387
594897.5	2365068.2	0.0584	1388	21	0	1409	1319	1388
590147.5	2365818.2	0.05836	1389	21	0	1410	1320	1389
595397.5	2366818.2	0.05835	1390	21	0	1411	1321	1390
597397.5	2360318.2	0.05832	1391	21	0	1412	1322	1391
593147.5	2364068.2	0.05832	1392	21	0	1413	1323	1392
596897.5	2362568.2	0.05832	1393	21	0	1414	1324	1393
589897.5	2365568.2	0.05826	1394	21	0	1415	1325	1394
589147.5	2365818.2	0.0582	1395	21	0	1416	1326	1395
589897.5	2367068.2	0.05818	1396	21	0	1417	1327	1396
590147.5	2365568.2	0.05815	1397	21	0	1418	1328	1397
597897.5	2362318.2	0.05808	1398	21	0	1419	1329	1398
598147.5	2359568.2	0.05804	1399	21	0	1420	1330	1399
598397.5	2360318.2	0.05803	1400	21	0	1421	1331	1400
592397.5	2367318.2	0.05796	1401	21	0	1422	1332	1401
597397.5	2359818.2	0.0579	1402	21	0	1423	1333	1402
588897.5	2366318.2	0.05785	1403	21	0	1424	1334	1403
593647.5	2364318.2	0.05781	1404	21	0	1425	1335	1404
598147.5	2362318.2	0.05778	1405	21	0	1426	1336	1405
589147.5	2366318.2	0.05777	1406	21	0	1427	1337	1406
595397.5	2366068.2	0.05775	1407	21	0	1428	1338	1407
598897.5	2360568.2	0.05771	1408	21	0	1429	1339	1408
598147.5	2358318.2	0.05764	1409	21	0	1430	1340	1409
593647.5	2364568.2	0.0576	1410	21	0	1431	1341	1410
597897.5	2358818.2	0.05759	1411	21	0	1432	1342	1411
597897.5	2359068.2	0.05757	1412	21	0	1433	1343	1412
595397.5	2367318.2	0.05756	1413	21	0	1434	1344	1413
592897.5	2364568.2	0.05754	1414	21	0	1435	1345	1414
598397.5	2359818.2	0.05749	1415	21	0	1436	1346	1415
588897.5	2366568.2	0.05745	1416	21	0	1437	1347	1416
598147.5	2362068.2	0.05741	1417	21	0	1438	1348	1417
600397.5	2366818.2	0.05731	1418	21	0	1439	1349	1418
592647.5	2366568.2	0.0573	1419	21	0	1440	1350	1419
593147.5	2364318.2	0.05728	1420	21	0	1441	1351	1420
590147.5	2367068.2	0.0572	1421	21	0	1442	1352	1421
598647.5	2365318.2	0.05719	1422	21	0	1443	1353	1422
597897.5	2360068.2	0.05716	1423	21	0	1444	1354	1423
600147.5	2366568.2	0.05715	1424	21	0	1445	1355	1424
599897.5	2366068.2	0.05713	1425	21	0	1446	1356	1425
598647.5	2360068.2	0.05713	1426	21	0	1447	1357	1426
597397.5	2364068.2	0.05707	1427	21	0	1448	1358	1427
592147.5	2366068.2	0.05704	1428	21	0	1449	1359	1428
597397.5	2362068.2	0.05704	1429	21	0	1450	1360	1429
595147.5	2366818.2	0.05694	1430	21	0	1451	1361	1430

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
594397.5	2364818.2	0.05694	1431	21	0	1452	1362	1431
589147.5	2366568.2	0.05693	1432	21	0	1453	1363	1432
597147.5	2363068.2	0.05688	1433	21	0	1454	1364	1433
594647.5	2365068.2	0.05684	1434	21	0	1455	1365	1434
597147.5	2361818.2	0.05683	1435	21	0	1456	1366	1435
598147.5	2358818.2	0.05682	1436	21	0	1457	1367	1436
598647.5	2357568.2	0.0568	1437	21	0	1458	1368	1437
597647.5	2362318.2	0.05678	1438	21	0	1459	1369	1438
598147.5	2362568.2	0.05676	1439	21	0	1460	1370	1439
594897.5	2366068.2	0.05676	1440	21	0	1461	1371	1440
594647.5	2365818.2	0.05673	1441	21	0	1462	1372	1441
597897.5	2356068.2	0.05673	1442	21	0	1463	1373	1442
598147.5	2358568.2	0.05669	1443	21	0	1464	1374	1443
597147.5	2362068.2	0.05666	1444	21	0	1465	1375	1444
598897.5	2360318.2	0.05664	1445	21	0	1466	1376	1445
593647.5	2364818.2	0.05663	1446	21	0	1467	1377	1446
598647.5	2357318.2	0.05663	1447	21	0	1468	1378	1447
588897.5	2366818.2	0.05659	1448	21	0	1469	1379	1448
599147.5	2360818.2	0.05657	1449	21	0	1470	1380	1449
597897.5	2361318.2	0.05655	1450	21	0	1471	1381	1450
593897.5	2364818.2	0.05655	1451	21	0	1472	1382	1451
598397.5	2362568.2	0.05645	1452	21	0	1473	1383	1452
597897.5	2362568.2	0.05645	1453	21	0	1474	1384	1453
598397.5	2358068.2	0.05627	1454	21	0	1475	1385	1454
594897.5	2365818.2	0.05626	1455	21	0	1476	1386	1455
594397.5	2365068.2	0.05625	1456	21	0	1477	1387	1456
599147.5	2360568.2	0.05623	1457	21	0	1478	1388	1457
592647.5	2366818.2	0.05622	1458	21	0	1479	1389	1458
593147.5	2364568.2	0.05609	1459	21	0	1480	1390	1459
595897.5	2365818.2	0.05607	1460	21	0	1481	1391	1460
598147.5	2356818.2	0.05601	1461	21	0	1482	1392	1461
598647.5	2360568.2	0.056	1462	21	0	1483	1393	1462
598397.5	2357818.2	0.05599	1463	21	0	1484	1394	1463
589147.5	2366818.2	0.05592	1464	21	0	1485	1395	1464
592647.5	2364568.2	0.05592	1465	21	0	1486	1396	1465
598397.5	2362818.2	0.05591	1466	21	0	1487	1397	1466
594647.5	2365318.2	0.05585	1467	21	0	1488	1398	1467
595647.5	2365818.2	0.05572	1468	21	0	1489	1399	1468
593647.5	2365068.2	0.05569	1469	21	0	1490	1400	1469
595897.5	2366068.2	0.05569	1470	21	0	1491	1401	1470
592147.5	2364818.2	0.05566	1471	21	0	1492	1402	1471
597897.5	2356568.2	0.05566	1472	21	0	1493	1403	1472
599397.5	2360818.2	0.05565	1473	21	0	1494	1404	1473
598147.5	2362818.2	0.0556	1474	21	0	1495	1405	1474
588897.5	2367068.2	0.05555	1475	21	0	1496	1406	1475
599397.5	2366068.2	0.05552	1476	21	0	1497	1407	1476
598147.5	2359318.2	0.05552	1477	21	0	1498	1408	1477
598397.5	2357068.2	0.05552	1478	21	0	1499	1409	1478
592647.5	2364818.2	0.05551	1479	21	0	1500	1410	1479
589897.5	2366568.2	0.05549	1480	21	0	1501	1411	1480
593397.5	2364568.2	0.05547	1481	21	0	1502	1412	1481
596897.5	2362068.2	0.05544	1482	21	0	1503	1413	1482
599897.5	2366318.2	0.05542	1483	21	0	1504	1414	1483
597397.5	2362318.2	0.05541	1484	21	0	1505	1415	1484
597147.5	2363318.2	0.05539	1485	21	0	1506	1416	1485

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
592147.5	2364568.2	0.05536	1486	21	0	1507	1417	1486
597647.5	2360068.2	0.05533	1487	21	0	1508	1418	1487
599647.5	2365818.2	0.05529	1488	21	0	1509	1419	1488
598147.5	2361818.2	0.05528	1489	21	0	1510	1420	1489
598397.5	2358318.2	0.05523	1490	21	0	1511	1421	1490
594897.5	2366318.2	0.05522	1491	21	0	1512	1422	1491
593147.5	2364818.2	0.0552	1492	21	0	1513	1423	1492
597147.5	2362318.2	0.0552	1493	21	0	1514	1424	1493
597897.5	2361068.2	0.05517	1494	21	0	1515	1425	1494
592647.5	2367068.2	0.05511	1495	21	0	1516	1426	1495
599647.5	2361068.2	0.0551	1496	21	0	1517	1427	1496
594147.5	2364818.2	0.05509	1497	21	0	1518	1428	1497
592397.5	2364568.2	0.05508	1498	21	0	1519	1429	1498
598147.5	2359068.2	0.05501	1499	21	0	1520	1430	1499
598647.5	2363068.2	0.05499	1500	21	0	1521	1431	1500
599397.5	2361068.2	0.05487	1501	21	0	1522	1432	1501
598147.5	2360318.2	0.05485	1502	21	0	1523	1433	1502
598147.5	2355818.2	0.05484	1503	21	0	1524	1434	1503
598647.5	2357818.2	0.05482	1504	21	0	1525	1435	1504
597647.5	2362568.2	0.05481	1505	21	0	1526	1436	1505
589147.5	2367068.2	0.0548	1506	21	0	1527	1437	1506
598397.5	2363068.2	0.05475	1507	21	0	1528	1438	1507
595647.5	2366068.2	0.05472	1508	21	0	1529	1439	1508
594647.5	2365568.2	0.05468	1509	21	0	1530	1440	1509
594647.5	2366568.2	0.05467	1510	21	0	1531	1441	1510
594397.5	2365818.2	0.05464	1511	21	0	1532	1442	1511
593397.5	2364818.2	0.05463	1512	21	0	1533	1443	1512
598397.5	2362318.2	0.05457	1513	21	0	1534	1444	1513
598397.5	2358568.2	0.05455	1514	21	0	1535	1445	1514
592647.5	2365318.2	0.05449	1515	21	0	1536	1446	1515
599397.5	2365818.2	0.05444	1516	21	0	1537	1447	1516
588897.5	2367318.2	0.0543	1517	21	0	1538	1448	1517
597147.5	2363568.2	0.05425	1518	21	0	1539	1449	1518
594897.5	2366818.2	0.05424	1519	21	0	1540	1450	1519
597397.5	2362568.2	0.0542	1520	21	0	1541	1451	1520
599897.5	2361318.2	0.05419	1521	21	0	1542	1452	1521
597897.5	2362818.2	0.05416	1522	21	0	1543	1453	1522
589147.5	2367318.2	0.05415	1523	21	0	1544	1454	1523
598647.5	2362818.2	0.05414	1524	21	0	1545	1455	1524
592647.5	2366318.2	0.05413	1525	21	0	1546	1456	1525
594147.5	2365068.2	0.05411	1526	21	0	1547	1457	1526
598397.5	2356318.2	0.05411	1527	21	0	1548	1458	1527
597397.5	2363568.2	0.05404	1528	21	0	1549	1459	1528
598897.5	2360818.2	0.05396	1529	21	0	1550	1460	1529
592647.5	2367318.2	0.05394	1530	21	0	1551	1461	1530
589647.5	2367068.2	0.05392	1531	21	0	1552	1462	1531
598647.5	2358318.2	0.05384	1532	21	0	1553	1463	1532
593397.5	2365068.2	0.05381	1533	21	0	1554	1464	1533
594397.5	2366318.2	0.0538	1534	21	0	1555	1465	1534
598897.5	2363318.2	0.05371	1535	21	0	1556	1466	1535
598647.5	2363318.2	0.05367	1536	21	0	1557	1467	1536
594397.5	2365318.2	0.05364	1537	21	0	1558	1468	1537
594147.5	2366318.2	0.05362	1538	21	0	1559	1469	1538
597897.5	2360318.2	0.05352	1539	21	0	1560	1470	1539
597897.5	2364318.2	0.0535	1540	21	0	1561	1471	1540

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
598647.5	2358068.2	0.05349	1541	21	0	1562	1472	1541
593897.5	2365068.2	0.05337	1542	21	0	1563	1473	1542
599147.5	2365568.2	0.05336	1543	21	0	1564	1474	1543
592897.5	2364818.2	0.05336	1544	21	0	1565	1475	1544
592397.5	2365068.2	0.05335	1545	21	0	1566	1476	1545
597897.5	2365068.2	0.05334	1546	21	0	1567	1477	1546
598147.5	2356568.2	0.05331	1547	21	0	1568	1478	1547
598147.5	2363068.2	0.05328	1548	21	0	1569	1479	1548
592647.5	2365818.2	0.05322	1549	21	0	1570	1480	1549
592647.5	2365568.2	0.05322	1550	21	0	1571	1481	1550
597147.5	2362568.2	0.05321	1551	21	0	1572	1482	1551
598397.5	2359568.2	0.05321	1552	21	0	1573	1483	1552
598397.5	2364818.2	0.0532	1553	21	0	1574	1484	1553
599647.5	2361318.2	0.05317	1554	21	0	1575	1485	1554
594147.5	2365318.2	0.05316	1555	21	0	1576	1486	1555
599147.5	2360318.2	0.05311	1556	21	0	1577	1487	1556
593397.5	2365318.2	0.053	1557	21	0	1578	1488	1557
598147.5	2360818.2	0.05298	1558	21	0	1579	1489	1558
594647.5	2367068.2	0.05295	1559	21	0	1580	1490	1559
597397.5	2363818.2	0.05295	1560	21	0	1581	1491	1560
598397.5	2358818.2	0.05294	1561	21	0	1582	1492	1561
594147.5	2366568.2	0.05288	1562	21	0	1583	1493	1562
597147.5	2362818.2	0.05286	1563	21	0	1584	1494	1563
597647.5	2364068.2	0.05283	1564	21	0	1585	1495	1564
600147.5	2361568.2	0.05281	1565	21	0	1586	1496	1565
598397.5	2360568.2	0.0528	1566	21	0	1587	1497	1566
598897.5	2363568.2	0.05275	1567	21	0	1588	1498	1567
594397.5	2365568.2	0.05274	1568	21	0	1589	1499	1568
597647.5	2360568.2	0.05274	1569	21	0	1590	1500	1569
598897.5	2357568.2	0.05273	1570	21	0	1591	1501	1570
598397.5	2359068.2	0.05269	1571	21	0	1592	1502	1571
598397.5	2363318.2	0.05268	1572	21	0	1593	1503	1572
599397.5	2361318.2	0.05267	1573	21	0	1594	1504	1573
599147.5	2361068.2	0.05265	1574	21	0	1595	1505	1574
597397.5	2362818.2	0.05257	1575	21	0	1596	1506	1575
599897.5	2361568.2	0.05252	1576	21	0	1597	1507	1576
598147.5	2361568.2	0.05251	1577	21	0	1598	1508	1577
599397.5	2360568.2	0.05248	1578	21	0	1599	1509	1578
598397.5	2359318.2	0.05243	1579	21	0	1600	1510	1579
598897.5	2360068.2	0.05234	1580	21	0	1601	1511	1580
594647.5	2367318.2	0.05233	1581	21	0	1602	1512	1581
598647.5	2359818.2	0.05231	1582	21	0	1603	1513	1582
597647.5	2362818.2	0.05225	1583	21	0	1604	1514	1583
594147.5	2365568.2	0.05222	1584	21	0	1605	1515	1584
594397.5	2367068.2	0.05221	1585	21	0	1606	1516	1585
598147.5	2356068.2	0.0522	1586	21	0	1607	1517	1586
599647.5	2361568.2	0.05209	1587	21	0	1608	1518	1587
598897.5	2357818.2	0.05208	1588	21	0	1609	1519	1588
594647.5	2366068.2	0.05201	1589	21	0	1610	1520	1589
600147.5	2361818.2	0.05196	1590	21	0	1611	1521	1590
598397.5	2362068.2	0.05195	1591	21	0	1612	1522	1591
597397.5	2363318.2	0.05193	1592	21	0	1613	1523	1592
593647.5	2365318.2	0.05189	1593	21	0	1614	1524	1593
597647.5	2363068.2	0.05186	1594	21	0	1615	1525	1594
597897.5	2363068.2	0.05186	1595	21	0	1616	1526	1595

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
598647.5	2360818.2	0.05185	1596	21	0	1617	1527	1596
598647.5	2362568.2	0.05184	1597	21	0	1618	1528	1597
599647.5	2360818.2	0.05184	1598	21	0	1619	1529	1598
599147.5	2363818.2	0.05183	1599	21	0	1620	1530	1599
598147.5	2363318.2	0.05176	1600	21	0	1621	1531	1600
600397.5	2361818.2	0.05175	1601	21	0	1622	1532	1601
598647.5	2363568.2	0.05173	1602	21	0	1623	1533	1602
600397.5	2362068.2	0.05166	1603	21	0	1624	1534	1603
589897.5	2366818.2	0.05164	1604	21	0	1625	1535	1604
593147.5	2365068.2	0.05159	1605	21	0	1626	1536	1605
598147.5	2360568.2	0.05159	1606	21	0	1627	1537	1606
600647.5	2362068.2	0.05156	1607	21	0	1628	1538	1607
594397.5	2366568.2	0.05151	1608	21	0	1629	1539	1608
592397.5	2364818.2	0.05147	1609	21	0	1630	1540	1609
594397.5	2367318.2	0.05146	1610	21	0	1631	1541	1610
598897.5	2357318.2	0.05146	1611	21	0	1632	1542	1611
594147.5	2367068.2	0.05143	1612	21	0	1633	1543	1612
598647.5	2365068.2	0.05143	1613	21	0	1634	1544	1613
599897.5	2361818.2	0.05143	1614	21	0	1635	1545	1614
598897.5	2363068.2	0.05141	1615	21	0	1636	1546	1615
594647.5	2366318.2	0.05139	1616	21	0	1637	1547	1616
598897.5	2358068.2	0.05139	1617	21	0	1638	1548	1617
599897.5	2361068.2	0.05135	1618	21	0	1639	1549	1618
600897.5	2367318.2	0.05135	1619	21	0	1640	1550	1619
593897.5	2365318.2	0.05135	1620	21	0	1641	1551	1620
594147.5	2365818.2	0.05131	1621	21	0	1642	1552	1621
598397.5	2356818.2	0.05129	1622	21	0	1643	1553	1622
598897.5	2361068.2	0.05121	1623	21	0	1644	1554	1623
598397.5	2363568.2	0.05121	1624	21	0	1645	1555	1624
598647.5	2358568.2	0.05118	1625	21	0	1646	1556	1625
600897.5	2362318.2	0.05117	1626	21	0	1647	1557	1626
599147.5	2363568.2	0.05111	1627	21	0	1648	1558	1627
592897.5	2366818.2	0.0511	1628	21	0	1649	1559	1628
600147.5	2361318.2	0.05103	1629	21	0	1650	1560	1629
597897.5	2360818.2	0.05099	1630	21	0	1651	1561	1630
597397.5	2363068.2	0.05097	1631	21	0	1652	1562	1631
600647.5	2362318.2	0.05091	1632	21	0	1653	1563	1632
593147.5	2365318.2	0.05084	1633	21	0	1654	1564	1633
598397.5	2355818.2	0.05082	1634	21	0	1655	1565	1634
594397.5	2366068.2	0.05081	1635	21	0	1656	1566	1635
598897.5	2363818.2	0.05079	1636	21	0	1657	1567	1636
600397.5	2361568.2	0.05078	1637	21	0	1658	1568	1637
599397.5	2364068.2	0.05077	1638	21	0	1659	1569	1638
593897.5	2365818.2	0.05076	1639	21	0	1660	1570	1639
598647.5	2363818.2	0.05075	1640	21	0	1661	1571	1640
592897.5	2366318.2	0.05074	1641	21	0	1662	1572	1641
598647.5	2358818.2	0.05073	1642	21	0	1663	1573	1642
599397.5	2361568.2	0.05066	1643	21	0	1664	1574	1643
600147.5	2362068.2	0.05062	1644	21	0	1665	1575	1644
598897.5	2358318.2	0.05058	1645	21	0	1666	1576	1645
598647.5	2361318.2	0.05053	1646	21	0	1667	1577	1646
594147.5	2366068.2	0.05045	1647	21	0	1668	1578	1647
600647.5	2361818.2	0.05045	1648	21	0	1669	1579	1648
598897.5	2361568.2	0.05045	1649	21	0	1670	1580	1649
598397.5	2361068.2	0.05043	1650	21	0	1671	1581	1650

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
599147.5	2361318.2	0.05043	1651	21	0	1672	1582	1651
598647.5	2359568.2	0.05043	1652	21	0	1673	1583	1652
598397.5	2360818.2	0.05042	1653	21	0	1674	1584	1653
592897.5	2367068.2	0.05036	1654	21	0	1675	1585	1654
598647.5	2359068.2	0.05035	1655	21	0	1676	1586	1655
600897.5	2362068.2	0.05034	1656	21	0	1677	1587	1656
598647.5	2357068.2	0.05032	1657	21	0	1678	1588	1657
601147.5	2362568.2	0.05031	1658	21	0	1679	1589	1658
600397.5	2362318.2	0.0503	1659	21	0	1680	1590	1659
598897.5	2358568.2	0.05029	1660	21	0	1681	1591	1660
597897.5	2363318.2	0.05026	1661	21	0	1682	1592	1661
599147.5	2357568.2	0.05022	1662	21	0	1683	1593	1662
592397.5	2366068.2	0.05018	1663	21	0	1684	1594	1663
598147.5	2361318.2	0.05016	1664	21	0	1685	1595	1664
598647.5	2356318.2	0.05013	1665	21	0	1686	1596	1665
599647.5	2361818.2	0.05011	1666	21	0	1687	1597	1666
593147.5	2365568.2	0.05009	1667	21	0	1688	1598	1667
597647.5	2363818.2	0.05009	1668	21	0	1689	1599	1668
600897.5	2362568.2	0.05005	1669	21	0	1690	1600	1669
599147.5	2361818.2	0.05001	1670	21	0	1691	1601	1670
592897.5	2366568.2	0.05	1671	21	0	1692	1602	1671
593897.5	2366068.2	0.04996	1672	21	0	1693	1603	1672
599147.5	2364068.2	0.04995	1673	21	0	1694	1604	1673
597897.5	2363568.2	0.0499	1674	21	0	1695	1605	1674
598897.5	2364068.2	0.04984	1675	21	0	1696	1606	1675
597647.5	2363318.2	0.04982	1676	21	0	1697	1607	1676
601147.5	2362318.2	0.04974	1677	21	0	1698	1608	1677
592897.5	2365068.2	0.04968	1678	21	0	1699	1609	1678
598647.5	2361068.2	0.04967	1679	21	0	1700	1610	1679
598147.5	2361068.2	0.04967	1680	21	0	1701	1611	1680
598397.5	2356568.2	0.04958	1681	21	0	1702	1612	1681
600647.5	2362568.2	0.04955	1682	21	0	1703	1613	1682
598397.5	2361818.2	0.04955	1683	21	0	1704	1614	1683
599147.5	2358068.2	0.04946	1684	21	0	1705	1615	1684
598897.5	2365318.2	0.0494	1685	21	0	1706	1616	1685
597897.5	2364818.2	0.0494	1686	21	0	1707	1617	1686
599397.5	2360318.2	0.04937	1687	21	0	1708	1618	1687
598147.5	2363568.2	0.04931	1688	21	0	1709	1619	1688
598397.5	2363818.2	0.0493	1689	21	0	1710	1620	1689
600897.5	2366818.2	0.04922	1690	21	0	1711	1621	1690
598897.5	2362818.2	0.04922	1691	21	0	1712	1622	1691
594647.5	2366818.2	0.0492	1692	21	0	1713	1623	1692
593897.5	2366318.2	0.04918	1693	21	0	1714	1624	1693
598647.5	2362318.2	0.04917	1694	21	0	1715	1625	1694
599397.5	2364318.2	0.04915	1695	21	0	1716	1626	1695
599147.5	2357818.2	0.04913	1696	21	0	1717	1627	1696
599897.5	2362068.2	0.04913	1697	21	0	1718	1628	1697
599397.5	2362068.2	0.04913	1698	21	0	1719	1629	1698
601147.5	2362818.2	0.0491	1699	21	0	1720	1630	1699
599647.5	2360568.2	0.04907	1700	21	0	1721	1631	1700
598647.5	2359318.2	0.04904	1701	21	0	1722	1632	1701
600897.5	2367068.2	0.04901	1702	21	0	1723	1633	1702
598647.5	2364068.2	0.04901	1703	21	0	1724	1634	1703
597647.5	2363568.2	0.04898	1704	21	0	1725	1635	1704
599147.5	2364568.2	0.04895	1705	21	0	1726	1636	1705

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
598897.5	2359068.2	0.04891	1706	21	0	1727	1637	1706
600147.5	2366318.2	0.0489	1707	21	0	1728	1638	1707
593397.5	2365568.2	0.0489	1708	21	0	1729	1639	1708
599147.5	2363318.2	0.04886	1709	21	0	1730	1640	1709
598897.5	2361318.2	0.04875	1710	21	0	1731	1641	1710
598397.5	2356068.2	0.04875	1711	21	0	1732	1642	1711
599897.5	2360818.2	0.04867	1712	21	0	1733	1643	1712
599397.5	2363818.2	0.04864	1713	21	0	1734	1644	1713
599397.5	2358068.2	0.0486	1714	21	0	1735	1645	1714
593647.5	2365568.2	0.04859	1715	21	0	1736	1646	1715
598897.5	2358818.2	0.04858	1716	21	0	1737	1647	1716
598897.5	2364318.2	0.04858	1717	21	0	1738	1648	1717
599647.5	2362068.2	0.04857	1718	21	0	1739	1649	1718
599147.5	2360068.2	0.04854	1719	21	0	1740	1650	1719
600897.5	2362818.2	0.04851	1720	21	0	1741	1651	1720
599147.5	2364318.2	0.04847	1721	21	0	1742	1652	1721
599397.5	2364818.2	0.04847	1722	21	0	1743	1653	1722
598397.5	2361318.2	0.04846	1723	21	0	1744	1654	1723
599647.5	2364318.2	0.04844	1724	21	0	1745	1655	1724
594397.5	2366818.2	0.04843	1725	21	0	1746	1656	1725
599647.5	2364568.2	0.04842	1726	21	0	1747	1657	1726
598147.5	2363818.2	0.04841	1727	21	0	1748	1658	1727
599147.5	2361568.2	0.04841	1728	21	0	1749	1659	1728
592897.5	2367318.2	0.04837	1729	21	0	1750	1660	1729
599647.5	2362318.2	0.0483	1730	21	0	1751	1661	1730
594147.5	2366818.2	0.04829	1731	21	0	1752	1662	1731
600647.5	2361568.2	0.04829	1732	21	0	1753	1663	1732
598897.5	2359818.2	0.04829	1733	21	0	1754	1664	1733
601147.5	2362068.2	0.04828	1734	21	0	1755	1665	1734
600147.5	2362318.2	0.04827	1735	21	0	1756	1666	1735
600397.5	2361318.2	0.04825	1736	21	0	1757	1667	1736
600147.5	2361068.2	0.04821	1737	21	0	1758	1668	1737
600897.5	2361818.2	0.04816	1738	21	0	1759	1669	1738
593897.5	2365568.2	0.04813	1739	21	0	1760	1670	1739
600397.5	2362818.2	0.04811	1740	21	0	1761	1671	1740
593147.5	2367068.2	0.0481	1741	21	0	1762	1672	1741
593397.5	2365818.2	0.04804	1742	21	0	1763	1673	1742
599397.5	2365068.2	0.04804	1743	21	0	1764	1674	1743
599897.5	2362318.2	0.04803	1744	21	0	1765	1675	1744
600397.5	2362568.2	0.04801	1745	21	0	1766	1676	1745
599147.5	2358568.2	0.048	1746	21	0	1767	1677	1746
599397.5	2361818.2	0.04797	1747	21	0	1768	1678	1747
600647.5	2366818.2	0.04793	1748	21	0	1769	1679	1748
598647.5	2356818.2	0.04788	1749	21	0	1770	1680	1749
599897.5	2365818.2	0.04785	1750	21	0	1771	1681	1750
597897.5	2364068.2	0.04783	1751	21	0	1772	1682	1751
599397.5	2364568.2	0.0478	1752	21	0	1773	1683	1752
601147.5	2363068.2	0.04777	1753	21	0	1774	1684	1753
592647.5	2366068.2	0.04775	1754	21	0	1775	1685	1754
600147.5	2362568.2	0.04769	1755	21	0	1776	1686	1755
598147.5	2364068.2	0.04765	1756	21	0	1777	1687	1756
600147.5	2365818.2	0.04761	1757	21	0	1778	1688	1757
600647.5	2363068.2	0.04761	1758	21	0	1779	1689	1758
599647.5	2365318.2	0.04755	1759	21	0	1780	1690	1759
598647.5	2362068.2	0.04755	1760	21	0	1781	1691	1760

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
593897.5	2366568.2	0.04753	1761	21	0	1782	1692	1761
598397.5	2361568.2	0.04752	1762	21	0	1783	1693	1762
598647.5	2361568.2	0.0475	1763	21	0	1784	1694	1763
599897.5	2364818.2	0.0475	1764	21	0	1785	1695	1764
598397.5	2364068.2	0.04748	1765	21	0	1786	1696	1765
599647.5	2365068.2	0.04745	1766	21	0	1787	1697	1766
593147.5	2367318.2	0.04744	1767	21	0	1788	1698	1767
599147.5	2358318.2	0.04742	1768	21	0	1789	1699	1768
599897.5	2362568.2	0.04738	1769	21	0	1790	1700	1769
599147.5	2358818.2	0.04735	1770	21	0	1791	1701	1770
597897.5	2363818.2	0.04732	1771	21	0	1792	1702	1771
598647.5	2355818.2	0.0473	1772	21	0	1793	1703	1772
598647.5	2356568.2	0.04728	1773	21	0	1794	1704	1773
601147.5	2367318.2	0.04722	1774	21	0	1795	1705	1774
601147.5	2367068.2	0.0472	1775	21	0	1796	1706	1775
600647.5	2362818.2	0.04717	1776	21	0	1797	1707	1776
599397.5	2360068.2	0.04717	1777	21	0	1798	1708	1777
598397.5	2364318.2	0.04704	1778	21	0	1799	1709	1778
599147.5	2359818.2	0.04703	1779	21	0	1800	1710	1779
598897.5	2359568.2	0.047	1780	21	0	1801	1711	1780
594147.5	2367318.2	0.04698	1781	21	0	1802	1712	1781
599147.5	2364818.2	0.04697	1782	21	0	1803	1713	1782
599897.5	2365568.2	0.04696	1783	21	0	1804	1714	1783
598647.5	2364318.2	0.04693	1784	21	0	1805	1715	1784
599647.5	2360318.2	0.0469	1785	21	0	1806	1716	1785
599647.5	2364818.2	0.04689	1786	21	0	1807	1717	1786
600147.5	2362818.2	0.04685	1787	21	0	1808	1718	1787
599397.5	2357568.2	0.04685	1788	21	0	1809	1719	1788
599397.5	2363568.2	0.04684	1789	21	0	1810	1720	1789
593647.5	2365818.2	0.04679	1790	21	0	1811	1721	1790
598897.5	2359318.2	0.04679	1791	21	0	1812	1722	1791
598897.5	2362568.2	0.04676	1792	21	0	1813	1723	1792
592647.5	2365068.2	0.04671	1793	21	0	1814	1724	1793
593897.5	2366818.2	0.0467	1794	21	0	1815	1725	1794
600897.5	2363318.2	0.04668	1795	21	0	1816	1726	1795
598897.5	2364568.2	0.04668	1796	21	0	1817	1727	1796
599147.5	2363068.2	0.04667	1797	21	0	1818	1728	1797
598897.5	2361818.2	0.04667	1798	21	0	1819	1729	1798
592897.5	2365568.2	0.04667	1799	21	0	1820	1730	1799
599647.5	2365568.2	0.04666	1800	21	0	1821	1731	1800
599647.5	2364068.2	0.04666	1801	21	0	1822	1732	1801
598897.5	2356318.2	0.04665	1802	21	0	1823	1733	1802
593147.5	2366818.2	0.04663	1803	21	0	1824	1734	1803
599397.5	2358318.2	0.04658	1804	21	0	1825	1735	1804
600397.5	2363068.2	0.04656	1805	21	0	1826	1736	1805
598147.5	2364568.2	0.04654	1806	21	0	1827	1737	1806
599397.5	2358568.2	0.04653	1807	21	0	1828	1738	1807
599147.5	2359318.2	0.04653	1808	21	0	1829	1739	1808
599397.5	2357818.2	0.04641	1809	21	0	1830	1740	1809
600147.5	2365318.2	0.04639	1810	21	0	1831	1741	1810
600397.5	2366568.2	0.04634	1811	21	0	1832	1742	1811
593147.5	2365818.2	0.04633	1812	21	0	1833	1743	1812
598647.5	2361818.2	0.04633	1813	21	0	1834	1744	1813
599647.5	2358068.2	0.04631	1814	21	0	1835	1745	1814
592897.5	2365318.2	0.04629	1815	21	0	1836	1746	1815

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
598397.5	2364568.2	0.04625	1816	21	0	1837	1747	1816
599147.5	2357318.2	0.04624	1817	21	0	1838	1748	1817
600897.5	2363068.2	0.04619	1818	21	0	1839	1749	1818
593897.5	2367318.2	0.04617	1819	21	0	1840	1750	1819
601147.5	2363568.2	0.04615	1820	21	0	1841	1751	1820
599897.5	2364568.2	0.04614	1821	21	0	1842	1752	1821
601147.5	2361818.2	0.04607	1822	21	0	1843	1753	1822
600897.5	2361568.2	0.04607	1823	21	0	1844	1754	1823
600647.5	2366568.2	0.04602	1824	21	0	1845	1755	1824
599897.5	2365068.2	0.046	1825	21	0	1846	1756	1825
600397.5	2366068.2	0.04598	1826	21	0	1847	1757	1826
600647.5	2361318.2	0.04597	1827	21	0	1848	1758	1827
593647.5	2366068.2	0.04592	1828	21	0	1849	1759	1828
599897.5	2360568.2	0.04592	1829	21	0	1850	1760	1829
598647.5	2364568.2	0.04591	1830	21	0	1851	1761	1830
599147.5	2362068.2	0.04587	1831	21	0	1852	1762	1831
593647.5	2366318.2	0.04585	1832	21	0	1853	1763	1832
600147.5	2360818.2	0.04583	1833	21	0	1854	1764	1833
600147.5	2365068.2	0.0458	1834	21	0	1855	1765	1834
593897.5	2367068.2	0.04579	1835	21	0	1856	1766	1835
599397.5	2365318.2	0.04577	1836	21	0	1857	1767	1836
598147.5	2364318.2	0.04574	1837	21	0	1858	1768	1837
600647.5	2363318.2	0.04573	1838	21	0	1859	1769	1838
598647.5	2356068.2	0.04572	1839	21	0	1860	1770	1839
600397.5	2366318.2	0.04568	1840	21	0	1861	1771	1840
600397.5	2361068.2	0.04566	1841	21	0	1862	1772	1841
598897.5	2357068.2	0.0456	1842	21	0	1863	1773	1842
600397.5	2365568.2	0.04554	1843	21	0	1864	1774	1843
599897.5	2365318.2	0.04549	1844	21	0	1865	1775	1844
599147.5	2359068.2	0.04546	1845	21	0	1866	1776	1845
600147.5	2366068.2	0.0454	1846	21	0	1867	1777	1846
599397.5	2358818.2	0.0454	1847	21	0	1868	1778	1847
600897.5	2366568.2	0.04528	1848	21	0	1869	1779	1848
598897.5	2362318.2	0.04527	1849	21	0	1870	1780	1849
598897.5	2362068.2	0.04519	1850	21	0	1871	1781	1850
601147.5	2366818.2	0.04517	1851	21	0	1872	1782	1851
599147.5	2365068.2	0.04514	1852	21	0	1873	1783	1852
601147.5	2363318.2	0.04512	1853	21	0	1874	1784	1853
599147.5	2356318.2	0.04512	1854	21	0	1875	1785	1854
598897.5	2356568.2	0.04509	1855	21	0	1876	1786	1855
598647.5	2364818.2	0.04508	1856	21	0	1877	1787	1856
599397.5	2362318.2	0.04507	1857	21	0	1878	1788	1857
592897.5	2365818.2	0.04503	1858	21	0	1879	1789	1858
598897.5	2364818.2	0.04499	1859	21	0	1880	1790	1859
599647.5	2363818.2	0.04492	1860	21	0	1881	1791	1860
599147.5	2362818.2	0.04478	1861	21	0	1882	1792	1861
598897.5	2365068.2	0.04463	1862	21	0	1883	1793	1862
599397.5	2365568.2	0.04459	1863	21	0	1884	1794	1863
600897.5	2363568.2	0.04457	1864	21	0	1885	1795	1864
593147.5	2366568.2	0.04451	1865	21	0	1886	1796	1865
593397.5	2366068.2	0.04449	1866	21	0	1887	1797	1866
599397.5	2363318.2	0.04448	1867	21	0	1888	1798	1867
599897.5	2360318.2	0.04448	1868	21	0	1889	1799	1868
599647.5	2358318.2	0.04444	1869	21	0	1890	1800	1869
600147.5	2365568.2	0.0444	1870	21	0	1891	1801	1870

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
599897.5	2364318.2	0.04438	1871	21	0	1892	1802	1871
599147.5	2359568.2	0.04433	1872	21	0	1893	1803	1872
599647.5	2362568.2	0.04421	1873	21	0	1894	1804	1873
599647.5	2358818.2	0.04421	1874	21	0	1895	1805	1874
600147.5	2364818.2	0.0441	1875	21	0	1896	1806	1875
599147.5	2362318.2	0.0441	1876	21	0	1897	1807	1876
599397.5	2359068.2	0.04407	1877	21	0	1898	1808	1877
592897.5	2366068.2	0.04397	1878	21	0	1899	1809	1878
600397.5	2365818.2	0.04397	1879	21	0	1900	1810	1879
600397.5	2360818.2	0.04394	1880	21	0	1901	1811	1880
600147.5	2358318.2	0.04385	1881	21	0	1902	1812	1881
601147.5	2363818.2	0.04384	1882	21	0	1903	1813	1882
593647.5	2366568.2	0.04382	1883	21	0	1904	1814	1883
599647.5	2360068.2	0.04378	1884	21	0	1905	1815	1884
600397.5	2365318.2	0.04374	1885	21	0	1906	1816	1885
599397.5	2359568.2	0.04373	1886	21	0	1907	1817	1886
598897.5	2356818.2	0.04371	1887	21	0	1908	1818	1887
599897.5	2358068.2	0.0437	1888	21	0	1909	1819	1888
601147.5	2366568.2	0.04369	1889	21	0	1910	1820	1889
599647.5	2358568.2	0.04365	1890	21	0	1911	1821	1890
599147.5	2365318.2	0.04364	1891	21	0	1912	1822	1891
599147.5	2362568.2	0.04357	1892	21	0	1913	1823	1892
599397.5	2356318.2	0.04356	1893	21	0	1914	1824	1893
593147.5	2366068.2	0.04353	1894	21	0	1915	1825	1894
601147.5	2361568.2	0.0435	1895	21	0	1916	1826	1895
600147.5	2360568.2	0.0435	1896	21	0	1917	1827	1896
599897.5	2358318.2	0.04348	1897	21	0	1918	1828	1897
599647.5	2357818.2	0.04347	1898	21	0	1919	1829	1898
599397.5	2359318.2	0.04346	1899	21	0	1920	1830	1899
600647.5	2366068.2	0.04345	1900	21	0	1921	1831	1900
600647.5	2365818.2	0.04343	1901	21	0	1922	1832	1901
598897.5	2356068.2	0.04343	1902	21	0	1923	1833	1902
600397.5	2363318.2	0.04342	1903	21	0	1924	1834	1903
600647.5	2366318.2	0.04336	1904	21	0	1925	1835	1904
599897.5	2362818.2	0.04332	1905	21	0	1926	1836	1905
600647.5	2363568.2	0.04331	1906	21	0	1927	1837	1906
599647.5	2357568.2	0.04331	1907	21	0	1928	1838	1907
599647.5	2359568.2	0.04329	1908	21	0	1929	1839	1908
593397.5	2366318.2	0.04316	1909	21	0	1930	1840	1909
599897.5	2364068.2	0.04315	1910	21	0	1931	1841	1910
600897.5	2361318.2	0.0431	1911	21	0	1932	1842	1911
599397.5	2362568.2	0.04307	1912	21	0	1933	1843	1912
593647.5	2366818.2	0.04304	1913	21	0	1934	1844	1913
600897.5	2366318.2	0.04299	1914	21	0	1935	1845	1914
599397.5	2363068.2	0.04297	1915	21	0	1936	1846	1915
600397.5	2358318.2	0.04294	1916	21	0	1937	1847	1916
600897.5	2366068.2	0.04294	1917	21	0	1938	1848	1917
599647.5	2363568.2	0.0427	1918	21	0	1939	1849	1918
600647.5	2361068.2	0.04266	1919	21	0	1940	1850	1919
600147.5	2364568.2	0.04265	1920	21	0	1941	1851	1920
600147.5	2363068.2	0.04265	1921	21	0	1942	1852	1921
599397.5	2362818.2	0.0426	1922	21	0	1943	1853	1922
593397.5	2366568.2	0.04259	1923	21	0	1944	1854	1923
593397.5	2366818.2	0.04257	1924	21	0	1945	1855	1924
601147.5	2366318.2	0.04249	1925	21	0	1946	1856	1925

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
599397.5	2357318.2	0.04249	1926	21	0	1947	1857	1926
599897.5	2358818.2	0.04246	1927	21	0	1948	1858	1927
599647.5	2359068.2	0.04235	1928	21	0	1949	1859	1928
593147.5	2366318.2	0.04228	1929	21	0	1950	1860	1929
600897.5	2363818.2	0.04226	1930	21	0	1951	1861	1930
600397.5	2365068.2	0.04223	1931	21	0	1952	1862	1931
599397.5	2359818.2	0.04222	1932	21	0	1953	1863	1932
599647.5	2362818.2	0.0422	1933	21	0	1954	1864	1933
599147.5	2356568.2	0.04204	1934	21	0	1955	1865	1934
599897.5	2358568.2	0.042	1935	21	0	1956	1866	1935
593647.5	2367068.2	0.04197	1936	21	0	1957	1867	1936
600647.5	2365568.2	0.04195	1937	21	0	1958	1868	1937
600147.5	2359068.2	0.04175	1938	21	0	1959	1869	1938
599647.5	2359818.2	0.04172	1939	21	0	1960	1870	1939
599897.5	2357818.2	0.0417	1940	21	0	1961	1871	1940
599647.5	2363068.2	0.04167	1941	21	0	1962	1872	1941
599147.5	2356068.2	0.04165	1942	21	0	1963	1873	1942
593647.5	2367318.2	0.04158	1943	21	0	1964	1874	1943
601147.5	2364068.2	0.04157	1944	21	0	1965	1875	1944
599147.5	2357068.2	0.04156	1945	21	0	1966	1876	1945
600397.5	2364818.2	0.04154	1946	21	0	1967	1877	1946
600147.5	2358068.2	0.04153	1947	21	0	1968	1878	1947
600647.5	2365318.2	0.04147	1948	21	0	1969	1879	1948
599647.5	2359318.2	0.04146	1949	21	0	1970	1880	1949
599897.5	2359818.2	0.04144	1950	21	0	1971	1881	1950
600647.5	2358318.2	0.04142	1951	21	0	1972	1882	1951
599897.5	2363068.2	0.04137	1952	21	0	1973	1883	1952
599647.5	2363318.2	0.04136	1953	21	0	1974	1884	1953
601147.5	2361318.2	0.04136	1954	21	0	1975	1885	1954
600647.5	2365068.2	0.04123	1955	21	0	1976	1886	1955
600647.5	2360818.2	0.04121	1956	21	0	1977	1887	1956
600147.5	2358568.2	0.04121	1957	21	0	1978	1888	1957
593397.5	2367068.2	0.04114	1958	21	0	1979	1889	1958
600897.5	2365818.2	0.04113	1959	21	0	1980	1890	1959
600897.5	2365568.2	0.0411	1960	21	0	1981	1891	1960
599897.5	2359068.2	0.04108	1961	21	0	1982	1892	1961
601147.5	2366068.2	0.04104	1962	21	0	1983	1893	1962
600147.5	2364318.2	0.04104	1963	21	0	1984	1894	1963
599897.5	2363818.2	0.04096	1964	21	0	1985	1895	1964
600397.5	2359068.2	0.04093	1965	21	0	1986	1896	1965
601147.5	2365818.2	0.04086	1966	21	0	1987	1897	1966
600897.5	2365318.2	0.04082	1967	21	0	1988	1898	1967
600647.5	2359318.2	0.0408	1968	21	0	1989	1899	1968
600397.5	2360568.2	0.04079	1969	21	0	1990	1900	1969
599897.5	2363318.2	0.04069	1970	21	0	1991	1901	1970
593397.5	2367318.2	0.04066	1971	21	0	1992	1902	1971
600897.5	2358318.2	0.04063	1972	21	0	1993	1903	1972
599897.5	2360068.2	0.04059	1973	21	0	1994	1904	1973
599647.5	2357318.2	0.04053	1974	21	0	1995	1905	1974
600897.5	2361068.2	0.04052	1975	21	0	1996	1906	1975
600147.5	2358818.2	0.04051	1976	21	0	1997	1907	1976
600147.5	2363318.2	0.04047	1977	21	0	1998	1908	1977
600397.5	2364568.2	0.04038	1978	21	0	1999	1909	1978
599897.5	2359318.2	0.0403	1979	21	0	2000	1910	1979
599897.5	2357568.2	0.0402	1980	21	0	2001	1911	1980

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
601147.5	2365568.2	0.0401	1981	21	0	2002	1912	1981
600397.5	2358568.2	0.0401	1982	21	0	2003	1913	1982
599897.5	2363568.2	0.04008	1983	21	0	2004	1914	1983
600147.5	2364068.2	0.04006	1984	21	0	2005	1915	1984
600897.5	2360568.2	0.04004	1985	21	0	2006	1916	1985
600397.5	2360318.2	0.04002	1986	21	0	2007	1917	1986
600147.5	2360318.2	0.03999	1987	21	0	2008	1918	1987
600397.5	2359318.2	0.03996	1988	21	0	2009	1919	1988
600147.5	2359818.2	0.0399	1989	21	0	2010	1920	1989
600147.5	2363568.2	0.03983	1990	21	0	2011	1921	1990
600147.5	2360068.2	0.03982	1991	21	0	2012	1922	1991
601147.5	2360818.2	0.03974	1992	21	0	2013	1923	1992
599147.5	2356818.2	0.03973	1993	21	0	2014	1924	1993
600647.5	2364818.2	0.03971	1994	21	0	2015	1925	1994
601147.5	2360568.2	0.03971	1995	21	0	2016	1926	1995
600397.5	2363568.2	0.03969	1996	21	0	2017	1927	1996
600647.5	2360568.2	0.03967	1997	21	0	2018	1928	1997
601147.5	2359568.2	0.03966	1998	21	0	2019	1929	1998
600397.5	2364318.2	0.03964	1999	21	0	2020	1930	1999
600647.5	2360318.2	0.03961	2000	21	0	2021	1931	2000
600897.5	2360818.2	0.03955	2001	21	0	2022	1932	2001
600897.5	2359318.2	0.03955	2002	21	0	2023	1933	2002
600147.5	2357818.2	0.03951	2003	21	0	2024	1934	2003
600647.5	2359068.2	0.03948	2004	21	0	2025	1935	2004
599897.5	2359568.2	0.03945	2005	21	0	2026	1936	2005
600647.5	2364568.2	0.03932	2006	21	0	2027	1937	2006
600397.5	2358818.2	0.03929	2007	21	0	2028	1938	2007
600897.5	2359568.2	0.03928	2008	21	0	2029	1939	2008
600397.5	2360068.2	0.03927	2009	21	0	2030	1940	2009
600897.5	2365068.2	0.03926	2010	21	0	2031	1941	2010
600647.5	2358568.2	0.03925	2011	21	0	2032	1942	2011
599397.5	2357068.2	0.03919	2012	21	0	2033	1943	2012
600147.5	2363818.2	0.03917	2013	21	0	2034	1944	2013
601147.5	2361068.2	0.03911	2014	21	0	2035	1945	2014
600147.5	2359318.2	0.03908	2015	21	0	2036	1946	2015
600897.5	2358568.2	0.03906	2016	21	0	2037	1947	2016
600397.5	2363818.2	0.03902	2017	21	0	2038	1948	2017
600397.5	2358068.2	0.03902	2018	21	0	2039	1949	2018
600647.5	2363818.2	0.03891	2019	21	0	2040	1950	2019
600897.5	2364818.2	0.03886	2020	21	0	2041	1951	2020
599397.5	2356568.2	0.03885	2021	21	0	2042	1952	2021
601147.5	2365318.2	0.03881	2022	21	0	2043	1953	2022
599897.5	2357318.2	0.03874	2023	21	0	2044	1954	2023
600647.5	2358818.2	0.03853	2024	21	0	2045	1955	2024
600647.5	2359568.2	0.03851	2025	21	0	2046	1956	2025
600397.5	2364068.2	0.03846	2026	21	0	2047	1957	2026
600897.5	2364068.2	0.03838	2027	21	0	2048	1958	2027
601147.5	2364318.2	0.03832	2028	21	0	2049	1959	2028
601147.5	2365068.2	0.0383	2029	21	0	2050	1960	2029
600647.5	2364068.2	0.03823	2030	21	0	2051	1961	2030
601147.5	2358318.2	0.03822	2031	21	0	2052	1962	2031
600147.5	2359568.2	0.0382	2032	21	0	2053	1963	2032
601147.5	2359318.2	0.03813	2033	21	0	2054	1964	2033
600647.5	2364318.2	0.03807	2034	21	0	2055	1965	2034
600147.5	2357568.2	0.03804	2035	21	0	2056	1966	2035

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
601147.5	2359818.2	0.03803	2036	21	0	2057	1967	2036
600897.5	2359068.2	0.03802	2037	21	0	2058	1968	2037
600897.5	2360318.2	0.03789	2038	21	0	2059	1969	2038
601147.5	2358568.2	0.03782	2039	21	0	2060	1970	2039
599647.5	2357068.2	0.03779	2040	21	0	2061	1971	2040
600897.5	2364568.2	0.03769	2041	21	0	2062	1972	2041
600897.5	2358818.2	0.03767	2042	21	0	2063	1973	2042
600397.5	2359568.2	0.03744	2043	21	0	2064	1974	2043
600897.5	2364318.2	0.03743	2044	21	0	2065	1975	2044
600647.5	2358068.2	0.03733	2045	21	0	2066	1976	2045
601147.5	2364818.2	0.03728	2046	21	0	2067	1977	2046
601147.5	2358818.2	0.03702	2047	21	0	2068	1978	2047
600897.5	2359818.2	0.03678	2048	21	0	2069	1979	2048
600397.5	2359818.2	0.03671	2049	21	0	2070	1980	2049
600397.5	2357818.2	0.03671	2050	21	0	2071	1981	2050
601147.5	2364568.2	0.03669	2051	21	0	2072	1982	2051
600647.5	2360068.2	0.03649	2052	21	0	2073	1983	2052
601147.5	2359068.2	0.03637	2053	21	0	2074	1984	2053
599397.5	2356818.2	0.03634	2054	21	0	2075	1985	2054
600397.5	2357568.2	0.03622	2055	21	0	2076	1986	2055
600147.5	2357318.2	0.03615	2056	21	0	2077	1987	2056
599897.5	2357068.2	0.03615	2057	21	0	2078	1988	2057
600897.5	2358068.2	0.03576	2058	21	0	2079	1989	2058
600397.5	2356318.2	0.03561	2059	21	0	2080	1990	2059
600647.5	2359818.2	0.03539	2060	21	0	2081	1991	2060
600397.5	2356568.2	0.03515	2061	21	0	2082	1992	2061
599647.5	2356818.2	0.03513	2062	21	0	2083	1993	2062
600647.5	2356568.2	0.03492	2063	21	0	2084	1994	2063
601147.5	2360068.2	0.0345	2064	21	0	2085	1995	2064
600647.5	2357568.2	0.03447	2065	21	0	2086	1996	2065
600647.5	2357818.2	0.03435	2066	21	0	2087	1997	2066
600897.5	2360068.2	0.03428	2067	21	0	2088	1998	2067
601147.5	2360318.2	0.0341	2068	21	0	2089	1999	2068
600897.5	2357568.2	0.03408	2069	21	0	2090	2000	2069
600897.5	2356568.2	0.03401	2070	21	0	2091	2001	2070
599897.5	2356818.2	0.03394	2071	21	0	2092	2002	2071
600647.5	2356318.2	0.03392	2072	21	0	2093	2003	2072
601147.5	2358068.2	0.03386	2073	21	0	2094	2004	2073
600897.5	2357818.2	0.03371	2074	21	0	2095	2005	2074
600397.5	2357318.2	0.03361	2075	21	0	2096	2006	2075
600147.5	2356818.2	0.03359	2076	21	0	2097	2007	2076
600147.5	2357068.2	0.03348	2077	21	0	2098	2008	2077
601147.5	2357568.2	0.03335	2078	21	0	2099	2009	2078
600397.5	2356818.2	0.03318	2079	21	0	2100	2010	2079
601147.5	2356568.2	0.03306	2080	21	0	2101	2011	2080
601147.5	2357818.2	0.03276	2081	21	0	2102	2012	2081
600397.5	2357068.2	0.03274	2082	21	0	2103	2013	2082
600897.5	2356318.2	0.03262	2083	21	0	2104	2014	2083
600647.5	2357068.2	0.03234	2084	21	0	2105	2015	2084
600647.5	2356818.2	0.03212	2085	21	0	2106	2016	2085
600647.5	2357318.2	0.03158	2086	21	0	2107	2017	2086
600897.5	2357068.2	0.03147	2087	21	0	2108	2018	2087
600897.5	2356818.2	0.03129	2088	21	0	2109	2019	2088
600897.5	2357318.2	0.03112	2089	21	0	2110	2020	2089
601147.5	2356818.2	0.03061	2090	21	0	2111	2021	2090

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)
601147.5	2357068.2	0.03036	2091	21	0	2112	2022	2091
601147.5	2357318.2	0.02991	2092	21	0	2113	2023	2092

Appendix B: Kahe Receptor Score Ranking (DOH-CAB Run)

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)	HECO Kahe Run Score Ranking
591200	2362500	2.11614	3	7	27	10	1	1	2
591450	2362750	2.40215	1	11	21	12	2	2	1
591200	2362750	2.13408	2	12	18	14	3	3	4
590200	2363750	1.99013	5	13	17	18	4	4	5
591950	2362500	1.81272	12	7	27	19	5	5	2
591950	2362250	2.0958	4	15	14	19	5	6	5
590450	2363500	1.93143	7	14	16	21	6	7	7
590950	2363250	1.71155	15	16	13	31	7	8	9
590200	2363500	1.81506	11	20	8	31	7	9	16
590700	2363750	1.84221	10	21	7	31	7	10	11
591950	2362750	1.87361	9	22	6	31	7	11	8
591700	2362000	1.56929	29	4	41	33	8	12	9
591450	2363000	1.94205	6	28	0	34	9	13	24
591700	2363000	1.92242	8	28	0	36	10	14	21
591950	2363000	1.73943	13	28	0	41	11	15	25
591200	2363000	1.70823	16	26	2	42	12	16	14
590200	2364000	1.72534	14	28	0	42	12	17	43
590450	2364000	1.61629	25	19	9	44	13	18	12
590700	2363000	1.59277	27	18	11	45	14	19	15
592450	2362250	1.67881	19	26	2	45	14	20	21
592200	2363000	1.68466	18	27	1	45	14	21	16
592200	2362750	1.70469	17	28	0	45	14	22	19
592450	2362500	1.67184	20	27	1	47	15	23	26
591200	2363500	1.65078	23	25	3	48	16	24	16
592200	2362500	1.65613	21	28	0	49	17	25	32
590700	2364000	1.65195	22	28	0	50	18	26	35
591950	2363250	1.64153	24	28	0	52	19	27	26
592700	2362500	1.59794	26	27	1	53	20	28	31
589950	2363750	1.43596	39	16	13	55	21	29	13
592450	2362750	1.58114	28	28	0	56	22	30	36
590450	2363750	1.53147	30	28	0	58	23	31	45
590700	2363500	1.50967	31	28	0	59	24	32	42
592450	2363000	1.50503	33	27	1	60	25	33	23
590450	2364250	1.50837	32	28	0	60	25	34	37
592700	2363000	1.44426	37	24	4	61	26	35	20
591200	2363750	1.48403	35	27	1	62	27	36	41
591700	2363250	1.48412	34	28	0	62	27	37	33
592950	2362500	1.45749	36	28	0	64	28	38	40
592200	2362250	1.43902	38	28	0	66	29	39	47
591700	2362750	1.39693	40	28	0	68	30	40	39
591950	2362000	1.39147	41	28	0	69	31	41	38
592700	2362750	1.37354	44	26	2	70	32	42	29
590700	2364500	1.38798	42	28	0	70	32	43	49
592200	2363250	1.37597	43	28	0	71	33	44	44
593200	2362500	1.33034	48	25	3	73	34	45	26
591200	2363250	1.36925	45	28	0	73	34	46	30
592950	2363000	1.3616	46	28	0	74	35	47	
590450	2363250	1.27792	50	25	3	75	36	48	47
592700	2362250	1.33436	47	28	0	75	36	49	
591450	2363250	1.27737	51	25	3	76	37	50	34
593200	2362750	1.28955	49	28	0	77	38	51	
590700	2364250	1.27495	52	28	0	80	39	52	
592950	2362750	1.26932	53	28	0	81	40	53	
590950	2363750	1.26243	54	28	0	82	41	54	
590950	2363500	1.24531	55	28	0	83	42	55	
592200	2363500	1.23533	56	28	0	84	43	56	
593450	2362500	1.23307	57	28	0	85	44	57	

593200	2362250	1.2211	58	28	0	86	45	58	
591200	2364000	1.2023	59	28	0	87	46	59	
593450	2362750	1.19027	60	28	0	88	47	60	
593700	2362500	1.18143	61	28	0	89	48	61	
593200	2363250	1.17798	62	28	0	90	49	62	
590950	2364750	1.1653	63	28	0	91	50	63	
593200	2363000	1.15565	64	28	0	92	51	64	
590950	2364000	1.14807	65	28	0	93	52	65	
593450	2363250	1.14596	66	28	0	94	53	66	
592450	2363250	1.12724	68	27	1	95	54	67	45
592950	2363250	1.13257	67	28	0	95	54	68	
590950	2364250	1.11298	69	28	0	97	55	69	
592700	2363250	1.10135	70	28	0	98	56	70	
590950	2362750	1.03547	77	22	6	99	57	71	49
592950	2362250	1.0895	71	28	0	99	57	72	
593700	2362750	1.08408	72	28	0	100	58	73	
593950	2362750	1.07508	73	28	0	101	59	74	
591450	2364000	1.06299	74	28	0	102	60	75	
593950	2362500	1.0522	75	28	0	103	61	76	
593450	2363000	1.051	76	28	0	104	62	77	
590950	2363000	1.01398	80	26	2	106	63	78	
593450	2362250	1.02281	78	28	0	106	63	79	
591450	2363500	1.01599	79	28	0	107	64	80	
594200	2362750	1.0124	81	28	0	109	65	81	
593950	2363500	1.00694	82	28	0	110	66	82	
593700	2363250	0.9924	83	28	0	111	67	83	
593700	2362250	0.97515	84	28	0	112	68	84	
593950	2363000	0.96078	85	28	0	113	69	85	
593200	2362000	0.95967	86	28	0	114	70	86	
592450	2362000	0.95456	87	28	0	115	71	87	
593700	2363000	0.94041	88	28	0	116	72	88	
594200	2363000	0.93406	89	28	0	117	73	89	
594200	2362500	0.93141	90	28	0	118	74	90	
594450	2362750	0.92383	91	28	0	119	75	91	
591450	2364250	0.91307	92	28	0	120	76	92	
592700	2362000	0.9079	93	28	0	121	77	93	
591700	2365000	0.90121	94	28	0	122	78	94	
594700	2362750	0.90044	95	28	0	123	79	95	
594450	2363000	0.89424	96	28	0	124	80	96	
594700	2363000	0.89234	97	28	0	125	81	97	
591950	2365000	0.88118	98	28	0	126	82	98	
593950	2363250	0.87907	99	28	0	127	83	99	
592950	2362000	0.8718	100	28	0	128	84	100	
594200	2363750	0.86551	101	28	0	129	85	101	
591950	2361750	0.79738	122	8	24	130	86	102	
594950	2363000	0.86386	102	28	0	130	86	103	
593700	2363500	0.85985	103	28	0	131	87	104	
591950	2363500	0.84877	104	28	0	132	88	105	
594200	2363500	0.84731	105	28	0	133	89	106	
594450	2363250	0.84551	106	28	0	134	90	107	
593200	2363500	0.8435	107	28	0	135	91	108	
594950	2362750	0.83122	108	28	0	136	92	109	
595200	2363000	0.82895	109	28	0	137	93	110	
593950	2363750	0.82714	110	28	0	138	94	111	
594200	2363250	0.82504	111	28	0	139	95	112	
591450	2363750	0.82253	112	28	0	140	96	113	
594200	2364250	0.82179	113	28	0	141	97	114	
594450	2362500	0.81545	114	28	0	142	98	115	
591200	2364750	0.81193	115	28	0	143	99	116	
594450	2363750	0.81146	116	28	0	144	100	117	
590450	2364500	0.81053	117	28	0	145	101	118	

591700	2363500	0.80965	118	28	0	146	102	119	
591868.63	2365275	0.80541	119	28	0	147	103	120	
593700	2362000	0.80075	120	28	0	148	104	121	
594700	2362500	0.79841	121	28	0	149	105	122	
592950	2363500	0.79422	123	28	0	151	106	123	
593950	2362250	0.78553	124	28	0	152	107	124	
592700	2363500	0.77745	125	28	0	153	108	125	
591200	2364250	0.777	126	28	0	154	109	126	
594950	2363250	0.77561	127	28	0	155	110	127	
591200	2362000	0.66594	150	6	28	156	111	128	
594950	2362500	0.7671	128	28	0	156	111	129	
594200	2362250	0.76148	129	28	0	157	112	130	
592450	2363500	0.75941	130	28	0	158	113	131	
593450	2363500	0.75682	131	28	0	159	114	132	
594700	2363250	0.75338	132	28	0	160	115	133	
594450	2363500	0.75099	133	28	0	161	116	134	
590700	2364750	0.74358	134	28	0	162	117	135	
593700	2363750	0.73739	135	28	0	163	118	136	
590950	2364500	0.73032	136	28	0	164	119	137	
594200	2364000	0.72602	137	28	0	165	120	138	
594450	2364000	0.71848	138	28	0	166	121	139	
594700	2363500	0.71635	139	28	0	167	122	140	
594700	2364000	0.71405	140	28	0	168	123	141	
594950	2364000	0.71302	141	28	0	169	124	142	
592950	2361750	0.7089	142	28	0	170	125	143	
589868.63	2366275	0.7069	143	28	0	171	126	144	
591450	2364750	0.69034	144	28	0	172	127	145	
595200	2364000	0.68111	145	28	0	173	128	146	
594700	2363750	0.67983	146	28	0	174	129	147	
595200	2363250	0.67508	147	28	0	175	130	148	
594700	2362250	0.67397	148	28	0	176	131	149	
594700	2364250	0.67004	149	28	0	177	132	150	
591200	2365000	0.66532	151	28	0	179	133	151	
590200	2363250	0.65992	152	28	0	180	134	152	
592700	2361750	0.65273	153	28	0	181	135	153	
593950	2362000	0.65124	154	28	0	182	136	154	
594200	2362000	0.65097	155	28	0	183	137	155	
593950	2364000	0.64814	156	28	0	184	138	156	
593450	2362000	0.64778	157	28	0	185	139	157	
593200	2361750	0.64659	158	28	0	186	140	158	
594950	2364250	0.64527	159	28	0	187	141	159	
595200	2364250	0.64397	160	28	0	188	142	160	
591200	2364500	0.63657	161	28	0	189	143	161	
594950	2363500	0.63395	162	28	0	190	144	162	
594450	2362000	0.63367	163	28	0	191	145	163	
593700	2361750	0.63324	164	28	0	192	146	164	
591450	2365000	0.62897	165	28	0	193	147	165	
594950	2363750	0.62713	166	28	0	194	148	166	
593700	2364000	0.62675	167	28	0	195	149	167	
595450	2364000	0.62399	168	28	0	196	150	168	
594950	2362250	0.62211	169	28	0	197	151	169	
589368.63	2367275	0.62053	170	28	0	198	152	170	
595450	2364250	0.60801	171	28	0	199	153	171	
595700	2364250	0.60569	172	28	0	200	154	172	
595200	2364500	0.6032	173	28	0	201	155	173	
591700	2361750	0.59027	180	22	6	202	156	174	
595450	2363000	0.59961	174	28	0	202	156	175	
593950	2364500	0.59776	175	28	0	203	157	176	
594700	2362000	0.59693	176	28	0	204	158	177	
594450	2364250	0.59306	177	28	0	205	159	178	
591868.63	2365775	0.59078	178	28	0	206	160	179	

594200	2364500	0.5906	179	28	0	207	161	180	
591700	2363750	0.58654	181	28	0	209	162	181	
589868.63	2367275	0.58137	182	28	0	210	163	182	
595700	2364500	0.58123	183	28	0	211	164	183	
591200	2362250	0.55519	194	18	11	212	165	184	
593950	2364250	0.57978	184	28	0	212	165	185	
590368.63	2366775	0.57953	185	28	0	213	166	186	
590200	2361750	0.51261	213	1	339	214	167	187	
595450	2365000	0.57906	186	28	0	214	167	188	
595450	2364500	0.57877	187	28	0	215	168	189	
593950	2361750	0.57192	188	28	0	216	169	190	
595868.63	2362275	0.56526	189	28	0	217	170	191	
595450	2363750	0.56458	190	28	0	218	171	192	
595700	2362500	0.56435	191	28	0	219	172	193	
595450	2364750	0.56266	192	28	0	220	173	194	
594950	2364500	0.55923	193	28	0	221	174	195	
595200	2363500	0.55194	195	28	0	223	175	196	
594950	2364750	0.5495	196	28	0	224	176	197	
592200	2363750	0.54797	197	28	0	225	177	198	
592700	2363750	0.54769	198	28	0	226	178	199	
595700	2365000	0.54631	199	28	0	227	179	200	
595868.63	2364275	0.53892	200	28	0	228	180	201	
591950	2363750	0.5381	201	28	0	229	181	202	
595700	2364750	0.53707	202	28	0	230	182	203	
595368.63	2365275	0.53509	203	28	0	231	183	204	
594700	2364500	0.53231	204	28	0	232	184	205	
592450	2363750	0.52991	205	28	0	233	185	206	
594450	2361750	0.52824	206	28	0	234	186	207	
595200	2362750	0.52585	207	28	0	235	187	208	
591700	2364250	0.52122	208	28	0	236	188	209	
594950	2362000	0.51584	209	28	0	237	189	210	
590200	2363000	0.51275	212	26	2	238	190	211	
591868.63	2367275	0.51502	210	28	0	238	190	212	
592368.63	2366775	0.51365	211	28	0	239	191	213	
594450	2362250	0.51248	214	28	0	242	192	214	
595450	2363500	0.51238	215	28	0	243	193	215	
590700	2363250	0.50964	216	28	0	244	194	216	
591450	2364500	0.50738	217	28	0	245	195	217	
591450	2361500	0.46878	236	10	22	246	196	218	
595700	2362250	0.50717	218	28	0	246	196	219	
595450	2362750	0.50601	219	28	0	247	197	220	
590200	2364250	0.50075	220	28	0	248	198	221	
593450	2363750	0.49996	221	28	0	249	199	222	
590368.63	2367275	0.49663	222	28	0	250	200	223	
593450	2361750	0.49555	223	28	0	251	201	224	
591368.63	2368775	0.48708	224	28	0	252	202	225	
595200	2362500	0.48346	225	28	0	253	203	226	
591700	2364000	0.48329	226	28	0	254	204	227	
595868.63	2363775	0.48295	227	28	0	255	205	228	
591700	2361500	0.46041	241	15	14	256	206	229	
591868.63	2366275	0.47955	228	28	0	256	206	230	
594450	2364500	0.47829	229	28	0	257	207	231	
591700	2364750	0.47828	230	28	0	258	208	232	
592950	2363750	0.47817	231	28	0	259	209	233	
593200	2363750	0.47551	232	28	0	260	210	234	
595200	2362250	0.4726	233	28	0	261	211	235	
594700	2364750	0.46962	234	28	0	262	212	236	
590368.63	2367775	0.46922	235	28	0	263	213	237	
589950	2363000	0.46004	242	23	5	265	214	238	
595868.63	2365775	0.46491	237	28	0	265	214	239	
595868.63	2366275	0.46215	238	28	0	266	215	240	

593450	2364250	0.46208	239	28	0	267	216	241	
595200	2363750	0.46167	240	28	0	268	217	242	
590200	2361500	0.40886	267	2	133	269	218	243	
595368.63	2365775	0.45915	243	28	0	271	219	244	
591868.63	2366775	0.45912	244	28	0	272	220	245	
592200	2362000	0.45769	245	28	0	273	221	246	
591868.63	2368775	0.45246	246	28	0	274	222	247	
592450	2364000	0.45108	247	28	0	275	223	248	
593700	2364750	0.44597	248	28	0	276	224	249	
595200	2364750	0.44411	249	28	0	277	225	250	
590450	2361500	0.3947	273	5	29	278	226	251	
592368.63	2366275	0.441	250	28	0	278	226	252	
590868.63	2367275	0.44029	251	28	0	279	227	253	
591368.63	2367275	0.43629	252	28	0	280	228	254	
590868.63	2368275	0.43587	253	28	0	281	229	255	
595868.63	2366775	0.43324	254	28	0	282	230	256	
591950	2364000	0.43207	255	28	0	283	231	257	
595700	2364000	0.43141	256	28	0	284	232	258	
593950	2361500	0.4308	257	28	0	285	233	259	
595200	2365000	0.43022	258	28	0	286	234	260	
590868.63	2367775	0.42746	259	28	0	287	235	261	
595868.63	2365275	0.4241	260	28	0	288	236	262	
595450	2362500	0.42391	261	28	0	289	237	263	
593450	2364000	0.42256	262	28	0	290	238	264	
593450	2361500	0.41776	263	28	0	291	239	265	
590700	2362750	0.40215	269	23	5	292	240	266	
592950	2361500	0.41471	264	28	0	292	240	267	
589950	2363500	0.41092	265	28	0	293	241	268	
592700	2364000	0.40939	266	28	0	294	242	269	
595700	2363000	0.40586	268	28	0	296	243	270	
595200	2362000	0.40031	270	28	0	298	244	271	
594700	2361750	0.39944	271	28	0	299	245	272	
595868.63	2362775	0.39705	272	28	0	300	246	273	
592950	2364000	0.39347	274	28	0	302	247	274	
590700	2361500	0.35596	300	3	56	303	248	275	
592200	2364000	0.39319	275	28	0	303	248	276	
590950	2365000	0.39167	276	28	0	304	249	277	
590450	2363000	0.39166	277	28	0	305	250	278	
593700	2364500	0.39071	278	28	0	306	251	279	
593700	2364250	0.38947	279	28	0	307	252	280	
594450	2364750	0.38727	280	28	0	308	253	281	
590700	2362500	0.37376	287	22	6	309	254	282	
595868.63	2364775	0.38725	281	28	0	309	254	283	
594450	2361500	0.38645	282	28	0	310	255	284	
590700	2362250	0.37743	286	25	3	311	256	285	
591700	2364500	0.38531	283	28	0	311	256	286	
595700	2362750	0.38423	284	28	0	312	257	287	
592450	2361500	0.38275	285	28	0	313	258	288	
592368.63	2369275	0.37145	288	28	0	316	259	289	
590950	2362500	0.36446	291	26	2	317	260	290	
591868.63	2367775	0.36816	289	28	0	317	260	291	
596368.63	2365775	0.36664	290	28	0	318	261	292	
591950	2361500	0.36439	292	28	0	320	262	293	
592368.63	2365775	0.36316	293	28	0	321	263	294	
593200	2364000	0.36295	294	28	0	322	264	295	
591950	2364250	0.36141	295	28	0	323	265	296	
590450	2361250	0.33055	316	8	24	324	266	297	
595368.63	2366775	0.36043	296	28	0	324	266	298	
594868.63	2365275	0.35882	297	28	0	325	267	299	
596368.63	2364275	0.3574	298	28	0	326	268	300	
594950	2365000	0.3569	299	28	0	327	269	301	

592200	2365000	0.35591	301	28	0	329	270	302	
590450	2362750	0.35479	302	28	0	330	271	303	
591450	2361250	0.33085	315	16	13	331	272	304	
593200	2364250	0.35452	303	28	0	331	272	305	
595868.63	2367275	0.35249	304	28	0	332	273	306	
592368.63	2367275	0.34857	305	28	0	333	274	307	
594950	2361750	0.34359	306	28	0	334	275	308	
589950	2362500	0.32731	318	17	12	335	276	309	
595368.63	2367275	0.34325	307	28	0	335	276	310	
590200	2362500	0.34225	309	27	1	336	277	311	
595450	2362250	0.34306	308	28	0	336	277	312	
595368.63	2366275	0.34147	310	28	0	338	278	313	
593950	2364750	0.33838	311	28	0	339	279	314	
591700	2361250	0.33608	312	28	0	340	280	315	
593700	2361500	0.33273	313	28	0	341	281	316	
592200	2364250	0.33244	314	28	0	342	282	317	
590200	2362250	0.32396	321	23	5	344	283	318	
592368.63	2365275	0.32967	317	28	0	345	284	319	
590950	2362250	0.32448	320	27	1	347	285	320	
594700	2365000	0.32716	319	28	0	347	285	321	
595868.63	2367775	0.32322	322	28	0	350	286	322	
594200	2364750	0.31918	323	28	0	351	287	323	
592700	2361500	0.31863	324	28	0	352	288	324	
592950	2364250	0.31833	325	28	0	353	289	325	
595700	2363750	0.31746	326	28	0	354	290	326	
595368.63	2367775	0.31638	327	28	0	355	291	327	
592200	2361750	0.31432	328	28	0	356	292	328	
593450	2364500	0.31408	329	28	0	357	293	329	
592450	2361750	0.31356	330	28	0	358	294	330	
593450	2361250	0.31108	331	28	0	359	295	331	
590200	2361250	0.28465	351	9	23	360	296	332	
593700	2365000	0.30949	332	28	0	360	296	333	
591368.63	2367775	0.30847	333	28	0	361	297	334	
594700	2361500	0.30749	334	28	0	362	298	335	
590450	2362500	0.30579	335	28	0	363	299	336	
592450	2361250	0.30282	336	28	0	364	300	337	
595868.63	2368775	0.30138	337	28	0	365	301	338	
592450	2364250	0.29974	338	28	0	366	302	339	
592700	2364250	0.29903	339	28	0	367	303	340	
594450	2365000	0.29818	340	28	0	368	304	341	
591950	2364500	0.29793	341	28	0	369	305	342	
590200	2362750	0.29637	342	28	0	370	306	343	
591868.63	2369275	0.29617	343	28	0	371	307	344	
595200	2361750	0.29487	344	28	0	372	308	345	
592700	2361250	0.2943	345	28	0	373	309	346	
592368.63	2368775	0.29217	346	28	0	374	310	347	
595868.63	2368275	0.29177	347	28	0	375	311	348	
591368.63	2366775	0.29171	348	28	0	376	312	349	
589950	2362750	0.29148	349	28	0	377	313	350	
591950	2361250	0.28807	350	28	0	378	314	351	
594450	2361250	0.28378	352	28	0	380	315	352	
591950	2364750	0.28166	353	28	0	381	316	353	
595368.63	2368275	0.2806	354	28	0	382	317	354	
596368.63	2363775	0.27724	355	28	0	383	318	355	
593200	2364500	0.27626	356	28	0	384	319	356	
594868.63	2365775	0.27601	357	28	0	385	320	357	
594700	2361250	0.27542	358	28	0	386	321	358	
592950	2361250	0.27465	359	28	0	387	322	359	
593200	2361500	0.2711	360	28	0	388	323	360	
595868.63	2369275	0.27016	361	28	0	389	324	361	
594200	2361750	0.26886	362	28	0	390	325	362	

592200	2361500	0.26491	364	27	1	391	326	363	
589868.63	2366775	0.26514	363	28	0	391	326	364	
591450	2361000	0.25641	369	24	4	393	327	365	
592200	2364500	0.26006	365	28	0	393	327	366	
591368.63	2366275	0.25758	366	28	0	394	328	367	
586368.63	2366775	0.25731	367	28	0	395	329	368	
596368.63	2366275	0.25683	368	28	0	396	330	369	
592868.63	2366775	0.25464	370	28	0	398	331	370	
592200	2361250	0.25408	372	27	1	399	332	371	
593200	2361250	0.25438	371	28	0	399	332	372	
590450	2361000	0.24962	374	26	2	400	333	373	
590368.63	2360775	0.24897	377	24	4	401	334	374	
593950	2361250	0.25055	373	28	0	401	334	375	
595700	2363250	0.24961	375	28	0	403	335	376	
595450	2363250	0.24956	376	28	0	404	336	377	
596368.63	2366775	0.24748	378	28	0	406	337	378	
590950	2362000	0.24526	380	27	1	407	338	379	
596368.63	2368275	0.24748	379	28	0	407	338	380	
591950	2361000	0.24247	381	28	0	409	339	381	
592868.63	2367275	0.24241	382	28	0	410	340	382	
591368.63	2365275	0.24186	383	28	0	411	341	383	
591200	2361000	0.22963	392	20	8	412	342	384	
596368.63	2364775	0.24165	384	28	0	412	342	385	
592200	2361000	0.23736	385	28	0	413	343	386	
590700	2361750	0.23082	390	24	4	414	344	387	
595700	2363500	0.23692	386	28	0	414	344	388	
589950	2364000	0.23662	387	28	0	415	345	389	
585868.63	2366775	0.23224	389	27	1	416	346	390	
596368.63	2368775	0.23301	388	28	0	416	346	391	
596368.63	2362275	0.23072	391	28	0	419	347	392	
592368.63	2367775	0.22942	393	28	0	421	348	393	
593450	2364750	0.22931	394	28	0	422	349	394	
592450	2361000	0.22845	395	28	0	423	350	395	
595200	2361500	0.22828	396	28	0	424	351	396	
596368.63	2367775	0.22773	397	28	0	425	352	397	
590868.63	2359275	0.22773	398	28	0	426	353	398	
594450	2361000	0.22759	399	28	0	427	354	399	
594200	2365000	0.22598	400	28	0	428	355	400	
594200	2361000	0.22557	401	28	0	429	356	401	
593700	2361250	0.22532	402	28	0	430	357	402	
589700	2363000	0.22528	403	28	0	431	358	403	
590450	2362250	0.22363	404	28	0	432	359	404	
592700	2361000	0.22351	405	28	0	433	360	405	
590950	2361750	0.21814	411	23	5	434	361	406	
592368.63	2360775	0.22341	406	28	0	434	361	407	
594700	2361000	0.22287	407	28	0	435	362	408	
590868.63	2359775	0.22144	408	28	0	436	363	409	
591700	2361000	0.22028	409	28	0	437	364	410	
595700	2362000	0.21858	410	28	0	438	365	411	
590868.63	2360275	0.21435	415	24	4	439	366	412	
596368.63	2369275	0.21811	412	28	0	440	367	413	
595868.63	2363275	0.21644	413	28	0	441	368	414	
592950	2361000	0.21448	414	28	0	442	369	415	
594200	2361250	0.21326	416	28	0	444	370	416	
591368.63	2365775	0.2128	417	28	0	445	371	417	
592450	2364500	0.21238	418	28	0	446	372	418	
592868.63	2360775	0.21233	419	28	0	447	373	419	
591868.63	2360775	0.21155	420	28	0	448	374	420	
594368.63	2365775	0.21042	421	28	0	449	375	421	
594868.63	2367275	0.20999	422	28	0	450	376	422	
594368.63	2365275	0.20939	423	28	0	451	377	423	

589950	2363250	0.20916	424	28	0	452	378	424	
590700	2362000	0.20787	425	28	0	453	379	425	
596368.63	2367275	0.20556	426	28	0	454	380	426	
594200	2361500	0.20518	427	28	0	455	381	427	
595368.63	2368775	0.20301	428	28	0	456	382	428	
590868.63	2360775	0.20189	432	25	3	457	383	429	
592868.63	2368775	0.203	429	28	0	457	383	430	
596868.63	2364275	0.20247	430	28	0	458	384	431	
594868.63	2366275	0.20235	431	28	0	459	385	432	
593450	2361000	0.201	433	28	0	461	386	433	
593200	2361000	0.20095	434	28	0	462	387	434	
592950	2364500	0.20087	435	28	0	463	388	435	
592700	2364500	0.19882	436	28	0	464	389	436	
592368.63	2360275	0.19858	437	28	0	465	390	437	
595450	2362000	0.19757	438	28	0	466	391	438	
592200	2364750	0.19577	439	28	0	467	392	439	
591368.63	2360775	0.19543	440	28	0	468	393	440	
589700	2363250	0.1949	441	28	0	469	394	441	
590868.63	2368775	0.19357	442	28	0	470	395	442	
591368.63	2359275	0.19306	443	28	0	471	396	443	
593950	2365000	0.19276	444	28	0	472	397	444	
593368.63	2359775	0.18907	448	25	3	473	398	445	
596868.63	2367775	0.19111	445	28	0	473	398	446	
594868.63	2366775	0.18968	446	28	0	474	399	447	
591368.63	2358775	0.18921	447	28	0	475	400	448	
592868.63	2360275	0.18865	449	28	0	477	401	449	
593368.63	2360275	0.18859	450	28	0	478	402	450	
593700	2361000	0.18692	451	28	0	479	403	451	
590700	2365000	0.18664	452	28	0	480	404	452	
593368.63	2360775	0.18494	453	28	0	481	405	453	
596868.63	2368275	0.18439	454	28	0	482	406	454	
594950	2361000	0.18399	455	28	0	483	407	455	
594868.63	2367775	0.18388	456	28	0	484	408	456	
596868.63	2369275	0.18364	457	28	0	485	409	457	
594950	2361500	0.18317	458	28	0	486	410	458	
594868.63	2368275	0.18236	459	28	0	487	411	459	
593868.63	2359275	0.18225	460	28	0	488	412	460	
591368.63	2357775	0.18128	461	28	0	489	413	461	
591368.63	2359775	0.18089	462	28	0	490	414	462	
593868.63	2359775	0.18008	463	28	0	491	415	463	
593868.63	2360275	0.17757	464	28	0	492	416	464	
592868.63	2359775	0.1775	465	28	0	493	417	465	
594368.63	2360775	0.17644	466	28	0	494	418	466	
593450	2365000	0.17582	467	28	0	495	419	467	
596368.63	2365275	0.17494	468	28	0	496	420	468	
593868.63	2360775	0.17493	469	28	0	497	421	469	
590868.63	2366775	0.1747	470	28	0	498	422	470	
592868.63	2369275	0.17429	471	28	0	499	423	471	
596368.63	2362775	0.17228	472	28	0	500	424	472	
594868.63	2360775	0.17219	473	28	0	501	425	473	
591368.63	2357275	0.172	474	28	0	502	426	474	
589700	2363500	0.17167	475	28	0	503	427	475	
594368.63	2366275	0.17111	476	28	0	504	428	476	
593200	2364750	0.17	477	28	0	505	429	477	
595368.63	2369275	0.16898	478	28	0	506	430	478	
592450	2364750	0.16824	479	28	0	507	431	479	
594368.63	2360275	0.16769	480	28	0	508	432	480	
591868.63	2360275	0.16753	481	28	0	509	433	481	
593950	2361000	0.16694	482	28	0	510	434	482	
596868.63	2366775	0.16452	483	28	0	511	435	483	
594950	2361250	0.16345	484	28	0	512	436	484	

588368.63	2364775	0.16265	485	28	0	513	437	485	
595700	2361750	0.16202	486	28	0	514	438	486	
591368.63	2360275	0.16087	488	27	1	515	439	487	
593368.63	2359275	0.16135	487	28	0	515	439	488	
595868.63	2361775	0.16032	489	28	0	517	440	489	
596868.63	2364775	0.16019	490	28	0	518	441	490	
595200	2361250	0.16006	491	28	0	519	442	491	
589450	2363500	0.15843	492	28	0	520	443	492	
590450	2364750	0.1584	493	28	0	521	444	493	
596868.63	2367275	0.15793	494	28	0	522	445	494	
587868.63	2365275	0.15735	495	28	0	523	446	495	
591868.63	2357775	0.15646	496	28	0	524	447	496	
592950	2364750	0.15595	497	28	0	525	448	497	
594368.63	2359775	0.1557	498	28	0	526	449	498	
595450	2361750	0.15546	499	28	0	527	450	499	
596368.63	2361775	0.1553	500	28	0	528	451	500	
594868.63	2360275	0.15455	501	28	0	529	452	501	
594368.63	2359275	0.1544	502	28	0	530	453	502	
594368.63	2358775	0.15437	503	28	0	531	454	503	
591868.63	2357275	0.15312	504	28	0	532	455	504	
590368.63	2368275	0.15294	505	28	0	533	456	505	
589450	2363750	0.15277	506	28	0	534	457	506	
595450	2361500	0.15272	507	28	0	535	458	507	
588700	2364500	0.15243	508	28	0	536	459	508	
592368.63	2359775	0.15225	509	28	0	537	460	509	
595450	2361250	0.15224	510	28	0	538	461	510	
593368.63	2365275	0.15207	511	28	0	539	462	511	
595700	2361250	0.15142	512	28	0	540	463	512	
591868.63	2358775	0.1507	513	28	0	541	464	513	
596868.63	2368775	0.15065	514	28	0	542	465	514	
589700	2363750	0.15054	515	28	0	543	466	515	
595868.63	2361275	0.15032	516	28	0	544	467	516	
595200	2361000	0.15014	517	28	0	545	468	517	
591868.63	2356775	0.15001	518	28	0	546	469	518	
588700	2364750	0.14879	519	28	0	547	470	519	
596868.63	2363775	0.14878	520	28	0	548	471	520	
595700	2361500	0.14825	521	28	0	549	472	521	
588368.63	2365275	0.14759	522	28	0	550	473	522	
587868.63	2365775	0.14743	523	28	0	551	474	523	
590200	2364500	0.14732	524	28	0	552	475	524	
596868.63	2365775	0.14728	525	28	0	553	476	525	
591368.63	2369275	0.14647	526	28	0	554	477	526	
592450	2365000	0.1464	527	28	0	555	478	527	
587368.63	2365775	0.14608	528	28	0	556	479	528	
591868.63	2356275	0.14511	529	28	0	557	480	529	
596868.63	2362275	0.14491	530	28	0	558	481	530	
594868.63	2358775	0.14409	531	28	0	559	482	531	
595450	2361000	0.14407	532	28	0	560	483	532	
595368.63	2358275	0.14354	533	28	0	561	484	533	
596368.63	2363275	0.14336	534	28	0	562	485	534	
588950	2364250	0.1433	535	28	0	563	486	535	
589200	2363750	0.14306	536	28	0	564	487	536	
592868.63	2359275	0.14284	537	28	0	565	488	537	
593868.63	2358775	0.14274	538	28	0	566	489	538	
591868.63	2359275	0.14247	539	28	0	567	490	539	
594868.63	2359275	0.14148	540	28	0	568	491	540	
588700	2365000	0.14098	541	28	0	569	492	541	
589700	2364000	0.1405	542	28	0	570	493	542	
589450	2364000	0.14045	543	28	0	571	494	543	
595868.63	2360275	0.14039	544	28	0	572	495	544	
597368.63	2367275	0.14033	545	28	0	573	496	545	

597368.63	2367775	0.14024	546	28	0	574	497	546	
596368.63	2361275	0.14019	547	28	0	575	498	547	
597368.63	2369275	0.13987	548	28	0	576	499	548	
595368.63	2360775	0.13932	549	28	0	577	500	549	
588950	2364500	0.13925	550	28	0	578	501	550	
587368.63	2366275	0.13897	551	28	0	579	502	551	
589950	2364250	0.13859	552	28	0	580	503	552	
594368.63	2367275	0.13857	553	28	0	581	504	553	
596368.63	2360275	0.13817	554	28	0	582	505	554	
590368.63	2366275	0.13792	555	28	0	583	506	555	
591868.63	2359775	0.13783	556	28	0	584	507	556	
597368.63	2368775	0.13751	557	28	0	585	508	557	
594868.63	2358275	0.13686	558	28	0	586	509	558	
589200	2364000	0.13673	559	28	0	587	510	559	
589368.63	2365775	0.13658	560	28	0	588	511	560	
586868.63	2366275	0.13636	561	28	0	589	512	561	
588950	2364750	0.13531	562	28	0	590	513	562	
588868.63	2365275	0.13503	563	28	0	591	514	563	
595700	2361000	0.13438	564	28	0	592	515	564	
589200	2364250	0.13436	565	28	0	593	516	565	
588950	2365000	0.1343	566	28	0	594	517	566	
594868.63	2359775	0.13375	567	28	0	595	518	567	
592368.63	2359275	0.13346	568	28	0	596	519	568	
592700	2364750	0.13338	569	28	0	597	520	569	
595368.63	2360275	0.13323	570	28	0	598	521	570	
597868.63	2367275	0.13299	571	28	0	599	522	571	
593200	2365000	0.13292	572	28	0	600	523	572	
593868.63	2365275	0.13284	573	28	0	601	524	573	
597868.63	2369275	0.13224	574	28	0	602	525	574	
591868.63	2368275	0.13201	575	28	0	603	526	575	
595868.63	2360775	0.13144	576	28	0	604	527	576	
588368.63	2365775	0.13009	577	28	0	605	528	577	
595368.63	2358775	0.12996	578	28	0	606	529	578	
589700	2364250	0.12976	579	28	0	607	530	579	
595868.63	2357775	0.12955	580	28	0	608	531	580	
594368.63	2358275	0.12865	581	28	0	609	532	581	
589200	2364500	0.12849	582	28	0	610	533	582	
593368.63	2358775	0.12837	583	28	0	611	534	583	
592868.63	2358775	0.1279	584	28	0	612	535	584	
589950	2364500	0.12788	585	28	0	613	536	585	
594368.63	2367775	0.12788	586	28	0	614	537	586	
587868.63	2366275	0.12761	587	28	0	615	538	587	
588868.63	2365775	0.12682	588	28	0	616	539	588	
597368.63	2368275	0.12658	589	28	0	617	540	589	
587368.63	2366775	0.12635	590	28	0	618	541	590	
588368.63	2366275	0.12612	591	28	0	619	542	591	
585368.63	2366775	0.12583	592	28	0	620	543	592	
590868.63	2366275	0.1253	593	28	0	621	544	593	
595368.63	2359275	0.12507	594	28	0	622	545	594	
596368.63	2360775	0.12502	595	28	0	623	546	595	
590200	2364750	0.1249	596	28	0	624	547	596	
586868.63	2366775	0.1244	597	28	0	625	548	597	
592368.63	2355775	0.12412	598	28	0	626	549	598	
592368.63	2356775	0.12409	599	28	0	627	550	599	
589450	2364750	0.12384	600	28	0	628	551	600	
586868.63	2367275	0.12361	601	28	0	629	552	601	
592368.63	2356275	0.12351	602	28	0	630	553	602	
589450	2364250	0.12346	603	28	0	631	554	603	
592700	2365000	0.12298	604	28	0	632	555	604	
585368.63	2367275	0.12285	605	28	0	633	556	605	
590200	2362000	0.12212	612	22	6	634	557	606	

596868.63	2361275	0.12279	606	28	0	634	557	607	
595368.63	2357775	0.12269	607	28	0	635	558	608	
592868.63	2366275	0.12263	608	28	0	636	559	609	
596868.63	2360275	0.12243	609	28	0	637	560	610	
589200	2364750	0.12229	610	28	0	638	561	611	
596868.63	2366275	0.12228	611	28	0	639	562	612	
595868.63	2358275	0.12201	613	28	0	641	563	613	
594868.63	2368775	0.12193	614	28	0	642	564	614	
596868.63	2360775	0.12158	615	28	0	643	565	615	
589368.63	2366775	0.12105	616	28	0	644	566	616	
592368.63	2357275	0.12084	617	28	0	645	567	617	
597868.63	2367775	0.1205	618	28	0	646	568	618	
596868.63	2365275	0.12006	619	28	0	647	569	619	
596868.63	2361775	0.12003	620	28	0	648	570	620	
594368.63	2368275	0.12001	621	28	0	649	571	621	
589950	2364750	0.11949	622	28	0	650	572	622	
586368.63	2367275	0.11933	623	28	0	651	573	623	
589450	2364500	0.11898	624	28	0	652	574	624	
589200	2365000	0.11897	625	28	0	653	575	625	
587868.63	2366775	0.11853	626	28	0	654	576	626	
597368.63	2362275	0.11843	627	28	0	655	577	627	
589700	2364500	0.11841	628	28	0	656	578	628	
597868.63	2368275	0.11796	629	28	0	657	579	629	
589368.63	2365275	0.11795	630	28	0	658	580	630	
597368.63	2360275	0.11766	631	28	0	659	581	631	
592368.63	2357775	0.11759	632	28	0	660	582	632	
594368.63	2366775	0.11729	633	28	0	661	583	633	
596868.63	2362775	0.11725	634	28	0	662	584	634	
589450	2365000	0.11717	635	28	0	663	585	635	
592368.63	2358275	0.11682	636	28	0	664	586	636	
593868.63	2367275	0.11658	637	28	0	665	587	637	
588368.63	2366775	0.11655	638	28	0	666	588	638	
594868.63	2357775	0.11645	639	28	0	667	589	639	
585868.63	2367275	0.11633	640	28	0	668	590	640	
596368.63	2357275	0.11605	641	28	0	669	591	641	
595868.63	2358775	0.11603	642	28	0	670	592	642	
592368.63	2358775	0.11595	643	28	0	671	593	643	
595368.63	2359775	0.11579	644	28	0	672	594	644	
595868.63	2359775	0.11567	645	28	0	673	595	645	
586368.63	2367775	0.11565	646	28	0	674	596	646	
589868.63	2365275	0.11527	647	28	0	675	597	647	
597368.63	2360775	0.11523	648	28	0	676	598	648	
597368.63	2361275	0.115	649	28	0	677	599	649	
597368.63	2362775	0.11473	650	28	0	678	600	650	
597368.63	2364775	0.11418	651	28	0	679	601	651	
593868.63	2358275	0.11399	652	28	0	680	602	652	
596368.63	2358275	0.11394	653	28	0	681	603	653	
597868.63	2359775	0.11371	654	28	0	682	604	654	
597868.63	2368775	0.11356	655	28	0	683	605	655	
590450	2365000	0.11348	656	28	0	684	606	656	
596368.63	2357775	0.11324	657	28	0	685	607	657	
597368.63	2365275	0.11302	658	28	0	686	608	658	
587868.63	2367275	0.11298	659	28	0	687	609	659	
589368.63	2366275	0.11296	660	28	0	688	610	660	
597368.63	2366775	0.11293	661	28	0	689	611	661	
596368.63	2359775	0.11267	662	28	0	690	612	662	
597368.63	2359775	0.11242	663	28	0	691	613	663	
589868.63	2365775	0.11234	664	28	0	692	614	664	
597868.63	2362275	0.11234	665	28	0	693	615	665	
590200	2365000	0.11221	666	28	0	694	616	666	
589700	2364750	0.112	667	28	0	695	617	667	

595868.63	2357275	0.11152	668	28	0	696	618	668	
593368.63	2358275	0.1115	669	28	0	697	619	669	
596868.63	2359775	0.11114	670	28	0	698	620	670	
585868.63	2367775	0.11113	671	28	0	699	621	671	
597868.63	2360275	0.11101	672	28	0	700	622	672	
589700	2365000	0.1109	673	28	0	701	623	673	
597868.63	2362775	0.11088	674	28	0	702	624	674	
597368.63	2361775	0.11066	675	28	0	703	625	675	
592868.63	2358275	0.11048	676	28	0	704	626	676	
588868.63	2366275	0.11031	677	28	0	705	627	677	
587868.63	2367775	0.10999	678	28	0	706	628	678	
596868.63	2357775	0.10972	679	28	0	707	629	679	
597868.63	2360775	0.10971	680	28	0	708	630	680	
592950	2365000	0.10968	681	28	0	709	631	681	
586868.63	2367775	0.10965	682	28	0	710	632	682	
589950	2365000	0.10959	683	28	0	711	633	683	
587368.63	2367275	0.10914	684	28	0	712	634	684	
592868.63	2367775	0.10903	685	28	0	713	635	685	
595368.63	2357275	0.1089	686	28	0	714	636	686	
596868.63	2357275	0.10865	687	28	0	715	637	687	
596868.63	2356775	0.10864	688	28	0	716	638	688	
587368.63	2368275	0.10856	689	28	0	717	639	689	
587368.63	2367775	0.10834	690	28	0	718	640	690	
595868.63	2359275	0.10787	691	28	0	719	641	691	
585868.63	2368275	0.10771	692	28	0	720	642	692	
596368.63	2359275	0.10765	693	28	0	721	643	693	
585368.63	2367775	0.10755	694	28	0	722	644	694	
593368.63	2357775	0.10737	695	28	0	723	645	695	
586368.63	2368275	0.10717	696	28	0	724	646	696	
597868.63	2361275	0.1071	697	28	0	725	647	697	
596868.63	2363275	0.10554	698	28	0	726	648	698	
590368.63	2365275	0.10534	699	28	0	727	649	699	
588368.63	2367275	0.1053	700	28	0	728	650	700	
597368.63	2357275	0.10505	701	28	0	729	651	701	
596368.63	2358775	0.10497	702	28	0	730	652	702	
585368.63	2368275	0.10486	703	28	0	731	653	703	
597368.63	2356775	0.10439	704	28	0	732	654	704	
596868.63	2359275	0.10433	705	28	0	733	655	705	
597868.63	2361775	0.10428	706	28	0	734	656	706	
590368.63	2365775	0.104	707	28	0	735	657	707	
597868.63	2366775	0.10392	708	28	0	736	658	708	
596368.63	2356775	0.10385	709	28	0	737	659	709	
590868.63	2365775	0.10367	710	28	0	738	660	710	
587368.63	2368775	0.1033	711	28	0	739	661	711	
587868.63	2368275	0.10309	712	28	0	740	662	712	
597368.63	2357775	0.10306	713	28	0	741	663	713	
586868.63	2368775	0.10295	714	28	0	742	664	714	
594368.63	2357775	0.10295	715	28	0	743	665	715	
590868.63	2365275	0.10282	716	28	0	744	666	716	
586868.63	2368275	0.10281	717	28	0	745	667	717	
596868.63	2358275	0.10279	718	28	0	746	668	718	
597368.63	2356275	0.1026	719	28	0	747	669	719	
585868.63	2368775	0.10244	720	28	0	748	670	720	
593868.63	2366275	0.10237	721	28	0	749	671	721	
596868.63	2358775	0.10221	722	28	0	750	672	722	
593368.63	2369275	0.10209	723	28	0	751	673	723	
592868.63	2357275	0.10174	724	28	0	752	674	724	
592868.63	2355275	0.10169	725	28	0	753	675	725	
593868.63	2357775	0.10168	726	28	0	754	676	726	
592868.63	2357775	0.10143	727	28	0	755	677	727	
585368.63	2368775	0.10132	728	28	0	756	678	728	

594868.63	2369275	0.1006	729	28	0	757	679	729	
597368.63	2363275	0.10059	730	28	0	758	680	730	
592868.63	2355775	0.10051	731	28	0	759	681	731	
597868.63	2357275	0.1004	732	28	0	760	682	732	
597368.63	2358775	0.1003	733	28	0	761	683	733	
597868.63	2358775	0.10019	734	28	0	762	684	734	
597368.63	2359275	0.10012	735	28	0	763	685	735	
593868.63	2357275	0.1001	736	28	0	764	686	736	
597868.63	2356775	0.09994	737	28	0	765	687	737	
586868.63	2369275	0.09959	738	28	0	766	688	738	
597868.63	2356275	0.09944	739	28	0	767	689	739	
595868.63	2356775	0.09906	740	28	0	768	690	740	
588368.63	2367775	0.09905	741	28	0	769	691	741	
592868.63	2356775	0.09874	742	28	0	770	692	742	
597868.63	2363275	0.09855	743	28	0	771	693	743	
585368.63	2369275	0.09833	744	28	0	772	694	744	
592868.63	2356275	0.09824	745	28	0	773	695	745	
587368.63	2369275	0.09824	746	28	0	774	696	746	
588868.63	2366775	0.09801	747	28	0	775	697	747	
586368.63	2369275	0.09796	748	28	0	776	698	748	
597368.63	2364275	0.09778	749	28	0	777	699	749	
593868.63	2365775	0.09777	750	28	0	778	700	750	
586368.63	2368775	0.09728	751	28	0	779	701	751	
596868.63	2356275	0.0968	752	28	0	780	702	752	
597868.63	2359275	0.09626	753	28	0	781	703	753	
594868.63	2357275	0.09558	754	28	0	782	704	754	
593368.63	2356775	0.09519	755	28	0	783	705	755	
587868.63	2368775	0.0951	756	28	0	784	706	756	
597868.63	2355775	0.09487	757	28	0	785	707	757	
597868.63	2358275	0.09463	758	28	0	786	708	758	
589868.63	2367775	0.09454	759	28	0	787	709	759	
597368.63	2358275	0.09434	760	28	0	788	710	760	
597868.63	2364275	0.09411	761	28	0	789	711	761	
597868.63	2365775	0.09397	762	28	0	790	712	762	
594368.63	2357275	0.09378	763	28	0	791	713	763	
593368.63	2365775	0.09376	764	28	0	792	714	764	
585868.63	2369275	0.09372	765	28	0	793	715	765	
593868.63	2356775	0.0931	766	28	0	794	716	766	
593368.63	2357275	0.09259	767	28	0	795	717	767	
597868.63	2357775	0.09231	768	28	0	796	718	768	
588868.63	2367275	0.0923	769	28	0	797	719	769	
597368.63	2366275	0.09224	770	28	0	798	720	770	
597868.63	2364775	0.0921	771	28	0	799	721	771	
595368.63	2356775	0.09192	772	28	0	800	722	772	
596368.63	2356275	0.0916	773	28	0	801	723	773	
597868.63	2366275	0.09141	774	28	0	802	724	774	
594368.63	2356275	0.09138	775	28	0	803	725	775	
594368.63	2356775	0.09061	776	28	0	804	726	776	
593868.63	2356275	0.09053	777	28	0	805	727	777	
597368.63	2363775	0.08996	778	28	0	806	728	778	
594868.63	2356775	0.08982	779	28	0	807	729	779	
593368.63	2356275	0.08969	780	28	0	808	730	780	
593868.63	2366775	0.08918	781	28	0	809	731	781	
590868.63	2369275	0.08895	782	28	0	810	732	782	
597868.63	2363775	0.08872	783	28	0	811	733	783	
597368.63	2355775	0.08872	784	28	0	812	734	784	
588868.63	2367775	0.08836	785	28	0	813	735	785	
594868.63	2356275	0.08792	786	28	0	814	736	786	
593368.63	2355275	0.08692	787	28	0	815	737	787	
593368.63	2355775	0.08672	788	28	0	816	738	788	
589368.63	2367775	0.08643	789	28	0	817	739	789	

596868.63	2355775	0.08611	790	28	0	818	740	790	
597368.63	2365775	0.08596	791	28	0	819	741	791	
588368.63	2368275	0.08571	792	28	0	820	742	792	
595368.63	2356275	0.0856	793	28	0	821	743	793	
594368.63	2355775	0.0856	794	28	0	822	744	794	
592868.63	2365275	0.08558	795	28	0	823	745	795	
594868.63	2355775	0.08527	796	28	0	824	746	796	
595868.63	2356275	0.08509	797	28	0	825	747	797	
595368.63	2355775	0.08467	798	28	0	826	748	798	
588868.63	2368275	0.08423	799	28	0	827	749	799	
593868.63	2355775	0.08374	800	28	0	828	750	800	
587868.63	2369275	0.08341	801	28	0	829	751	801	
597868.63	2365275	0.08308	802	28	0	830	752	802	
591368.63	2368275	0.08273	803	28	0	831	753	803	
592368.63	2368275	0.08204	804	28	0	832	754	804	
594868.63	2355275	0.08193	805	28	0	833	755	805	
595868.63	2355775	0.08101	806	28	0	834	756	806	
590368.63	2368775	0.08043	807	28	0	835	757	807	
589368.63	2368275	0.08036	808	28	0	836	758	808	
594368.63	2355275	0.08024	809	28	0	837	759	809	
588868.63	2368775	0.08018	810	28	0	838	760	810	
593868.63	2355275	0.07999	811	28	0	839	761	811	
596368.63	2355775	0.07949	812	28	0	840	762	812	
588368.63	2368775	0.07933	813	28	0	841	763	813	
589868.63	2368275	0.0781	814	28	0	842	764	814	
594368.63	2368775	0.0774	815	28	0	843	765	815	
588868.63	2369275	0.07697	816	28	0	844	766	816	
592868.63	2365775	0.07673	817	28	0	845	767	817	
588368.63	2369275	0.07611	818	28	0	846	768	818	
589868.63	2368775	0.07436	819	28	0	847	769	819	
589368.63	2368775	0.07368	820	28	0	848	770	820	
594368.63	2369275	0.07198	821	28	0	849	771	821	
589868.63	2369275	0.07075	822	28	0	850	772	822	
589368.63	2369275	0.06977	823	28	0	851	773	823	
590368.63	2369275	0.06925	824	28	0	852	774	824	
593368.63	2367275	0.06571	825	28	0	853	775	825	
593868.63	2367775	0.06269	826	28	0	854	776	826	
593368.63	2366275	0.06203	827	28	0	855	777	827	
593368.63	2366775	0.05839	828	28	0	856	778	828	
593868.63	2368775	0.05668	829	28	0	857	779	829	
593868.63	2368275	0.05274	830	28	0	858	780	830	
592868.63	2368275	0.05173	831	28	0	859	781	831	
593368.63	2367775	0.0511	832	28	0	860	782	832	
593368.63	2368275	0.04415	833	28	0	861	783	833	
593868.63	2369275	0.03929	834	28	0	862	784	834	
593368.63	2368775	0.03766	835	28	0	863	785	835	

Appendix C: Waiau Receptor Score Ranking (DOH-CAB Run)

east (m)	north (m)	dv con	dv rank	ndays rank (dups)	ndays (Max Daily Freq)	score1 (dups)	score rank (1toN: dups)	score rank (1toN: no dups)	Top 50 HECO score Rank
608,000	2,365,800	1.66628	1	8	42	9	1	1	2
607,300	2,366,000	1.4608	3	7	45	10	2	2	4
607,600	2,366,100	1.3953	4	7	45	11	3	3	1
608,100	2,365,800	1.5804	2	11	29	13	4	4	5
607,700	2,366,100	1.28125	5	12	28	17	5	5	8
606,700	2,365,100	1.07796	20	1	169	21	6	6	3
607,300	2,366,100	1.27892	6	17	20	23	7	7	14
608,000	2,366,000	1.19756	8	16	21	24	8	8	10
607,300	2,365,800	1.15874	10	15	22	25	9	9	6
606,700	2,365,200	1.04221	24	3	66	27	10	10	7
608,300	2,365,800	1.23255	7	24	6	31	11	11	11
607,500	2,366,200	1.17157	9	23	7	32	12	12	9
607,800	2,366,100	1.12372	14	19	16	33	13	13	20
607,200	2,366,000	1.14068	11	27	3	38	14	14	15
607,400	2,366,200	1.08329	19	21	13	40	15	15	24
608,000	2,365,300	1.07201	21	20	14	41	16	16	12
608,300	2,365,900	1.13254	12	29	1	41	16	17	22
606,900	2,365,500	1.03036	29	14	25	43	17	18	13
607,600	2,366,200	1.13114	13	30	0	43	17	19	23
607,200	2,366,100	1.11934	16	29	1	45	18	20	40
607,300	2,366,200	1.12172	15	30	0	45	18	21	46
608,000	2,366,100	1.10161	18	28	2	46	19	22	45
607,700	2,366,200	1.11737	17	29	1	46	19	23	31
606,800	2,365,400	1.00249	37	10	30	47	20	24	15
606,700	2,364,800	0.89574	50	2	137	52	21	25	18
607,100	2,365,700	1.03656	27	25	5	52	21	26	19
608,100	2,366,100	1.05238	22	30	0	52	21	27	34
608,100	2,365,200	1.02213	33	20	14	53	22	28	17
607,200	2,365,900	1.04257	23	30	0	53	22	29	33
608,300	2,366,000	1.03677	26	28	2	54	23	30	28
607,500	2,366,300	1.04078	25	30	0	55	24	31	34
608,300	2,365,500	1.03422	28	28	2	56	25	32	25
606,700	2,365,300	0.96731	40	17	20	57	26	33	20
607,200	2,365,800	1.0265	32	26	4	58	27	34	25
607,200	2,365,700	0.98241	38	22	10	60	28	35	25
607,900	2,366,100	1.00271	36	24	6	60	28	36	32
608,200	2,366,100	1.02738	30	30	0	60	28	37	29
608,300	2,366,100	1.02675	31	30	0	61	29	38	36
607,800	2,366,200	1.01121	34	30	0	64	30	39	47
607,200	2,366,200	1.00589	35	30	0	65	31	40	
608,400	2,365,900	0.97101	39	30	0	69	32	41	41
606,600	2,364,900	0.84885	66	5	56	71	33	42	30
607,700	2,366,300	0.96049	41	30	0	71	33	43	
607,600	2,366,300	0.95582	42	30	0	72	34	44	44
607,900	2,366,200	0.92552	45	28	2	73	35	45	
608,100	2,366,200	0.94693	43	30	0	73	35	46	
607,300	2,366,300	0.93806	44	30	0	74	36	47	
607,400	2,366,300	0.92032	46	30	0	76	37	48	49
608,000	2,366,200	0.90845	47	30	0	77	38	49	
608,400	2,365,800	0.89717	49	29	1	78	39	50	39
608,400	2,366,000	0.90125	48	30	0	78	39	51	50
607,000	2,365,700	0.89246	51	30	0	81	40	52	
607,100	2,366,100	0.89136	52	30	0	82	41	53	
606,600	2,365,000	0.87606	59	24	6	83	42	54	37
608,500	2,365,700	0.89022	54	29	1	83	42	55	41

606,600	2,365,100	0.891	53	30	0	83	42	56	
608,400	2,365,500	0.88459	55	30	0	85	43	57	
608,300	2,366,200	0.88444	56	30	0	86	44	58	
607,200	2,366,300	0.87967	57	30	0	87	45	59	
606,600	2,365,200	0.87726	58	30	0	88	46	60	
606,700	2,364,700	0.79917	80	9	32	89	47	61	38
606,800	2,365,500	0.87148	60	30	0	90	48	62	
607,500	2,366,400	0.86891	61	30	0	91	49	63	
606,900	2,365,600	0.85356	64	28	2	92	50	64	47
607,800	2,366,300	0.86012	62	30	0	92	50	65	
607,100	2,366,200	0.85963	63	30	0	93	51	66	
608,200	2,366,200	0.85212	65	30	0	95	52	67	
607,100	2,366,000	0.83914	67	30	0	97	53	68	
607,100	2,365,900	0.83661	68	30	0	98	54	69	
606,800	2,364,600	0.75793	93	6	47	99	55	70	41
607,100	2,365,800	0.82739	70	29	1	99	55	71	
608,400	2,366,100	0.83512	69	30	0	99	55	72	
607,900	2,366,300	0.82443	71	30	0	101	56	73	
607,700	2,366,400	0.82317	72	30	0	102	57	74	
608,100	2,366,300	0.81667	73	30	0	103	58	75	
606,700	2,365,400	0.81662	74	30	0	104	59	76	
608,200	2,366,300	0.81095	75	30	0	105	60	77	
608,400	2,366,200	0.81068	76	30	0	106	61	78	
607,600	2,366,400	0.80943	77	30	0	107	62	79	
608,500	2,365,600	0.80243	79	29	1	108	63	80	
607,400	2,366,400	0.80364	78	30	0	108	63	81	
607,100	2,364,500	0.73127	105	4	59	109	64	82	
608,500	2,365,800	0.77842	82	28	2	110	65	83	
608,500	2,365,900	0.78785	81	30	0	111	66	84	
608,500	2,366,000	0.77467	83	30	0	113	67	85	
608,300	2,365,400	0.77441	84	30	0	114	68	86	
607,100	2,366,300	0.77335	85	30	0	115	69	87	
608,300	2,366,300	0.77144	87	29	1	116	70	88	
607,000	2,365,800	0.77192	86	30	0	116	70	89	
606,900	2,365,700	0.77103	88	30	0	118	71	90	
607,000	2,364,500	0.72797	106	13	27	119	72	91	
606,600	2,365,300	0.77075	89	30	0	119	72	92	
607,800	2,366,400	0.76677	90	30	0	120	73	93	
606,600	2,364,800	0.75707	94	27	3	121	74	94	
607,300	2,366,400	0.76314	91	30	0	121	74	95	
608,000	2,366,300	0.76264	92	30	0	122	75	96	
608,600	2,365,700	0.75054	95	30	0	125	76	97	
606,500	2,365,200	0.74995	96	30	0	126	77	98	
607,500	2,366,500	0.74977	97	30	0	127	78	99	
608,200	2,365,200	0.74938	98	30	0	128	79	100	
606,500	2,365,000	0.74767	99	30	0	129	80	101	
608,400	2,365,400	0.74355	100	30	0	130	81	102	
607,000	2,366,000	0.74127	101	30	0	131	82	103	
607,200	2,366,400	0.74021	102	30	0	132	83	104	
606,800	2,365,600	0.73627	103	30	0	133	84	105	
606,700	2,365,500	0.73514	104	30	0	134	85	106	
608,500	2,365,500	0.72788	107	30	0	137	86	107	
606,600	2,364,700	0.72315	108	30	0	138	87	108	
606,900	2,364,500	0.70619	121	18	17	139	88	109	
606,500	2,365,100	0.72267	109	30	0	139	88	110	
608,400	2,366,300	0.72205	110	30	0	140	89	111	
607,900	2,366,400	0.71964	112	29	1	141	90	112	
607,000	2,365,900	0.72037	111	30	0	141	90	113	
608,200	2,365,400	0.71667	115	27	3	142	91	114	

607,400	2,366,500	0.71959	113	30	0	143	92	115	
607,000	2,366,200	0.71747	114	30	0	144	93	116	
606,500	2,364,900	0.71649	116	30	0	146	94	117	
606,700	2,364,600	0.71051	118	29	1	147	95	118	
607,700	2,366,500	0.71434	117	30	0	147	95	119	
607,000	2,366,100	0.70837	119	30	0	149	96	120	
608,300	2,366,400	0.70786	120	30	0	150	97	121	
608,100	2,365,400	0.70506	122	30	0	152	98	122	
608,000	2,366,400	0.70358	123	30	0	153	99	123	
606,500	2,364,800	0.68975	124	30	0	154	100	124	
607,600	2,366,500	0.68967	125	30	0	155	101	125	
608,600	2,365,600	0.68678	126	30	0	156	102	126	
607,100	2,366,400	0.68673	127	30	0	157	103	127	
606,800	2,365,700	0.68227	128	30	0	158	104	128	
607,000	2,366,300	0.68027	129	30	0	159	105	129	
607,800	2,366,500	0.67934	130	30	0	160	106	130	
608,500	2,366,100	0.67796	131	30	0	161	107	131	
608,200	2,366,400	0.67463	132	30	0	162	108	132	
606,900	2,365,800	0.67407	133	30	0	163	109	133	
608,100	2,365,300	0.67358	134	30	0	164	110	134	
606,600	2,365,400	0.67169	135	30	0	165	111	135	
608,600	2,365,800	0.66517	136	30	0	166	112	136	
608,100	2,366,400	0.66492	137	30	0	167	113	137	
606,800	2,364,500	0.65241	140	28	2	168	114	138	
608,500	2,366,200	0.65867	138	30	0	168	114	139	
608,300	2,365,100	0.65327	139	30	0	169	115	140	
607,300	2,366,500	0.64869	141	30	0	171	116	141	
607,500	2,366,600	0.64848	142	30	0	172	117	142	
608,500	2,365,400	0.64305	143	30	0	173	118	143	
607,200	2,366,500	0.6417	144	30	0	174	119	144	
606,400	2,365,000	0.63807	145	30	0	175	120	145	
608,000	2,365,400	0.63776	146	30	0	176	121	146	
606,600	2,365,500	0.63737	147	30	0	177	122	147	
608,600	2,366,000	0.63582	148	30	0	178	123	148	
607,900	2,366,500	0.63568	149	30	0	179	124	149	
606,600	2,364,600	0.63357	150	30	0	180	125	150	
606,700	2,365,600	0.63293	151	30	0	181	126	151	
608,200	2,365,300	0.62929	154	28	2	182	127	152	
608,500	2,366,300	0.63199	152	30	0	182	127	153	
606,500	2,364,700	0.63151	153	30	0	183	128	154	
606,500	2,365,300	0.62473	155	30	0	185	129	155	
608,000	2,366,500	0.62298	156	30	0	186	130	156	
606,900	2,365,900	0.62198	157	30	0	187	131	157	
606,400	2,365,100	0.62168	158	30	0	188	132	158	
608,400	2,366,400	0.62082	159	30	0	189	133	159	
607,700	2,366,600	0.62074	160	30	0	190	134	160	
606,400	2,364,900	0.62052	161	30	0	191	135	161	
607,100	2,364,400	0.61193	168	24	6	192	136	162	
606,700	2,365,700	0.61782	162	30	0	192	136	163	
606,800	2,365,800	0.61778	163	30	0	193	137	164	
606,400	2,364,800	0.61777	164	30	0	194	138	165	
607,000	2,366,400	0.61727	165	30	0	195	139	166	
606,400	2,365,200	0.61423	166	30	0	196	140	167	
606,700	2,364,500	0.61422	167	30	0	197	141	168	
607,400	2,366,600	0.60811	169	30	0	199	142	169	
606,900	2,364,400	0.60634	170	30	0	200	143	170	
608,600	2,365,900	0.60619	171	30	0	201	144	171	
608,700	2,365,700	0.60607	172	30	0	202	145	172	
607,100	2,366,500	0.60334	173	30	0	203	146	173	

606,900	2,366,100	0.60204	174	30	0	204	147	174	
607,000	2,364,400	0.60028	175	30	0	205	148	175	
608,500	2,366,400	0.59901	176	30	0	206	149	176	
606,500	2,364,600	0.5964	177	30	0	207	150	177	
607,300	2,366,600	0.59145	178	30	0	208	151	178	
608,200	2,366,500	0.59096	179	30	0	209	152	179	
606,600	2,364,500	0.58937	180	30	0	210	153	180	
606,900	2,366,000	0.58861	181	30	0	211	154	181	
608,600	2,365,500	0.58827	182	30	0	212	155	182	
606,900	2,366,300	0.58754	183	30	0	213	156	183	
608,400	2,366,500	0.58703	184	30	0	214	157	184	
607,600	2,366,600	0.58646	185	30	0	215	158	185	
607,900	2,366,600	0.58322	186	30	0	216	159	186	
608,300	2,366,500	0.58149	187	30	0	217	160	187	
606,800	2,364,400	0.58032	188	30	0	218	161	188	
607,800	2,366,600	0.57895	189	30	0	219	162	189	
608,600	2,366,100	0.5781	190	30	0	220	163	190	
606,900	2,366,200	0.57429	191	30	0	221	164	191	
608,100	2,366,500	0.57232	192	30	0	222	165	192	
606,500	2,365,400	0.57014	193	30	0	223	166	193	
608,300	2,365,300	0.56682	194	30	0	224	167	194	
607,000	2,366,500	0.56669	195	30	0	225	168	195	
606,400	2,364,700	0.56348	196	30	0	226	169	196	
608,700	2,365,600	0.56334	197	30	0	227	170	197	
608,600	2,366,300	0.55209	198	30	0	228	171	198	
608,600	2,366,200	0.55148	199	30	0	229	172	199	
606,300	2,364,900	0.55082	200	30	0	230	173	200	
606,900	2,366,400	0.55038	201	30	0	231	174	201	
607,200	2,366,600	0.54925	202	30	0	232	175	202	
606,600	2,365,600	0.54814	203	30	0	233	176	203	
607,500	2,366,700	0.54629	204	30	0	234	177	204	
608,600	2,365,400	0.54539	205	30	0	235	178	205	
608,700	2,365,800	0.54495	206	30	0	236	179	206	
606,500	2,365,500	0.54479	207	30	0	237	180	207	
606,700	2,365,800	0.54328	208	30	0	238	181	208	
606,300	2,364,800	0.54305	209	30	0	239	182	209	
606,700	2,364,400	0.54283	210	30	0	240	183	210	
606,800	2,365,900	0.5419	211	30	0	241	184	211	
607,700	2,366,700	0.54048	212	30	0	242	185	212	
606,300	2,365,100	0.53961	213	30	0	243	186	213	
608,000	2,366,600	0.53924	214	30	0	244	187	214	
606,500	2,364,500	0.53796	215	30	0	245	188	215	
606,300	2,364,700	0.53759	216	30	0	246	189	216	
608,500	2,366,500	0.53742	217	30	0	247	190	217	
608,300	2,365,200	0.5373	218	30	0	248	191	218	
606,300	2,365,000	0.53303	219	30	0	249	192	219	
606,400	2,364,600	0.53096	220	30	0	250	193	220	
608,500	2,366,600	0.52958	221	30	0	251	194	221	
608,600	2,366,400	0.52904	222	30	0	252	195	222	
606,600	2,365,700	0.5287	223	30	0	253	196	223	
608,700	2,366,000	0.52813	224	30	0	254	197	224	
607,400	2,366,700	0.52786	225	30	0	255	198	225	
607,000	2,364,300	0.52296	226	30	0	256	199	226	
606,400	2,365,300	0.52223	227	30	0	257	200	227	
606,900	2,364,300	0.52161	228	30	0	258	201	228	
606,800	2,366,000	0.52153	229	30	0	259	202	229	
606,600	2,364,400	0.51858	230	30	0	260	203	230	
606,700	2,365,900	0.51752	231	30	0	261	204	231	
607,600	2,366,700	0.51649	232	30	0	262	205	232	

607,800	2,366,700	0.51459	233	30	0	263	206	233	
607,100	2,366,600	0.51451	234	30	0	264	207	234	
608,400	2,366,600	0.5128	235	30	0	265	208	235	
606,400	2,364,500	0.51227	236	30	0	266	209	236	
607,300	2,366,700	0.51224	237	30	0	267	210	237	
608,700	2,366,100	0.51164	238	30	0	268	211	238	
606,300	2,365,200	0.50659	239	30	0	269	212	239	
606,200	2,364,800	0.50411	240	30	0	270	213	240	
608,600	2,366,500	0.50254	241	30	0	271	214	241	
606,800	2,364,300	0.50216	242	30	0	272	215	242	
607,100	2,364,300	0.50011	245	28	2	273	216	243	
606,800	2,366,200	0.50215	243	30	0	273	216	244	
608,200	2,367,000	0.50097	244	30	0	274	217	245	
608,400	2,365,100	0.5001	246	30	0	276	218	246	
606,900	2,366,500	0.4998	247	30	0	277	219	247	
606,200	2,364,900	0.49703	248	30	0	278	220	248	
608,200	2,366,600	0.49657	249	30	0	279	221	249	
606,200	2,364,700	0.49543	250	30	0	280	222	250	
608,400	2,365,300	0.49476	251	30	0	281	223	251	
608,100	2,366,600	0.49357	252	30	0	282	224	252	
608,800	2,365,800	0.49321	253	30	0	283	225	253	
608,600	2,366,600	0.49268	254	30	0	284	226	254	
606,300	2,364,600	0.49268	255	30	0	285	227	255	
608,800	2,365,600	0.49159	256	30	0	286	228	256	
606,500	2,364,400	0.49041	257	30	0	287	229	257	
607,000	2,366,600	0.49014	258	30	0	288	230	258	
606,400	2,365,400	0.48994	259	30	0	289	231	259	
606,600	2,365,800	0.48983	260	30	0	290	232	260	
606,700	2,364,300	0.48852	261	30	0	291	233	261	
608,800	2,365,700	0.48788	262	30	0	292	234	262	
608,100	2,366,700	0.48783	263	30	0	293	235	263	
608,300	2,366,600	0.48628	264	30	0	294	236	264	
606,200	2,364,600	0.48613	265	30	0	295	237	265	
608,700	2,365,900	0.48475	266	30	0	296	238	266	
608,700	2,365,500	0.48424	267	30	0	297	239	267	
608,700	2,366,200	0.48372	268	30	0	298	240	268	
607,200	2,366,700	0.48358	269	30	0	299	241	269	
607,500	2,366,800	0.48209	270	30	0	300	242	270	
608,200	2,367,100	0.48156	272	29	1	301	243	271	
608,400	2,365,200	0.48202	271	30	0	301	243	272	
606,800	2,366,400	0.48104	273	30	0	303	244	273	
608,500	2,366,700	0.47924	274	30	0	304	245	274	
606,800	2,366,100	0.47797	275	30	0	305	246	275	
606,500	2,365,600	0.4779	276	30	0	306	247	276	
606,700	2,366,000	0.47712	277	30	0	307	248	277	
608,600	2,366,700	0.47603	278	30	0	308	249	278	
607,900	2,366,700	0.476	279	30	0	309	250	279	
606,100	2,364,600	0.47445	280	30	0	310	251	280	
607,400	2,366,800	0.47308	281	30	0	311	252	281	
606,300	2,364,500	0.4723	282	30	0	312	253	282	
608,700	2,366,300	0.47134	283	30	0	313	254	283	
606,400	2,365,500	0.47105	284	30	0	314	255	284	
607,200	2,367,900	0.47092	285	30	0	315	256	285	
606,100	2,364,700	0.47059	286	30	0	316	257	286	
608,000	2,366,700	0.47058	287	30	0	317	258	287	
608,700	2,366,400	0.47041	288	30	0	318	259	288	
607,200	2,368,000	0.47016	289	30	0	319	260	289	
606,100	2,364,800	0.47005	290	30	0	320	261	290	
606,800	2,366,300	0.46984	291	30	0	321	262	291	

607,100	2,368,100	0.46956	292	30	0	322	263	292	
608,400	2,367,700	0.46827	293	30	0	323	264	293	
607,700	2,366,800	0.46826	294	30	0	324	265	294	
608,100	2,366,900	0.46811	295	30	0	325	266	295	
607,600	2,366,800	0.46772	296	30	0	326	267	296	
607,100	2,368,000	0.46668	297	30	0	327	268	297	
607,100	2,366,700	0.46518	298	30	0	328	269	298	
607,200	2,367,800	0.464	299	30	0	329	270	299	
606,800	2,366,500	0.46289	300	30	0	330	271	300	
608,700	2,365,400	0.46286	301	30	0	331	272	301	
608,200	2,366,900	0.46176	302	30	0	332	273	302	
607,300	2,367,800	0.4613	303	30	0	333	274	303	
607,800	2,366,800	0.4611	304	30	0	334	275	304	
606,500	2,365,700	0.46014	305	30	0	335	276	305	
606,600	2,364,300	0.45926	306	30	0	336	277	306	
607,300	2,367,700	0.45865	307	30	0	337	278	307	
606,400	2,364,400	0.45808	308	30	0	338	279	308	
608,400	2,367,600	0.45801	309	30	0	339	280	309	
608,100	2,366,800	0.45758	310	30	0	340	281	310	
607,700	2,367,000	0.45709	311	30	0	341	282	311	
607,000	2,364,200	0.45687	312	30	0	342	283	312	
607,300	2,366,800	0.45583	313	30	0	343	284	313	
607,300	2,367,900	0.45569	314	30	0	344	285	314	
606,900	2,366,600	0.45497	315	30	0	345	286	315	
606,800	2,364,200	0.45375	316	30	0	346	287	316	
606,300	2,365,300	0.45349	317	30	0	347	288	317	
608,700	2,366,500	0.45263	318	30	0	348	289	318	
606,500	2,364,300	0.45134	319	30	0	349	290	319	
608,800	2,366,100	0.45021	320	30	0	350	291	320	
607,200	2,366,800	0.44953	321	30	0	351	292	321	
608,500	2,365,000	0.44944	322	30	0	352	293	322	
607,700	2,366,900	0.44885	323	30	0	353	294	323	
608,300	2,367,100	0.44836	325	29	1	354	295	324	
608,400	2,366,700	0.4486	324	30	0	354	295	325	
608,300	2,366,700	0.44772	326	30	0	356	296	326	
607,500	2,367,800	0.44755	327	30	0	357	297	327	
607,200	2,368,100	0.44744	328	30	0	358	298	328	
606,300	2,364,400	0.44734	329	30	0	359	299	329	
607,500	2,363,100	0.44663	331	29	1	360	300	330	
607,400	2,367,800	0.44674	330	30	0	360	300	331	
606,900	2,364,200	0.44607	332	30	0	362	301	332	
608,400	2,367,800	0.44593	333	30	0	363	302	333	
608,600	2,366,800	0.44591	334	30	0	364	303	334	
607,700	2,367,200	0.44587	335	30	0	365	304	335	
608,800	2,365,500	0.44572	336	30	0	366	305	336	
607,500	2,367,900	0.4452	337	30	0	367	306	337	
607,700	2,367,100	0.44485	338	30	0	368	307	338	
607,400	2,367,700	0.44433	339	30	0	369	308	339	
607,600	2,363,100	0.44293	340	30	0	370	309	340	
608,500	2,367,700	0.4422	341	30	0	371	310	341	
607,600	2,366,900	0.44211	342	30	0	372	311	342	
606,200	2,364,500	0.44155	343	30	0	373	312	343	
607,500	2,368,000	0.44076	344	30	0	374	313	344	
607,200	2,367,700	0.44049	345	30	0	375	314	345	
608,300	2,367,500	0.4404	346	30	0	376	315	346	
607,500	2,366,900	0.44033	347	30	0	377	316	347	
606,700	2,364,200	0.4401	348	30	0	378	317	348	
608,200	2,366,700	0.44006	349	30	0	379	318	349	
608,100	2,367,000	0.43964	350	30	0	380	319	350	

607,600	2,363,200	0.43903	351	30	0	381	320	351	
608,200	2,366,800	0.43887	352	30	0	382	321	352	
607,300	2,367,600	0.43879	353	30	0	383	322	353	
607,400	2,366,900	0.43874	354	30	0	384	323	354	
606,600	2,365,900	0.43867	355	30	0	385	324	355	
607,300	2,368,000	0.43853	356	30	0	386	325	356	
607,100	2,367,900	0.43838	357	30	0	387	326	357	
606,700	2,366,100	0.43811	358	30	0	388	327	358	
607,500	2,367,700	0.4375	359	30	0	389	328	359	
606,400	2,365,600	0.43699	360	30	0	390	329	360	
608,300	2,367,200	0.43692	361	30	0	391	330	361	
607,350	2,362,850	0.43661	362	30	0	392	331	362	
608,900	2,365,800	0.43658	363	30	0	393	332	363	
608,000	2,366,800	0.43632	364	30	0	394	333	364	
608,700	2,366,800	0.43568	365	30	0	395	334	365	
607,400	2,367,000	0.43553	366	30	0	396	335	366	
606,000	2,364,600	0.43551	367	30	0	397	336	367	
608,700	2,366,600	0.43546	368	30	0	398	337	368	
608,800	2,365,900	0.43543	369	30	0	399	338	369	
607,900	2,366,800	0.4354	370	30	0	400	339	370	
607,600	2,367,100	0.43523	371	30	0	401	340	371	
606,100	2,364,500	0.4351	372	30	0	402	341	372	
606,500	2,365,800	0.43507	373	30	0	403	342	373	
607,600	2,362,850	0.43437	374	30	0	404	343	374	
608,800	2,366,000	0.4343	375	30	0	405	344	375	
607,500	2,368,100	0.4339	376	30	0	406	345	376	
607,600	2,367,900	0.4337	377	30	0	407	346	377	
608,500	2,366,800	0.43352	378	30	0	408	347	378	
607,600	2,368,000	0.43348	379	30	0	409	348	379	
607,600	2,367,000	0.43331	380	30	0	410	349	380	
606,200	2,365,300	0.433	381	30	0	411	350	381	
607,000	2,366,700	0.43291	382	30	0	412	351	382	
607,400	2,367,900	0.43238	383	30	0	413	352	383	
606,900	2,366,700	0.43184	384	30	0	414	353	384	
607,800	2,367,300	0.43155	385	30	0	415	354	385	
608,700	2,366,900	0.43089	386	30	0	416	355	386	
607,600	2,368,100	0.4296	387	30	0	417	356	387	
608,900	2,365,600	0.42956	388	30	0	418	357	388	
606,100	2,364,900	0.42826	389	30	0	419	358	389	
608,300	2,367,600	0.42807	390	30	0	420	359	390	
607,800	2,366,900	0.42807	391	30	0	421	360	391	
606,300	2,365,400	0.4275	392	30	0	422	361	392	
608,700	2,366,700	0.42746	393	30	0	423	362	393	
608,000	2,367,600	0.42726	394	30	0	424	363	394	
607,600	2,367,800	0.42714	395	30	0	425	364	395	
608,500	2,367,900	0.42694	396	30	0	426	365	396	
605,800	2,364,600	0.42661	397	30	0	427	366	397	
607,000	2,368,000	0.42654	398	30	0	428	367	398	
607,600	2,362,600	0.42649	399	30	0	429	368	399	
607,700	2,367,300	0.42615	400	30	0	430	369	400	
607,100	2,364,200	0.42593	402	29	1	431	370	401	
606,700	2,366,200	0.42603	401	30	0	431	370	402	
607,800	2,367,200	0.42582	403	30	0	433	371	403	
606,400	2,364,300	0.42556	404	30	0	434	372	404	
606,200	2,364,400	0.42553	405	30	0	435	373	405	
608,500	2,367,800	0.42537	406	30	0	436	374	406	
607,300	2,367,500	0.4253	407	30	0	437	375	407	
608,500	2,368,000	0.4248	408	30	0	438	376	408	
607,200	2,367,600	0.42462	409	30	0	439	377	409	

608,500	2,365,300	0.42448	410	30	0	440	378	410	
607,900	2,367,400	0.42388	411	30	0	441	379	411	
608,500	2,365,200	0.42344	412	30	0	442	380	412	
607,400	2,368,000	0.42309	413	30	0	443	381	413	
607,350	2,362,600	0.42263	414	30	0	444	382	414	
608,200	2,367,200	0.42218	415	30	0	445	383	415	
608,000	2,367,500	0.42165	416	30	0	446	384	416	
607,100	2,367,800	0.42137	417	30	0	447	385	417	
606,500	2,364,200	0.42132	418	30	0	448	386	418	
608,800	2,366,200	0.42107	419	30	0	449	387	419	
606,600	2,364,200	0.42071	420	30	0	450	388	420	
606,600	2,366,000	0.42061	421	30	0	451	389	421	
607,300	2,367,400	0.4204	422	30	0	452	390	422	
607,600	2,367,700	0.42015	423	30	0	453	391	423	
606,100	2,364,400	0.42015	424	30	0	454	392	424	
607,500	2,367,000	0.42004	425	30	0	455	393	425	
607,100	2,366,800	0.41981	426	30	0	456	394	426	
606,700	2,366,300	0.41949	427	30	0	457	395	427	
608,900	2,365,700	0.41948	428	30	0	458	396	428	
607,400	2,367,600	0.4192	429	30	0	459	397	429	
608,100	2,368,100	0.41881	430	30	0	460	398	430	
606,800	2,366,600	0.41745	431	30	0	461	399	431	
608,500	2,368,100	0.41682	432	30	0	462	400	432	
607,400	2,368,100	0.4161	433	30	0	463	401	433	
607,100	2,362,350	0.41589	435	29	1	464	402	434	
606,400	2,365,700	0.41591	434	30	0	464	402	435	
607,700	2,363,200	0.41581	436	30	0	466	403	436	
607,000	2,368,100	0.4157	437	30	0	467	404	437	
608,000	2,366,900	0.41541	438	30	0	468	405	438	
607,700	2,363,300	0.41439	439	30	0	469	406	439	
607,000	2,367,900	0.41437	440	30	0	470	407	440	
605,700	2,364,600	0.41434	441	30	0	471	408	441	
608,600	2,366,900	0.41425	442	30	0	472	409	442	
606,400	2,364,200	0.41422	443	30	0	473	410	443	
607,600	2,362,350	0.41419	444	30	0	474	411	444	
607,300	2,368,100	0.4134	445	30	0	475	412	445	
607,700	2,363,100	0.4128	446	30	0	476	413	446	
608,300	2,367,700	0.41256	447	30	0	477	414	447	
607,500	2,367,100	0.41226	448	30	0	478	415	448	
608,400	2,367,900	0.41202	449	30	0	479	416	449	
607,900	2,367,600	0.4118	450	30	0	480	417	450	
607,000	2,367,800	0.41131	451	30	0	481	418	451	
606,200	2,364,300	0.41113	452	30	0	482	419	452	
607,900	2,368,100	0.41097	453	30	0	483	420	453	
606,300	2,364,300	0.41038	454	30	0	484	421	454	
608,500	2,367,600	0.4101	455	30	0	485	422	455	
607,500	2,367,600	0.40987	456	30	0	486	423	456	
607,100	2,362,600	0.40976	457	30	0	487	424	457	
608,100	2,368,000	0.40947	458	30	0	488	425	458	
606,100	2,362,850	0.40935	459	30	0	489	426	459	
607,900	2,367,500	0.40933	460	30	0	490	427	460	
608,400	2,367,500	0.40928	461	30	0	491	428	461	
607,100	2,366,900	0.40922	462	30	0	492	429	462	
606,700	2,366,500	0.40917	463	30	0	493	430	463	
606,300	2,365,500	0.4089	464	30	0	494	431	464	
608,700	2,367,000	0.40843	465	30	0	495	432	465	
607,350	2,362,350	0.40837	466	30	0	496	433	466	
607,800	2,367,400	0.40807	467	30	0	497	434	467	
608,000	2,368,100	0.40714	468	30	0	498	435	468	

607,100	2,367,700	0.40666	469	30	0	499	436	469	
606,700	2,366,400	0.4065	470	30	0	500	437	470	
607,000	2,367,700	0.40624	471	30	0	501	438	471	
607,600	2,367,600	0.40573	472	30	0	502	439	472	
607,900	2,368,000	0.40568	473	30	0	503	440	473	
605,850	2,362,600	0.40541	474	30	0	504	441	474	
608,200	2,367,500	0.40495	475	30	0	505	442	475	
607,300	2,367,300	0.40493	476	30	0	506	443	476	
608,400	2,366,800	0.40474	477	30	0	507	444	477	
607,200	2,366,900	0.40411	478	30	0	508	445	478	
608,000	2,367,700	0.40395	479	30	0	509	446	479	
607,350	2,362,100	0.40387	481	29	1	510	447	480	
607,900	2,367,300	0.40394	480	30	0	510	447	481	
606,000	2,364,900	0.40345	482	30	0	512	448	482	
608,500	2,365,100	0.40332	483	30	0	513	449	483	
606,000	2,364,400	0.40325	484	30	0	514	450	484	
608,200	2,367,700	0.4031	485	30	0	515	451	485	
608,800	2,366,300	0.40306	486	30	0	516	452	486	
607,000	2,366,800	0.4029	487	30	0	517	453	487	
606,300	2,364,200	0.40201	488	30	0	518	454	488	
607,800	2,368,000	0.4019	489	30	0	519	455	489	
607,600	2,367,200	0.40186	490	30	0	520	456	490	
608,900	2,365,900	0.40184	491	30	0	521	457	491	
607,300	2,366,900	0.40137	492	30	0	522	458	492	
606,600	2,361,600	0.40105	493	30	0	523	459	493	
607,700	2,367,600	0.40104	494	30	0	524	460	494	
608,000	2,368,000	0.40101	495	30	0	525	461	495	
605,600	2,362,100	0.40096	496	30	0	526	462	496	
605,800	2,364,700	0.40012	497	30	0	527	463	497	
606,800	2,364,100	0.39993	498	30	0	528	464	498	
606,900	2,368,100	0.39993	499	30	0	529	465	499	
607,600	2,362,100	0.39976	500	30	0	530	466	500	
608,600	2,364,900	0.39934	501	30	0	531	467	501	
608,800	2,365,400	0.39884	502	30	0	532	468	502	
606,850	2,369,100	0.39867	503	30	0	533	469	503	
606,900	2,364,100	0.39864	504	30	0	534	470	504	
606,200	2,365,400	0.39845	505	30	0	535	471	505	
607,400	2,367,500	0.39814	506	30	0	536	472	506	
607,800	2,368,100	0.39808	507	30	0	537	473	507	
608,400	2,368,000	0.39786	508	30	0	538	474	508	
606,800	2,367,900	0.39782	509	30	0	539	475	509	
608,200	2,367,600	0.39781	510	30	0	540	476	510	
606,700	2,364,100	0.39776	511	30	0	541	477	511	
608,600	2,368,000	0.39772	512	30	0	542	478	512	
607,800	2,367,100	0.39752	513	30	0	543	479	513	
608,200	2,367,800	0.39749	514	30	0	544	480	514	
607,800	2,367,000	0.39736	515	30	0	545	481	515	
606,300	2,365,700	0.39725	516	30	0	546	482	516	
608,100	2,368,350	0.39723	517	30	0	547	483	517	
607,200	2,367,500	0.39672	518	30	0	548	484	518	
607,900	2,367,900	0.39664	519	30	0	549	485	519	
606,700	2,366,600	0.39652	520	30	0	550	486	520	
608,300	2,367,000	0.39624	521	30	0	551	487	521	
608,800	2,367,000	0.39607	522	30	0	552	488	522	
607,800	2,367,900	0.39601	523	30	0	553	489	523	
606,900	2,367,600	0.39594	524	30	0	554	490	524	
606,700	2,367,900	0.39588	525	30	0	555	491	525	
606,900	2,368,000	0.39528	526	30	0	556	492	526	
607,350	2,361,850	0.3951	527	30	0	557	493	527	

607,700	2,367,700	0.39473	528	30	0	558	494	528	
608,000	2,367,900	0.39456	529	30	0	559	495	529	
607,000	2,364,100	0.3943	530	30	0	560	496	530	
606,850	2,368,850	0.39397	531	30	0	561	497	531	
606,600	2,363,700	0.39345	532	30	0	562	498	532	
607,800	2,363,100	0.39338	533	30	0	563	499	533	
608,400	2,367,100	0.39316	534	30	0	564	500	534	
608,300	2,366,800	0.39286	535	30	0	565	501	535	
608,800	2,366,900	0.3928	536	30	0	566	502	536	
608,100	2,367,900	0.39279	537	30	0	567	503	537	
606,350	2,368,600	0.39275	538	30	0	568	504	538	
607,900	2,367,800	0.39272	539	30	0	569	505	539	
608,800	2,367,100	0.39267	540	30	0	570	506	540	
606,300	2,364,100	0.39267	541	30	0	571	507	541	
606,400	2,364,100	0.39259	542	30	0	572	508	542	
607,700	2,367,800	0.39237	543	30	0	573	509	543	
608,600	2,368,350	0.39204	544	30	0	574	510	544	
606,100	2,362,350	0.39178	545	30	0	575	511	545	
606,900	2,367,700	0.39177	546	30	0	576	512	546	
608,000	2,367,800	0.39171	547	30	0	577	513	547	
607,800	2,367,800	0.39118	548	30	0	578	514	548	
607,700	2,367,500	0.39072	549	30	0	579	515	549	
606,800	2,367,800	0.39059	550	30	0	580	516	550	
607,600	2,367,500	0.39056	551	30	0	581	517	551	
607,700	2,367,900	0.39051	552	30	0	582	518	552	
606,500	2,365,900	0.39036	553	30	0	583	519	553	
608,600	2,367,000	0.39029	554	30	0	584	520	554	
608,300	2,366,900	0.39021	555	30	0	585	521	555	
607,850	2,368,350	0.3897	556	30	0	586	522	556	
607,700	2,368,000	0.38969	557	30	0	587	523	557	
606,600	2,366,200	0.38955	558	30	0	588	524	558	
606,100	2,365,300	0.38946	559	30	0	589	525	559	
606,300	2,364,000	0.38919	561	29	1	590	526	560	
606,300	2,365,600	0.38924	560	30	0	590	526	561	
606,800	2,367,700	0.38907	562	30	0	592	527	562	
605,850	2,362,350	0.38886	563	30	0	593	528	563	
608,600	2,368,100	0.38866	564	30	0	594	529	564	
608,100	2,367,100	0.38859	565	30	0	595	530	565	
608,800	2,366,600	0.38855	566	30	0	596	531	566	
606,000	2,365,000	0.38849	567	30	0	597	532	567	
608,800	2,366,500	0.3884	568	30	0	598	533	568	
607,100	2,364,100	0.38815	569	30	0	599	534	569	
608,900	2,365,500	0.38804	570	30	0	600	535	570	
607,100	2,367,600	0.38792	571	30	0	601	536	571	
607,800	2,363,200	0.38781	572	30	0	602	537	572	
606,200	2,364,000	0.38733	573	30	0	603	538	573	
607,400	2,367,100	0.38729	574	30	0	604	539	574	
605,600	2,362,350	0.38709	575	30	0	605	540	575	
608,500	2,366,900	0.38708	576	30	0	606	541	576	
606,350	2,361,350	0.3869	578	29	1	607	542	577	
606,600	2,366,100	0.38702	577	30	0	607	542	578	
607,700	2,368,100	0.38689	579	30	0	609	543	579	
608,600	2,367,900	0.38675	580	30	0	610	544	580	
607,350	2,368,600	0.38671	581	30	0	611	545	581	
607,800	2,367,700	0.38645	582	30	0	612	546	582	
606,400	2,365,800	0.38617	583	30	0	613	547	583	
607,400	2,367,400	0.3859	584	30	0	614	548	584	
608,400	2,367,200	0.38588	585	30	0	615	549	585	
608,900	2,367,200	0.38586	586	30	0	616	550	586	

606,600	2,364,100	0.38584	587	30	0	617	551	587	
607,300	2,367,000	0.38535	588	30	0	618	552	588	
606,700	2,368,000	0.38504	589	30	0	619	553	589	
606,900	2,367,500	0.3846	590	30	0	620	554	590	
607,900	2,366,900	0.38382	591	30	0	621	555	591	
607,500	2,367,200	0.38381	592	30	0	622	556	592	
606,100	2,362,600	0.38369	593	30	0	623	557	593	
607,700	2,367,400	0.3836	594	30	0	624	558	594	
608,000	2,367,000	0.38334	595	30	0	625	559	595	
608,300	2,363,100	0.38334	596	30	0	626	560	596	
606,800	2,364,000	0.38328	597	30	0	627	561	597	
607,500	2,367,500	0.38324	598	30	0	628	562	598	
608,400	2,363,100	0.38322	599	30	0	629	563	599	
607,900	2,367,700	0.38315	600	30	0	630	564	600	
606,700	2,367,800	0.38282	601	30	0	631	565	601	
608,400	2,367,000	0.38279	602	30	0	632	566	602	
606,600	2,361,350	0.38229	603	30	0	633	567	603	
608,300	2,367,800	0.38214	604	30	0	634	568	604	
608,400	2,363,200	0.38095	606	29	1	635	569	605	
606,600	2,367,900	0.38111	605	30	0	635	569	606	
607,200	2,367,000	0.38089	607	30	0	637	570	607	
608,400	2,363,300	0.38085	608	30	0	638	571	608	
608,100	2,367,700	0.38074	609	30	0	639	572	609	
608,350	2,362,850	0.38066	610	30	0	640	573	610	
606,700	2,363,700	0.38059	611	30	0	641	574	611	
606,800	2,368,000	0.38034	612	30	0	642	575	612	
606,800	2,367,600	0.38011	613	30	0	643	576	613	
606,350	2,368,350	0.38008	614	30	0	644	577	614	
608,300	2,363,200	0.37994	615	30	0	645	578	615	
608,200	2,367,900	0.37981	616	30	0	646	579	616	
606,200	2,365,500	0.37964	617	30	0	647	580	617	
608,300	2,363,300	0.37963	618	30	0	648	581	618	
606,350	2,361,100	0.3796	619	30	0	649	582	619	
606,700	2,364,000	0.37953	620	30	0	650	583	620	
608,200	2,363,100	0.37923	621	30	0	651	584	621	
606,600	2,366,300	0.37908	622	30	0	652	585	622	
606,350	2,361,600	0.37906	623	30	0	653	586	623	
608,800	2,366,400	0.37899	624	30	0	654	587	624	
607,100	2,367,500	0.37875	625	30	0	655	588	625	
606,800	2,366,700	0.37856	626	30	0	656	589	626	
608,100	2,367,800	0.37854	627	30	0	657	590	627	
607,800	2,363,300	0.37835	628	30	0	658	591	628	
606,800	2,363,900	0.37832	629	30	0	659	592	629	
606,900	2,366,800	0.37816	630	30	0	660	593	630	
608,200	2,363,200	0.37802	631	30	0	661	594	631	
606,600	2,363,600	0.37757	633	29	1	662	595	632	
605,350	2,361,850	0.37788	632	30	0	662	595	633	
607,350	2,361,350	0.37754	634	30	0	664	596	634	
605,600	2,362,600	0.37747	635	30	0	665	597	635	
606,900	2,364,000	0.37737	636	30	0	666	598	636	
608,900	2,367,300	0.37735	637	30	0	667	599	637	
606,350	2,361,850	0.37731	638	30	0	668	600	638	
608,300	2,368,100	0.37715	639	30	0	669	601	639	
608,000	2,367,400	0.37709	640	30	0	670	602	640	
607,000	2,367,600	0.37678	641	30	0	671	603	641	
605,850	2,362,850	0.37676	642	30	0	672	604	642	
606,700	2,363,800	0.37659	643	30	0	673	605	643	
609,000	2,365,800	0.37638	644	30	0	674	606	644	
608,700	2,367,500	0.37586	645	30	0	675	607	645	

607,600	2,367,300	0.3758	646	30	0	676	608	646	
605,350	2,362,100	0.37577	647	30	0	677	609	647	
606,500	2,366,000	0.37572	648	30	0	678	610	648	
606,900	2,367,900	0.37561	649	30	0	679	611	649	
607,800	2,367,600	0.37552	650	30	0	680	612	650	
606,600	2,366,500	0.37531	651	30	0	681	613	651	
608,100	2,367,600	0.37525	652	30	0	682	614	652	
606,700	2,367,700	0.375	653	30	0	683	615	653	
608,600	2,367,300	0.37462	654	30	0	684	616	654	
605,300	2,363,100	0.37461	655	30	0	685	617	655	
605,600	2,361,850	0.37451	656	30	0	686	618	656	
608,400	2,367,300	0.37451	657	30	0	687	619	657	
606,900	2,367,400	0.37429	658	30	0	688	620	658	
608,900	2,366,200	0.37427	659	30	0	689	621	659	
608,500	2,363,200	0.37382	660	30	0	690	622	660	
605,850	2,362,100	0.37373	661	30	0	691	623	661	
608,400	2,366,900	0.37363	662	30	0	692	624	662	
607,350	2,361,100	0.37346	663	30	0	693	625	663	
605,350	2,361,600	0.37342	664	30	0	694	626	664	
606,800	2,367,500	0.3734	665	30	0	695	627	665	
608,300	2,363,400	0.37323	666	30	0	696	628	666	
608,500	2,363,300	0.37321	667	30	0	697	629	667	
608,700	2,363,300	0.37318	668	30	0	698	630	668	
608,600	2,367,800	0.37305	669	30	0	699	631	669	
606,500	2,366,100	0.37299	670	30	0	700	632	670	
606,400	2,363,800	0.37294	671	30	0	701	633	671	
606,600	2,366,400	0.37275	672	30	0	702	634	672	
606,850	2,368,600	0.37242	673	30	0	703	635	673	
606,700	2,363,900	0.37208	674	30	0	704	636	674	
608,900	2,366,100	0.37178	675	30	0	705	637	675	
608,500	2,367,200	0.37174	676	30	0	706	638	676	
607,850	2,362,350	0.37152	677	30	0	707	639	677	
607,800	2,367,500	0.37146	678	30	0	708	640	678	
607,900	2,363,300	0.37139	679	30	0	709	641	679	
606,600	2,367,800	0.37139	680	30	0	710	642	680	
606,600	2,364,000	0.37137	681	30	0	711	643	681	
608,600	2,365,000	0.37117	682	30	0	712	644	682	
607,100	2,367,000	0.37111	683	30	0	713	645	683	
608,100	2,367,500	0.37101	684	30	0	714	646	684	
608,500	2,363,100	0.37096	685	30	0	715	647	685	
606,800	2,366,800	0.37073	686	30	0	716	648	686	
605,100	2,363,200	0.37073	687	30	0	717	649	687	
607,850	2,362,100	0.37069	688	30	0	718	650	688	
607,100	2,367,400	0.37069	689	30	0	719	651	689	
607,200	2,367,400	0.37051	690	30	0	720	652	690	
608,400	2,368,100	0.37039	691	30	0	721	653	691	
607,850	2,362,850	0.37019	692	30	0	722	654	692	
606,900	2,367,300	0.37019	693	30	0	723	655	693	
609,000	2,365,700	0.37014	694	30	0	724	656	694	
608,600	2,363,300	0.3701	695	30	0	725	657	695	
605,900	2,364,900	0.37009	696	30	0	726	658	696	
608,200	2,368,000	0.36979	697	30	0	727	659	697	
608,350	2,362,600	0.36971	698	30	0	728	660	698	
607,900	2,363,400	0.36953	699	30	0	729	661	699	
607,000	2,367,000	0.36942	700	30	0	730	662	700	
606,500	2,364,100	0.36901	701	30	0	731	663	701	
608,200	2,368,100	0.36879	702	30	0	732	664	702	
606,500	2,364,000	0.36851	703	30	0	733	665	703	
606,700	2,363,500	0.36806	704	30	0	734	666	704	

608,300	2,367,900	0.36804	705	30	0	735	667	705	
606,600	2,360,600	0.3676	706	30	0	736	668	706	
607,850	2,362,600	0.3675	707	30	0	737	669	707	
607,900	2,363,200	0.3675	708	30	0	738	670	708	
609,000	2,367,400	0.36741	709	30	0	739	671	709	
606,800	2,363,600	0.36741	710	30	0	740	672	710	
607,000	2,366,900	0.36737	711	30	0	741	673	711	
606,850	2,369,350	0.36734	712	30	0	742	674	712	
606,700	2,367,600	0.36707	713	30	0	743	675	713	
607,300	2,367,200	0.36696	714	30	0	744	676	714	
607,600	2,368,850	0.3668	715	30	0	745	677	715	
608,600	2,363,100	0.36666	716	30	0	746	678	716	
608,700	2,365,300	0.36663	717	30	0	747	679	717	
607,000	2,367,400	0.36646	718	30	0	748	680	718	
606,300	2,363,900	0.36642	719	30	0	749	681	719	
607,800	2,363,400	0.36587	720	30	0	750	682	720	
608,300	2,367,300	0.36548	721	30	0	751	683	721	
608,600	2,365,200	0.36531	722	30	0	752	684	722	
608,600	2,363,200	0.36518	723	30	0	753	685	723	
606,600	2,360,850	0.3649	724	30	0	754	686	724	
606,100	2,362,100	0.36478	726	29	1	755	687	725	
608,200	2,363,300	0.36482	725	30	0	755	687	726	
607,300	2,367,100	0.36476	727	30	0	757	688	727	
608,700	2,367,400	0.36471	728	30	0	758	689	728	
606,900	2,367,800	0.36464	729	30	0	759	690	729	
607,350	2,368,850	0.36462	730	30	0	760	691	730	
605,100	2,362,850	0.36455	731	30	0	761	692	731	
605,350	2,362,850	0.36432	733	29	1	762	693	732	
606,900	2,366,900	0.3645	732	30	0	762	693	733	
605,700	2,364,700	0.36427	734	30	0	764	694	734	
606,600	2,363,900	0.36411	735	30	0	765	695	735	
607,000	2,367,100	0.36409	736	30	0	766	696	736	
606,350	2,362,100	0.36405	737	30	0	767	697	737	
608,600	2,362,850	0.36353	738	30	0	768	698	738	
605,850	2,361,850	0.36351	739	30	0	769	699	739	
606,500	2,363,900	0.36347	740	30	0	770	700	740	
608,300	2,367,400	0.36337	741	30	0	771	701	741	
607,100	2,361,100	0.36329	743	29	1	772	702	742	
606,600	2,363,800	0.36333	742	30	0	772	702	743	
606,300	2,363,800	0.36315	744	30	0	774	703	744	
607,900	2,363,500	0.36306	746	29	1	775	704	745	
607,400	2,367,300	0.3631	745	30	0	775	704	746	
606,200	2,365,700	0.36301	747	30	0	777	705	747	
606,500	2,363,800	0.36286	748	30	0	778	706	748	
607,400	2,367,200	0.36283	749	30	0	779	707	749	
608,700	2,363,200	0.3628	750	30	0	780	708	750	
606,800	2,367,400	0.36256	751	30	0	781	709	751	
607,900	2,363,100	0.36229	752	30	0	782	710	752	
606,400	2,366,000	0.36224	753	30	0	783	711	753	
605,350	2,362,350	0.36217	754	30	0	784	712	754	
607,000	2,364,000	0.36154	755	30	0	785	713	755	
605,200	2,363,200	0.36146	756	30	0	786	714	756	
608,500	2,367,000	0.36145	757	30	0	787	715	757	
606,100	2,361,600	0.36137	758	30	0	788	716	758	
606,500	2,363,700	0.36126	759	30	0	789	717	759	
606,350	2,360,850	0.3611	760	30	0	790	718	760	
606,800	2,366,900	0.36091	761	30	0	791	719	761	
608,200	2,363,500	0.36072	762	30	0	792	720	762	
606,800	2,363,800	0.36063	763	30	0	793	721	763	

609,000	2,365,600	0.36035	764	30	0	794	722	764	
608,600	2,365,100	0.36017	765	30	0	795	723	765	
608,500	2,367,300	0.36008	766	30	0	796	724	766	
605,100	2,363,300	0.36002	767	30	0	797	725	767	
607,200	2,367,300	0.35992	768	30	0	798	726	768	
606,700	2,363,600	0.35991	769	30	0	799	727	769	
607,900	2,367,200	0.3598	770	30	0	800	728	770	
606,400	2,365,900	0.35964	771	30	0	801	729	771	
605,100	2,363,100	0.35961	772	30	0	802	730	772	
606,400	2,364,000	0.35932	773	30	0	803	731	773	
607,000	2,367,500	0.3593	774	30	0	804	732	774	
606,700	2,368,100	0.35925	775	30	0	805	733	775	
606,100	2,361,350	0.35923	776	30	0	806	734	776	
608,800	2,367,300	0.35899	777	30	0	807	735	777	
608,600	2,367,400	0.35885	778	30	0	808	736	778	
605,100	2,361,600	0.35846	779	30	0	809	737	779	
608,000	2,367,100	0.35839	780	30	0	810	738	780	
608,500	2,367,100	0.35838	781	30	0	811	739	781	
606,100	2,361,850	0.35834	782	30	0	812	740	782	
607,350	2,360,850	0.3582	783	30	0	813	741	783	
606,700	2,366,700	0.3582	784	30	0	814	742	784	
608,300	2,368,000	0.35813	785	30	0	815	743	785	
607,100	2,364,000	0.35803	786	30	0	816	744	786	
607,000	2,367,300	0.35797	787	30	0	817	745	787	
608,200	2,363,400	0.35794	788	30	0	818	746	788	
609,350	2,362,350	0.35777	789	30	0	819	747	789	
605,600	2,362,850	0.35775	790	30	0	820	748	790	
607,900	2,367,000	0.35767	791	30	0	821	749	791	
608,700	2,363,100	0.35752	792	30	0	822	750	792	
607,100	2,367,100	0.35736	793	30	0	823	751	793	
607,600	2,367,400	0.3573	794	30	0	824	752	794	
605,800	2,364,800	0.35726	795	30	0	825	753	795	
607,600	2,368,350	0.35725	796	30	0	826	754	796	
608,600	2,367,100	0.3571	797	30	0	827	755	797	
608,700	2,367,100	0.357	798	30	0	828	756	798	
606,000	2,365,200	0.35686	799	30	0	829	757	799	
605,100	2,362,600	0.3568	800	30	0	830	758	800	
606,600	2,366,600	0.3567	801	30	0	831	759	801	
606,100	2,369,100	0.35659	802	30	0	832	760	802	
605,600	2,361,600	0.35645	803	30	0	833	761	803	
606,500	2,366,300	0.35643	804	30	0	834	762	804	
609,000	2,367,300	0.35618	805	30	0	835	763	805	
606,900	2,363,900	0.35611	806	30	0	836	764	806	
608,600	2,368,600	0.35605	807	30	0	837	765	807	
609,350	2,362,600	0.35593	808	30	0	838	766	808	
608,350	2,368,350	0.35553	809	30	0	839	767	809	
608,400	2,367,400	0.35548	810	30	0	840	768	810	
604,850	2,363,100	0.35513	811	30	0	841	769	811	
605,100	2,361,850	0.35476	813	29	1	842	770	812	
607,200	2,367,100	0.35498	812	30	0	842	770	813	
605,900	2,365,000	0.35455	814	30	0	844	771	814	
606,900	2,367,100	0.35452	815	30	0	845	772	815	
604,850	2,362,600	0.35451	816	30	0	846	773	816	
608,800	2,366,700	0.35428	817	30	0	847	774	817	
605,200	2,363,100	0.35398	818	30	0	848	775	818	
609,000	2,365,900	0.35386	819	30	0	849	776	819	
604,850	2,362,850	0.35374	820	30	0	850	777	820	
607,900	2,367,100	0.35369	821	30	0	851	778	821	
606,400	2,363,900	0.35358	822	30	0	852	779	822	

608,100	2,363,100	0.35345	823	30	0	853	780	823	
607,000	2,363,900	0.35319	824	30	0	854	781	824	
608,200	2,367,400	0.35314	825	30	0	855	782	825	
608,850	2,361,600	0.35269	826	30	0	856	783	826	
605,850	2,361,600	0.35243	827	30	0	857	784	827	
608,600	2,367,200	0.35211	828	30	0	858	785	828	
607,850	2,361,350	0.35209	829	30	0	859	786	829	
607,100	2,360,850	0.35161	830	30	0	860	787	830	
608,850	2,361,350	0.35149	831	30	0	861	788	831	
609,200	2,367,500	0.35133	832	30	0	862	789	832	
607,850	2,368,850	0.35116	833	30	0	863	790	833	
608,100	2,363,200	0.3511	834	30	0	864	791	834	
606,100	2,361,100	0.35106	835	30	0	865	792	835	
608,100	2,367,400	0.35089	836	30	0	866	793	836	
605,850	2,368,350	0.35079	837	30	0	867	794	837	
604,600	2,362,850	0.3507	838	30	0	868	795	838	
605,100	2,362,100	0.35061	839	30	0	869	796	839	
604,850	2,361,600	0.35058	840	30	0	870	797	840	
606,500	2,366,200	0.3505	841	30	0	871	798	841	
606,800	2,363,700	0.35028	842	30	0	872	799	842	
608,100	2,362,850	0.35024	843	30	0	873	800	843	
607,600	2,361,350	0.35008	844	30	0	874	801	844	
609,100	2,367,300	0.35	845	30	0	875	802	845	
607,850	2,361,100	0.34999	846	30	0	876	803	846	
606,600	2,366,700	0.34995	847	30	0	877	804	847	
609,000	2,365,500	0.34995	848	30	0	878	805	848	
606,100	2,365,500	0.34984	849	30	0	879	806	849	
608,900	2,367,000	0.34889	850	30	0	880	807	850	
606,600	2,360,350	0.3488	851	30	0	881	808	851	
606,200	2,365,600	0.34866	852	30	0	882	809	852	
608,600	2,361,850	0.34855	853	30	0	883	810	853	
608,700	2,367,200	0.34851	854	30	0	884	811	854	
607,350	2,360,600	0.34847	855	30	0	885	812	855	
607,200	2,367,200	0.34833	856	30	0	886	813	856	
606,800	2,363,500	0.34833	857	30	0	887	814	857	
606,300	2,365,800	0.34816	858	30	0	888	815	858	
604,850	2,363,850	0.34786	859	30	0	889	816	859	
607,000	2,367,200	0.34778	860	30	0	890	817	860	
609,600	2,361,850	0.34737	861	30	0	891	818	861	
608,900	2,367,500	0.34735	862	30	0	892	819	862	
608,100	2,363,300	0.34725	863	30	0	893	820	863	
608,900	2,367,100	0.34719	864	30	0	894	821	864	
606,900	2,363,500	0.34707	865	30	0	895	822	865	
606,200	2,365,800	0.34701	866	30	0	896	823	866	
606,000	2,365,300	0.34692	867	30	0	897	824	867	
608,000	2,363,100	0.34685	868	30	0	898	825	868	
606,800	2,368,100	0.34677	869	30	0	899	826	869	
607,100	2,367,300	0.34651	870	30	0	900	827	870	
606,100	2,360,850	0.34631	871	30	0	901	828	871	
606,350	2,368,850	0.34629	872	30	0	902	829	872	
604,850	2,363,600	0.34625	873	30	0	903	830	873	
606,350	2,360,600	0.34609	874	30	0	904	831	874	
606,900	2,367,200	0.34601	875	30	0	905	832	875	
607,600	2,361,100	0.34577	876	30	0	906	833	876	
607,500	2,367,400	0.34573	877	30	0	907	834	877	
605,350	2,362,600	0.3457	878	30	0	908	835	878	
608,600	2,367,700	0.34564	879	30	0	909	836	879	
607,100	2,367,200	0.34559	880	30	0	910	837	880	
608,100	2,362,600	0.34557	881	30	0	911	838	881	

608,800	2,367,400	0.34555	882	30	0	912	839	882	
608,800	2,367,600	0.34545	883	30	0	913	840	883	
606,400	2,367,700	0.34518	884	30	0	914	841	884	
608,350	2,361,600	0.34485	885	30	0	915	842	885	
608,350	2,361,850	0.34483	886	30	0	916	843	886	
605,700	2,368,000	0.34464	887	30	0	917	844	887	
607,500	2,367,300	0.34417	888	30	0	918	845	888	
609,200	2,367,400	0.34411	889	30	0	919	846	889	
606,900	2,363,800	0.34406	890	30	0	920	847	890	
608,800	2,365,300	0.34389	891	30	0	921	848	891	
605,850	2,361,350	0.34383	892	30	0	922	849	892	
604,600	2,363,350	0.34373	893	30	0	923	850	893	
608,900	2,366,300	0.34364	894	30	0	924	851	894	
606,800	2,367,000	0.34354	895	30	0	925	852	895	
608,900	2,366,000	0.34343	896	30	0	926	853	896	
604,850	2,363,350	0.3434	897	30	0	927	854	897	
606,100	2,368,350	0.34313	898	30	0	928	855	898	
606,800	2,367,300	0.34312	899	30	0	929	856	899	
608,700	2,368,100	0.3428	900	30	0	930	857	900	
606,400	2,366,100	0.34269	901	30	0	931	858	901	
608,700	2,367,300	0.34268	902	30	0	932	859	902	
605,800	2,365,000	0.34261	903	30	0	933	860	903	
608,100	2,367,200	0.34255	904	30	0	934	861	904	
605,900	2,365,100	0.34249	905	30	0	935	862	905	
605,700	2,364,800	0.34229	906	30	0	936	863	906	
608,100	2,368,850	0.34218	907	30	0	937	864	907	
606,000	2,368,100	0.34156	908	30	0	938	865	908	
609,600	2,362,350	0.34152	909	30	0	939	866	909	
605,800	2,364,900	0.34131	910	30	0	940	867	910	
608,800	2,367,200	0.34108	911	30	0	941	868	911	
605,600	2,368,100	0.34107	912	30	0	942	869	912	
604,600	2,362,600	0.34099	913	30	0	943	870	913	
606,600	2,369,350	0.34063	914	30	0	944	871	914	
604,350	2,362,600	0.34043	915	30	0	945	872	915	
607,600	2,369,100	0.34037	916	30	0	946	873	916	
606,600	2,369,100	0.34036	917	30	0	947	874	917	
606,600	2,368,600	0.34035	918	30	0	948	875	918	
604,850	2,361,850	0.34031	919	30	0	949	876	919	
608,700	2,368,000	0.34027	920	30	0	950	877	920	
605,100	2,362,350	0.34015	921	30	0	951	878	921	
606,000	2,365,400	0.34013	922	30	0	952	879	922	
606,100	2,368,850	0.33979	923	30	0	953	880	923	
606,600	2,367,700	0.33969	924	30	0	954	881	924	
608,900	2,366,400	0.33939	925	30	0	955	882	925	
608,900	2,365,400	0.33929	926	30	0	956	883	926	
608,100	2,363,500	0.33917	927	30	0	957	884	927	
608,000	2,363,200	0.33904	928	30	0	958	885	928	
608,100	2,363,400	0.33898	929	30	0	959	886	929	
607,850	2,360,850	0.33892	930	30	0	960	887	930	
606,900	2,367,000	0.33886	931	30	0	961	888	931	
604,850	2,360,850	0.33882	932	30	0	962	889	932	
608,200	2,367,300	0.33872	933	30	0	963	890	933	
609,100	2,367,600	0.33858	934	30	0	964	891	934	
608,350	2,361,350	0.33849	935	30	0	965	892	935	
609,100	2,365,800	0.33848	936	30	0	966	893	936	
609,350	2,362,100	0.3383	937	30	0	967	894	937	
608,800	2,367,500	0.33753	938	30	0	968	895	938	
609,100	2,367,400	0.33743	939	30	0	969	896	939	
606,700	2,366,800	0.33734	940	30	0	970	897	940	

608,850	2,361,100	0.33686	941	30	0	971	898	941	
605,100	2,361,100	0.33685	942	30	0	972	899	942	
606,200	2,365,900	0.33679	943	30	0	973	900	943	
605,850	2,368,600	0.33634	944	30	0	974	901	944	
606,900	2,363,600	0.33631	945	30	0	975	902	945	
605,100	2,360,850	0.33626	946	30	0	976	903	946	
607,000	2,363,700	0.33619	947	30	0	977	904	947	
605,700	2,367,100	0.33606	948	30	0	978	905	948	
609,000	2,366,300	0.33595	949	30	0	979	906	949	
608,900	2,366,600	0.33573	950	30	0	980	907	950	
609,000	2,367,500	0.33567	951	30	0	981	908	951	
606,600	2,368,000	0.33565	952	30	0	982	909	952	
607,350	2,360,350	0.33531	953	30	0	983	910	953	
607,850	2,369,100	0.33481	954	30	0	984	911	954	
604,600	2,363,600	0.33475	955	30	0	985	912	955	
606,700	2,367,500	0.3345	956	30	0	986	913	956	
606,100	2,365,800	0.3345	957	30	0	987	914	957	
608,900	2,367,400	0.33449	958	30	0	988	915	958	
607,100	2,368,350	0.3343	959	30	0	989	916	959	
609,100	2,361,350	0.33392	960	30	0	990	917	960	
603,850	2,365,600	0.33389	961	30	0	991	918	961	
605,800	2,367,000	0.33375	962	30	0	992	919	962	
606,300	2,365,900	0.33371	963	30	0	993	920	963	
609,100	2,366,400	0.33366	964	30	0	994	921	964	
604,600	2,365,600	0.33362	965	30	0	995	922	965	
606,100	2,368,100	0.33322	966	30	0	996	923	966	
609,100	2,361,100	0.33322	967	30	0	997	924	967	
604,350	2,362,850	0.33294	968	30	0	998	925	968	
606,500	2,366,400	0.33271	969	30	0	999	926	969	
607,600	2,360,850	0.33236	970	30	0	1000	927	970	
604,100	2,362,600	0.3323	971	30	0	1001	928	971	
604,350	2,363,600	0.33226	972	30	0	1002	929	972	
607,100	2,368,600	0.33223	973	30	0	1003	930	973	
606,500	2,367,500	0.33212	974	30	0	1004	931	974	
606,500	2,367,900	0.33186	975	30	0	1005	932	975	
609,000	2,366,200	0.33175	976	30	0	1006	933	976	
609,100	2,366,300	0.33155	977	30	0	1007	934	977	
604,600	2,364,100	0.33148	978	30	0	1008	935	978	
606,300	2,367,700	0.33145	979	30	0	1009	936	979	
607,000	2,363,800	0.33141	980	30	0	1010	937	980	
604,350	2,362,350	0.3314	981	30	0	1011	938	981	
608,100	2,367,300	0.3314	982	30	0	1012	939	982	
608,000	2,363,300	0.33125	983	30	0	1013	940	983	
606,500	2,366,500	0.33118	984	30	0	1014	941	984	
606,600	2,368,350	0.33103	985	30	0	1015	942	985	
606,350	2,359,600	0.33085	986	30	0	1016	943	986	
607,350	2,360,100	0.33056	987	30	0	1017	944	987	
609,800	2,364,100	0.33028	988	30	0	1018	945	988	
609,850	2,361,850	0.33027	989	30	0	1019	946	989	
606,400	2,367,600	0.33016	990	30	0	1020	947	990	
609,850	2,361,350	0.33013	991	30	0	1021	948	991	
608,900	2,367,600	0.33013	992	30	0	1022	949	992	
606,300	2,367,800	0.33011	993	30	0	1023	950	993	
606,600	2,369,850	0.33007	994	30	0	1024	951	994	
608,350	2,368,600	0.32998	995	30	0	1025	952	995	
606,400	2,366,300	0.32998	996	30	0	1026	953	996	
608,000	2,367,200	0.32977	997	30	0	1027	954	997	
608,600	2,361,600	0.32977	998	30	0	1028	955	998	
604,600	2,363,850	0.32969	999	30	0	1029	956	999	

603,600	2,365,600	0.32937	1000	30	0	1030	957	1000	
604,100	2,365,600	0.32918	1001	30	0	1031	958	1001	
609,000	2,367,600	0.32888	1002	30	0	1032	959	1002	
604,600	2,363,100	0.32881	1003	30	0	1033	960	1003	
606,350	2,359,850	0.32874	1004	30	0	1034	961	1004	
605,850	2,361,100	0.32854	1005	30	0	1035	962	1005	
604,350	2,365,600	0.32848	1006	30	0	1036	963	1006	
609,100	2,365,700	0.32824	1007	30	0	1037	964	1007	
606,100	2,365,700	0.3282	1008	30	0	1038	965	1008	
606,100	2,360,100	0.32794	1009	30	0	1039	966	1009	
608,100	2,361,350	0.32791	1010	30	0	1040	967	1010	
605,700	2,366,900	0.32784	1011	30	0	1041	968	1011	
607,850	2,360,600	0.32782	1012	30	0	1042	969	1012	
608,350	2,361,100	0.32773	1013	30	0	1043	970	1013	
606,600	2,366,800	0.32752	1014	30	0	1044	971	1014	
609,600	2,364,200	0.32683	1015	30	0	1045	972	1015	
604,350	2,363,100	0.32678	1016	30	0	1046	973	1016	
606,000	2,365,900	0.32667	1017	30	0	1047	974	1017	
609,000	2,366,400	0.32646	1018	30	0	1048	975	1018	
608,000	2,363,400	0.3262	1019	30	0	1049	976	1019	
609,100	2,360,850	0.32598	1020	30	0	1050	977	1020	
604,100	2,363,850	0.32579	1021	30	0	1051	978	1021	
604,850	2,360,600	0.32568	1022	30	0	1052	979	1022	
606,300	2,366,100	0.32555	1023	30	0	1053	980	1023	
605,800	2,365,100	0.3255	1024	30	0	1054	981	1024	
606,100	2,365,900	0.32543	1025	30	0	1055	982	1025	
608,800	2,366,800	0.32542	1026	30	0	1056	983	1026	
605,700	2,367,000	0.32542	1027	30	0	1057	984	1027	
604,100	2,362,350	0.32536	1028	30	0	1058	985	1028	
608,700	2,367,900	0.32523	1029	30	0	1059	986	1029	
605,600	2,367,000	0.32519	1030	30	0	1060	987	1030	
606,500	2,366,600	0.325	1031	30	0	1061	988	1031	
605,600	2,368,850	0.32493	1032	30	0	1062	989	1032	
605,100	2,367,400	0.32477	1033	30	0	1063	990	1033	
605,500	2,367,800	0.32474	1034	30	0	1064	991	1034	
604,350	2,364,100	0.32472	1035	30	0	1065	992	1035	
605,900	2,365,200	0.32463	1036	30	0	1066	993	1036	
606,600	2,368,850	0.3246	1037	30	0	1067	994	1037	
606,900	2,363,700	0.32458	1038	30	0	1068	995	1038	
606,350	2,369,100	0.32442	1039	30	0	1069	996	1039	
606,600	2,370,100	0.32422	1040	30	0	1070	997	1040	
606,500	2,366,700	0.32417	1041	30	0	1071	998	1041	
606,100	2,369,350	0.32392	1042	30	0	1072	999	1042	
604,600	2,360,600	0.32372	1043	30	0	1073	1000	1043	
605,900	2,366,900	0.32338	1044	30	0	1074	1001	1044	
608,100	2,369,100	0.32334	1045	30	0	1075	1002	1045	
605,700	2,365,000	0.32327	1046	30	0	1076	1003	1046	
605,400	2,367,900	0.32322	1047	30	0	1077	1004	1047	
606,400	2,367,500	0.3232	1048	30	0	1078	1005	1048	
603,850	2,362,350	0.3231	1049	30	0	1079	1006	1049	
609,100	2,365,600	0.32309	1050	30	0	1080	1007	1050	
606,500	2,368,100	0.32302	1051	30	0	1081	1008	1051	
605,600	2,368,600	0.32266	1052	30	0	1082	1009	1052	
606,400	2,366,200	0.3226	1053	30	0	1083	1010	1053	
608,600	2,361,350	0.32239	1054	30	0	1084	1011	1054	
605,600	2,367,200	0.32231	1055	30	0	1085	1012	1055	
608,850	2,360,850	0.32224	1056	30	0	1086	1013	1056	
606,700	2,367,000	0.32221	1057	30	0	1087	1014	1057	
609,200	2,367,600	0.3222	1058	30	0	1088	1015	1058	

607,850	2,369,350	0.32219	1059	30	0	1089	1016	1059	
608,900	2,367,700	0.32214	1060	30	0	1090	1017	1060	
609,100	2,367,200	0.32205	1061	30	0	1091	1018	1061	
609,600	2,362,600	0.32175	1062	30	0	1092	1019	1062	
605,850	2,369,600	0.32169	1063	30	0	1093	1020	1063	
604,350	2,363,350	0.32166	1064	30	0	1094	1021	1064	
604,350	2,367,850	0.32162	1065	30	0	1095	1022	1065	
605,600	2,364,800	0.32157	1066	30	0	1096	1023	1066	
605,850	2,360,350	0.32155	1067	30	0	1097	1024	1067	
603,350	2,365,600	0.32135	1068	30	0	1098	1025	1068	
608,700	2,365,100	0.3212	1069	30	0	1099	1026	1069	
607,600	2,360,600	0.32114	1070	30	0	1100	1027	1070	
606,400	2,366,400	0.32112	1071	30	0	1101	1028	1071	
606,700	2,366,900	0.32111	1072	30	0	1102	1029	1072	
606,600	2,369,600	0.32095	1073	30	0	1103	1030	1073	
604,350	2,363,850	0.32094	1074	30	0	1104	1031	1074	
609,200	2,367,300	0.32065	1075	30	0	1105	1032	1075	
605,300	2,367,400	0.32049	1076	30	0	1106	1033	1076	
605,600	2,366,900	0.32046	1077	30	0	1107	1034	1077	
604,600	2,361,100	0.32042	1078	30	0	1108	1035	1078	
610,100	2,361,100	0.32038	1079	30	0	1109	1036	1079	
605,400	2,368,100	0.32035	1080	30	0	1110	1037	1080	
608,000	2,363,500	0.32026	1081	30	0	1111	1038	1081	
604,350	2,364,600	0.31983	1082	30	0	1112	1039	1082	
606,700	2,367,400	0.31973	1083	30	0	1113	1040	1083	
606,800	2,367,200	0.31956	1084	30	0	1114	1041	1084	
605,200	2,367,500	0.31953	1085	30	0	1115	1042	1085	
605,500	2,368,100	0.31931	1086	30	0	1116	1043	1086	
605,300	2,368,000	0.31931	1087	30	0	1117	1044	1087	
609,000	2,366,000	0.31901	1088	30	0	1118	1045	1088	
608,700	2,367,600	0.31892	1089	30	0	1119	1046	1089	
605,600	2,368,000	0.31879	1090	30	0	1120	1047	1090	
605,200	2,367,300	0.31879	1091	30	0	1121	1048	1091	
607,350	2,359,850	0.31877	1092	30	0	1122	1049	1092	
605,850	2,360,100	0.31876	1093	30	0	1123	1050	1093	
604,850	2,365,600	0.31872	1094	30	0	1124	1051	1094	
605,100	2,367,300	0.31858	1095	30	0	1125	1052	1095	
605,600	2,367,900	0.31845	1096	30	0	1126	1053	1096	
606,400	2,367,800	0.31844	1097	30	0	1127	1054	1097	
604,600	2,360,850	0.3183	1098	30	0	1128	1055	1098	
605,500	2,368,000	0.31828	1099	30	0	1129	1056	1099	
605,900	2,365,300	0.31822	1100	30	0	1130	1057	1100	
606,100	2,368,600	0.31816	1101	30	0	1131	1058	1101	
608,900	2,366,500	0.31815	1102	30	0	1132	1059	1102	
605,700	2,367,900	0.31815	1103	30	0	1133	1060	1103	
605,600	2,360,850	0.31812	1104	30	0	1134	1061	1104	
605,100	2,367,600	0.31809	1105	30	0	1135	1062	1105	
608,900	2,367,900	0.31775	1106	30	0	1136	1063	1106	
604,350	2,361,350	0.31771	1107	30	0	1137	1064	1107	
608,350	2,360,850	0.31769	1108	30	0	1138	1065	1108	
607,600	2,369,350	0.31768	1109	30	0	1139	1066	1109	
607,850	2,368,600	0.31763	1110	30	0	1140	1067	1110	
606,500	2,368,000	0.3176	1111	30	0	1141	1068	1111	
605,800	2,366,800	0.31758	1112	30	0	1142	1069	1112	
606,500	2,367,800	0.31758	1113	30	0	1143	1070	1113	
606,500	2,367,600	0.3175	1114	30	0	1144	1071	1114	
608,000	2,367,300	0.31749	1115	30	0	1145	1072	1115	
604,850	2,360,350	0.31739	1116	30	0	1146	1073	1116	
605,850	2,359,600	0.31719	1117	30	0	1147	1074	1117	

608,850	2,368,600	0.3171	1118	30	0	1148	1075	1118	
607,100	2,369,350	0.31702	1119	30	0	1149	1076	1119	
607,850	2,360,350	0.31688	1120	30	0	1150	1077	1120	
605,400	2,367,100	0.31683	1121	30	0	1151	1078	1121	
603,850	2,362,850	0.31679	1122	30	0	1152	1079	1122	
605,500	2,367,300	0.31658	1123	30	0	1153	1080	1123	
609,100	2,365,900	0.31654	1124	30	0	1154	1081	1124	
605,600	2,365,000	0.31647	1125	30	0	1155	1082	1125	
609,100	2,360,600	0.31645	1126	30	0	1156	1083	1126	
606,600	2,368,100	0.3163	1127	30	0	1157	1084	1127	
606,300	2,366,200	0.31607	1128	30	0	1158	1085	1128	
606,000	2,365,500	0.31602	1129	30	0	1159	1086	1129	
608,700	2,365,000	0.31598	1130	30	0	1160	1087	1130	
608,100	2,361,100	0.31589	1131	30	0	1161	1088	1131	
606,000	2,365,800	0.31582	1132	30	0	1162	1089	1132	
604,350	2,360,850	0.31577	1133	30	0	1163	1090	1133	
608,350	2,369,100	0.31558	1134	30	0	1164	1091	1134	
606,800	2,367,100	0.31545	1135	30	0	1165	1092	1135	
606,600	2,367,600	0.31544	1136	30	0	1166	1093	1136	
605,700	2,364,900	0.31541	1137	30	0	1167	1094	1137	
609,300	2,367,700	0.31536	1138	30	0	1168	1095	1138	
606,400	2,366,500	0.31529	1139	30	0	1169	1096	1139	
605,500	2,364,900	0.31527	1140	30	0	1170	1097	1140	
605,900	2,368,100	0.31525	1141	30	0	1171	1098	1141	
605,900	2,365,900	0.31523	1142	30	0	1172	1099	1142	
605,600	2,360,100	0.31522	1143	30	0	1173	1100	1143	
606,300	2,367,600	0.31519	1144	30	0	1174	1101	1144	
606,100	2,359,850	0.31519	1145	30	0	1175	1102	1145	
606,850	2,369,600	0.31511	1146	30	0	1176	1103	1146	
609,100	2,362,100	0.31509	1147	30	0	1177	1104	1147	
606,500	2,366,800	0.31505	1148	30	0	1178	1105	1148	
606,300	2,366,000	0.3149	1149	30	0	1179	1106	1149	
605,600	2,360,600	0.31464	1150	30	0	1180	1107	1150	
605,300	2,367,900	0.31444	1151	30	0	1181	1108	1151	
605,600	2,360,350	0.31439	1152	30	0	1182	1109	1152	
609,850	2,362,100	0.31426	1153	30	0	1183	1110	1153	
608,500	2,367,500	0.31421	1154	30	0	1184	1111	1154	
606,600	2,367,400	0.31419	1155	30	0	1185	1112	1155	
606,300	2,366,400	0.31406	1156	30	0	1186	1113	1156	
606,100	2,365,600	0.31398	1157	30	0	1187	1114	1157	
605,500	2,365,000	0.31395	1158	30	0	1188	1115	1158	
603,600	2,362,600	0.31373	1159	30	0	1189	1116	1159	
605,200	2,367,400	0.31366	1160	30	0	1190	1117	1160	
605,900	2,365,400	0.3135	1161	30	0	1191	1118	1161	
604,100	2,362,850	0.31342	1162	30	0	1192	1119	1162	
605,350	2,360,850	0.31329	1163	30	0	1193	1120	1163	
605,800	2,367,100	0.31327	1164	30	0	1194	1121	1164	
608,800	2,367,700	0.31316	1165	30	0	1195	1122	1165	
605,100	2,367,500	0.31309	1166	30	0	1196	1123	1166	
607,600	2,360,350	0.31296	1167	30	0	1197	1124	1167	
604,100	2,363,600	0.31288	1168	30	0	1198	1125	1168	
604,350	2,360,600	0.31284	1169	30	0	1199	1126	1169	
605,900	2,367,000	0.31278	1170	30	0	1200	1127	1170	
606,000	2,366,900	0.31274	1171	30	0	1201	1128	1171	
608,600	2,360,850	0.3127	1172	30	0	1202	1129	1172	
605,300	2,368,100	0.31235	1173	30	0	1203	1130	1173	
606,200	2,367,300	0.3122	1174	30	0	1204	1131	1174	
605,350	2,360,600	0.31214	1175	30	0	1205	1132	1175	
606,500	2,367,400	0.31208	1176	30	0	1206	1133	1176	

605,400	2,368,000	0.31195	1177	30	0	1207	1134	1177	
603,100	2,365,600	0.31194	1178	30	0	1208	1135	1178	
610,100	2,361,350	0.31167	1179	30	0	1209	1136	1179	
605,700	2,365,100	0.31164	1180	30	0	1210	1137	1180	
606,200	2,367,400	0.31137	1181	30	0	1211	1138	1181	
609,100	2,360,350	0.31134	1182	30	0	1212	1139	1182	
605,350	2,368,350	0.31129	1183	30	0	1213	1140	1183	
606,200	2,366,000	0.31124	1184	30	0	1214	1141	1184	
605,200	2,368,100	0.31098	1185	30	0	1215	1142	1185	
609,200	2,367,700	0.31091	1186	30	0	1216	1143	1186	
605,850	2,359,850	0.3109	1187	30	0	1217	1144	1187	
605,800	2,365,200	0.31064	1188	30	0	1218	1145	1188	
606,400	2,366,600	0.31049	1189	30	0	1219	1146	1189	
605,800	2,366,900	0.31037	1190	30	0	1220	1147	1190	
603,850	2,363,350	0.31022	1191	30	0	1221	1148	1191	
608,600	2,361,100	0.31019	1192	30	0	1222	1149	1192	
606,300	2,367,200	0.31017	1193	30	0	1223	1150	1193	
605,300	2,367,500	0.31017	1194	30	0	1224	1151	1194	
608,900	2,365,300	0.31015	1195	30	0	1225	1152	1195	
604,100	2,363,350	0.31014	1196	30	0	1226	1153	1196	
609,200	2,367,800	0.31014	1197	30	0	1227	1154	1197	
606,600	2,367,300	0.31008	1198	30	0	1228	1155	1198	
608,600	2,360,600	0.31008	1199	30	0	1229	1156	1199	
605,400	2,367,800	0.31006	1200	30	0	1230	1157	1200	
609,000	2,366,100	0.30988	1201	30	0	1231	1158	1201	
605,300	2,367,300	0.30982	1202	30	0	1232	1159	1202	
608,900	2,366,900	0.30978	1203	30	0	1233	1160	1203	
610,350	2,363,350	0.30973	1204	30	0	1234	1161	1204	
610,350	2,363,600	0.30972	1205	30	0	1235	1162	1205	
610,100	2,363,300	0.3097	1206	30	0	1236	1163	1206	
606,000	2,365,600	0.30961	1207	30	0	1237	1164	1207	
604,100	2,363,100	0.30938	1208	30	0	1238	1165	1208	
604,350	2,360,100	0.30933	1209	30	0	1239	1166	1209	
604,600	2,360,350	0.30926	1210	30	0	1240	1167	1210	
606,000	2,366,800	0.30917	1211	30	0	1241	1168	1211	
608,900	2,366,700	0.30901	1212	30	0	1242	1169	1212	
607,850	2,360,100	0.30894	1213	30	0	1243	1170	1213	
605,100	2,360,600	0.30894	1214	30	0	1244	1171	1214	
608,700	2,365,200	0.30887	1215	30	0	1245	1172	1215	
604,100	2,360,600	0.30885	1216	30	0	1246	1173	1216	
605,700	2,368,100	0.30877	1217	30	0	1247	1174	1217	
606,100	2,366,000	0.30874	1218	30	0	1248	1175	1218	
609,300	2,367,500	0.30869	1219	30	0	1249	1176	1219	
607,100	2,368,850	0.30867	1220	30	0	1250	1177	1220	
604,100	2,361,100	0.3086	1221	30	0	1251	1178	1221	
609,300	2,367,600	0.30859	1222	30	0	1252	1179	1222	
609,300	2,367,800	0.30858	1223	30	0	1253	1180	1223	
609,200	2,367,200	0.30848	1224	30	0	1254	1181	1224	
606,300	2,366,600	0.30843	1225	30	0	1255	1182	1225	
609,700	2,364,200	0.30843	1226	30	0	1256	1183	1226	
609,100	2,365,500	0.30841	1227	30	0	1257	1184	1227	
608,850	2,369,100	0.30839	1228	30	0	1258	1185	1228	
605,800	2,365,300	0.30831	1229	30	0	1259	1186	1229	
605,400	2,367,300	0.3083	1230	30	0	1260	1187	1230	
608,850	2,360,600	0.30821	1231	30	0	1261	1188	1231	
609,000	2,367,200	0.30812	1232	30	0	1262	1189	1232	
609,200	2,365,700	0.30808	1233	30	0	1263	1190	1233	
605,400	2,367,200	0.30808	1234	30	0	1264	1191	1234	
605,300	2,367,200	0.30806	1235	30	0	1265	1192	1235	

603,850	2,362,600	0.30797	1236	30	0	1266	1193	1236	
605,500	2,367,200	0.30796	1237	30	0	1267	1194	1237	
605,800	2,367,900	0.30794	1238	30	0	1268	1195	1238	
604,350	2,361,100	0.3079	1239	30	0	1269	1196	1239	
609,000	2,367,800	0.30789	1240	30	0	1270	1197	1240	
606,100	2,359,600	0.3076	1241	30	0	1271	1198	1241	
606,700	2,367,100	0.30755	1242	30	0	1272	1199	1242	
607,350	2,359,600	0.30742	1243	30	0	1273	1200	1243	
608,100	2,369,350	0.30742	1244	30	0	1274	1201	1244	
605,100	2,365,600	0.30742	1245	30	0	1275	1202	1245	
608,900	2,367,800	0.30736	1246	30	0	1276	1203	1246	
609,850	2,361,100	0.30728	1247	30	0	1277	1204	1247	
609,000	2,367,700	0.30717	1248	30	0	1278	1205	1248	
605,200	2,368,000	0.30714	1249	30	0	1279	1206	1249	
608,100	2,368,600	0.30705	1250	30	0	1280	1207	1250	
604,100	2,364,600	0.30703	1251	30	0	1281	1208	1251	
605,400	2,367,400	0.30701	1252	30	0	1282	1209	1252	
605,800	2,367,800	0.30696	1253	30	0	1283	1210	1253	
605,600	2,367,700	0.30693	1254	30	0	1284	1211	1254	
603,850	2,362,100	0.30682	1255	30	0	1285	1212	1255	
605,200	2,367,200	0.30663	1256	30	0	1286	1213	1256	
610,600	2,363,350	0.30662	1257	30	0	1287	1214	1257	
604,100	2,368,100	0.30657	1258	30	0	1288	1215	1258	
605,100	2,368,350	0.3063	1259	30	0	1289	1216	1259	
604,600	2,360,100	0.30612	1260	30	0	1290	1217	1260	
606,850	2,368,350	0.30602	1261	30	0	1291	1218	1261	
605,500	2,367,900	0.30599	1262	30	0	1292	1219	1262	
608,100	2,360,600	0.30573	1263	30	0	1293	1220	1263	
605,100	2,368,100	0.30569	1264	30	0	1294	1221	1264	
608,900	2,366,800	0.30567	1265	30	0	1295	1222	1265	
607,850	2,369,600	0.30565	1266	30	0	1296	1223	1266	
607,100	2,359,850	0.30563	1267	30	0	1297	1224	1267	
608,100	2,360,850	0.30562	1268	30	0	1298	1225	1268	
610,100	2,361,600	0.30555	1269	30	0	1299	1226	1269	
610,100	2,360,850	0.30546	1270	30	0	1300	1227	1270	
608,350	2,360,600	0.30521	1271	30	0	1301	1228	1271	
605,800	2,365,900	0.30514	1272	30	0	1302	1229	1272	
605,500	2,367,000	0.30509	1273	30	0	1303	1230	1273	
609,400	2,367,800	0.30504	1274	30	0	1304	1231	1274	
603,350	2,364,350	0.30502	1275	30	0	1305	1232	1275	
609,300	2,367,400	0.305	1276	30	0	1306	1233	1276	
604,100	2,364,350	0.30499	1277	30	0	1307	1234	1277	
605,600	2,364,900	0.30499	1278	30	0	1308	1235	1278	
606,700	2,367,300	0.30496	1279	30	0	1309	1236	1279	
603,600	2,361,350	0.30495	1280	30	0	1310	1237	1280	
604,850	2,367,600	0.30489	1281	30	0	1311	1238	1281	
603,600	2,364,350	0.30488	1282	30	0	1312	1239	1282	
605,850	2,369,350	0.30487	1283	30	0	1313	1240	1283	
606,600	2,366,900	0.30482	1284	30	0	1314	1241	1284	
606,400	2,368,100	0.30481	1285	30	0	1315	1242	1285	
608,600	2,360,350	0.30476	1286	30	0	1316	1243	1286	
605,200	2,367,600	0.30458	1287	30	0	1317	1244	1287	
607,600	2,360,100	0.30448	1288	30	0	1318	1245	1288	
606,000	2,366,000	0.30438	1289	30	0	1319	1246	1289	
605,900	2,366,700	0.30414	1290	30	0	1320	1247	1290	
605,600	2,367,800	0.30411	1291	30	0	1321	1248	1291	
604,850	2,367,850	0.30405	1292	30	0	1322	1249	1292	
606,300	2,366,300	0.30403	1293	30	0	1323	1250	1293	
607,600	2,368,600	0.30395	1294	30	0	1324	1251	1294	

603,600	2,362,100	0.30391	1295	30	0	1325	1252	1295	
608,100	2,360,350	0.30387	1296	30	0	1326	1253	1296	
604,100	2,361,600	0.30353	1297	30	0	1327	1254	1297	
605,300	2,367,100	0.30334	1298	30	0	1328	1255	1298	
606,400	2,367,100	0.30332	1299	30	0	1329	1256	1299	
605,600	2,359,850	0.30327	1300	30	0	1330	1257	1300	
610,350	2,363,100	0.30322	1301	30	0	1331	1258	1301	
610,000	2,363,300	0.30322	1302	30	0	1332	1259	1302	
605,100	2,365,500	0.30315	1303	30	0	1333	1260	1303	
604,100	2,360,350	0.30312	1304	30	0	1334	1261	1304	
610,100	2,362,600	0.30298	1305	30	0	1335	1262	1305	
605,200	2,365,600	0.30293	1306	30	0	1336	1263	1306	
608,500	2,367,400	0.30289	1307	30	0	1337	1264	1307	
603,850	2,363,850	0.30284	1308	30	0	1338	1265	1308	
606,850	2,369,850	0.30242	1309	30	0	1339	1266	1309	
606,400	2,366,800	0.30232	1310	30	0	1340	1267	1310	
610,000	2,363,200	0.30227	1311	30	0	1341	1268	1311	
605,900	2,366,800	0.3022	1312	30	0	1342	1269	1312	
609,200	2,366,400	0.30218	1313	30	0	1343	1270	1313	
609,100	2,367,500	0.30215	1314	30	0	1344	1271	1314	
606,000	2,365,700	0.30208	1315	30	0	1345	1272	1315	
605,350	2,360,350	0.30208	1316	30	0	1346	1273	1316	
602,850	2,365,600	0.30203	1317	30	0	1347	1274	1317	
607,350	2,369,100	0.30196	1318	30	0	1348	1275	1318	
605,600	2,365,200	0.30183	1319	30	0	1349	1276	1319	
608,700	2,367,800	0.30178	1320	30	0	1350	1277	1320	
609,000	2,368,000	0.30166	1321	30	0	1351	1278	1321	
605,600	2,367,100	0.30145	1322	30	0	1352	1279	1322	
607,350	2,368,350	0.30139	1323	30	0	1353	1280	1323	
603,850	2,363,600	0.30131	1324	30	0	1354	1281	1324	
609,100	2,367,700	0.30113	1325	30	0	1355	1282	1325	
610,350	2,360,600	0.30095	1326	30	0	1356	1283	1326	
606,500	2,366,900	0.30086	1327	30	0	1357	1284	1327	
605,100	2,367,700	0.30078	1328	30	0	1358	1285	1328	
605,100	2,367,200	0.30076	1329	30	0	1359	1286	1329	
607,100	2,359,600	0.30056	1330	30	0	1360	1287	1330	
605,700	2,367,600	0.30056	1331	30	0	1361	1288	1331	
606,300	2,366,500	0.30048	1332	30	0	1362	1289	1332	
603,850	2,363,100	0.30032	1333	30	0	1363	1290	1333	
609,350	2,360,600	0.30022	1334	30	0	1364	1291	1334	
609,350	2,360,350	0.3002	1335	30	0	1365	1292	1335	
603,600	2,363,600	0.30014	1336	30	0	1366	1293	1336	
606,100	2,366,800	0.30008	1337	30	0	1367	1294	1337	
606,700	2,367,200	0.29986	1338	30	0	1368	1295	1338	
608,100	2,360,100	0.29982	1339	30	0	1369	1296	1339	
606,200	2,366,700	0.29982	1340	30	0	1370	1297	1340	
604,350	2,360,350	0.29976	1341	30	0	1371	1298	1341	
605,700	2,365,200	0.29963	1342	30	0	1372	1299	1342	
605,400	2,365,000	0.29956	1343	30	0	1373	1300	1343	
607,850	2,359,850	0.29943	1344	30	0	1374	1301	1344	
609,000	2,365,300	0.29939	1345	30	0	1375	1302	1345	
603,850	2,364,600	0.29915	1346	30	0	1376	1303	1346	
610,100	2,363,200	0.29912	1347	30	0	1377	1304	1347	
605,700	2,366,800	0.29907	1348	30	0	1378	1305	1348	
609,300	2,367,300	0.29893	1349	30	0	1379	1306	1349	
609,000	2,367,900	0.29872	1350	30	0	1380	1307	1350	
603,600	2,363,350	0.2986	1351	30	0	1381	1308	1351	
610,100	2,363,100	0.29856	1352	30	0	1382	1309	1352	
604,100	2,364,100	0.29853	1353	30	0	1383	1310	1353	

608,350	2,369,350	0.29837	1354	30	0	1384	1311	1354	
605,900	2,365,500	0.29826	1355	30	0	1385	1312	1355	
608,800	2,367,800	0.29825	1356	30	0	1386	1313	1356	
605,350	2,369,100	0.2982	1357	30	0	1387	1314	1357	
604,350	2,359,850	0.2982	1358	30	0	1388	1315	1358	
609,400	2,367,900	0.29819	1359	30	0	1389	1316	1359	
606,400	2,366,700	0.2981	1360	30	0	1390	1317	1360	
605,500	2,367,700	0.29809	1361	30	0	1391	1318	1361	
605,300	2,365,600	0.29799	1362	30	0	1392	1319	1362	
605,600	2,365,100	0.29795	1363	30	0	1393	1320	1363	
606,100	2,358,600	0.29789	1364	30	0	1394	1321	1364	
605,850	2,369,850	0.29788	1365	30	0	1395	1322	1365	
606,100	2,367,400	0.29783	1366	30	0	1396	1323	1366	
605,100	2,360,350	0.29781	1367	30	0	1397	1324	1367	
606,200	2,366,200	0.29773	1368	30	0	1398	1325	1368	
609,850	2,362,350	0.29765	1369	30	0	1399	1326	1369	
603,850	2,360,350	0.29758	1370	30	0	1400	1327	1370	
604,100	2,361,350	0.29751	1371	30	0	1401	1328	1371	
608,100	2,369,600	0.29746	1372	30	0	1402	1329	1372	
604,350	2,368,100	0.29738	1373	30	0	1403	1330	1373	
603,850	2,361,350	0.29731	1374	30	0	1404	1331	1374	
606,600	2,367,500	0.29727	1375	30	0	1405	1332	1375	
609,300	2,367,900	0.29702	1376	30	0	1406	1333	1376	
610,600	2,363,100	0.29697	1377	30	0	1407	1334	1377	
605,500	2,367,100	0.29684	1378	30	0	1408	1335	1378	
605,900	2,365,800	0.29681	1379	30	0	1409	1336	1379	
605,800	2,365,400	0.2967	1380	30	0	1410	1337	1380	
608,800	2,367,900	0.29659	1381	30	0	1411	1338	1381	
611,100	2,362,850	0.29657	1382	30	0	1412	1339	1382	
606,200	2,366,100	0.29655	1383	30	0	1413	1340	1383	
609,200	2,366,300	0.29654	1384	30	0	1414	1341	1384	
609,850	2,362,850	0.29652	1385	30	0	1415	1342	1385	
603,600	2,364,100	0.29647	1386	30	0	1416	1343	1386	
607,350	2,369,350	0.29632	1387	30	0	1417	1344	1387	
605,850	2,368,850	0.29628	1388	30	0	1418	1345	1388	
604,350	2,364,350	0.29627	1389	30	0	1419	1346	1389	
608,900	2,368,000	0.29627	1390	30	0	1420	1347	1390	
609,000	2,366,500	0.29625	1391	30	0	1421	1348	1391	
610,850	2,363,350	0.29623	1392	30	0	1422	1349	1392	
609,300	2,366,500	0.29622	1393	30	0	1423	1350	1393	
605,100	2,365,700	0.29621	1394	30	0	1424	1351	1394	
606,500	2,367,000	0.2962	1395	30	0	1425	1352	1395	
606,100	2,367,200	0.29618	1396	30	0	1426	1353	1396	
608,350	2,360,350	0.29609	1397	30	0	1427	1354	1397	
609,350	2,361,100	0.29607	1398	30	0	1428	1355	1398	
606,100	2,366,700	0.29601	1399	30	0	1429	1356	1399	
609,400	2,367,300	0.296	1400	30	0	1430	1357	1400	
606,200	2,366,500	0.29598	1401	30	0	1431	1358	1401	
606,600	2,367,200	0.29587	1402	30	0	1432	1359	1402	
609,100	2,360,100	0.29584	1403	30	0	1433	1360	1403	
606,500	2,367,700	0.29579	1404	30	0	1434	1361	1404	
610,100	2,362,350	0.29578	1405	30	0	1435	1362	1405	
606,600	2,367,100	0.29577	1406	30	0	1436	1363	1406	
607,600	2,359,850	0.29576	1407	30	0	1437	1364	1407	
609,200	2,365,800	0.29571	1408	30	0	1438	1365	1408	
607,850	2,369,850	0.29564	1409	30	0	1439	1366	1409	
605,600	2,359,600	0.29552	1410	30	0	1440	1367	1410	
605,300	2,365,500	0.29538	1411	30	0	1441	1368	1411	
605,200	2,365,500	0.29535	1412	30	0	1442	1369	1412	

606,300	2,367,100	0.29522	1413	30	0	1443	1370	1413	
605,350	2,360,100	0.29521	1414	30	0	1444	1371	1414	
603,850	2,364,350	0.29516	1415	30	0	1445	1372	1415	
605,200	2,365,700	0.29507	1416	30	0	1446	1373	1416	
605,400	2,365,500	0.29498	1417	30	0	1447	1374	1417	
604,100	2,360,850	0.29493	1418	30	0	1448	1375	1418	
603,350	2,361,100	0.29483	1419	30	0	1449	1376	1419	
609,350	2,360,100	0.29471	1420	30	0	1450	1377	1420	
606,600	2,367,000	0.29469	1421	30	0	1451	1378	1421	
606,500	2,367,300	0.2946	1422	30	0	1452	1379	1422	
605,350	2,359,600	0.29455	1423	30	0	1453	1380	1423	
608,800	2,365,100	0.29453	1424	30	0	1454	1381	1424	
606,300	2,367,500	0.29451	1425	30	0	1455	1382	1425	
610,350	2,360,850	0.2945	1426	30	0	1456	1383	1426	
603,600	2,362,850	0.29446	1427	30	0	1457	1384	1427	
609,000	2,365,400	0.2943	1428	30	0	1458	1385	1428	
605,300	2,367,700	0.29428	1429	30	0	1459	1386	1429	
605,600	2,369,100	0.29421	1430	30	0	1460	1387	1430	
606,000	2,367,500	0.29418	1431	30	0	1461	1388	1431	
609,000	2,367,100	0.29416	1432	30	0	1462	1389	1432	
606,400	2,367,400	0.29413	1433	30	0	1463	1390	1433	
610,350	2,361,100	0.294	1434	30	0	1464	1391	1434	
608,350	2,369,600	0.29398	1435	30	0	1465	1392	1435	
609,200	2,365,900	0.29395	1436	30	0	1466	1393	1436	
609,350	2,361,350	0.29387	1437	30	0	1467	1394	1437	
603,600	2,363,100	0.29385	1438	30	0	1468	1395	1438	
608,800	2,368,100	0.29384	1439	30	0	1469	1396	1439	
605,500	2,366,900	0.29375	1440	30	0	1470	1397	1440	
609,000	2,368,100	0.29365	1441	30	0	1471	1398	1441	
609,100	2,367,800	0.29355	1442	30	0	1472	1399	1442	
606,100	2,359,100	0.29343	1443	30	0	1473	1400	1443	
605,350	2,369,350	0.29335	1444	30	0	1474	1401	1444	
606,200	2,367,600	0.29333	1445	30	0	1475	1402	1445	
610,600	2,363,600	0.29329	1446	30	0	1476	1403	1446	
608,900	2,368,100	0.2931	1447	30	0	1477	1404	1447	
607,350	2,369,600	0.29307	1448	30	0	1478	1405	1448	
605,500	2,365,500	0.29301	1449	30	0	1479	1406	1449	
604,600	2,359,850	0.29299	1450	30	0	1480	1407	1450	
605,700	2,367,200	0.29294	1451	30	0	1481	1408	1451	
609,300	2,367,200	0.29286	1452	30	0	1482	1409	1452	
606,100	2,369,600	0.29285	1453	30	0	1483	1410	1453	
603,850	2,365,100	0.2927	1454	30	0	1484	1411	1454	
604,100	2,360,100	0.29264	1455	30	0	1485	1412	1455	
602,600	2,365,600	0.29264	1456	30	0	1486	1413	1456	
606,200	2,367,500	0.29259	1457	30	0	1487	1414	1457	
606,400	2,367,000	0.29247	1458	30	0	1488	1415	1458	
605,600	2,370,100	0.29246	1459	30	0	1489	1416	1459	
606,100	2,366,600	0.29224	1460	30	0	1490	1417	1460	
609,850	2,362,600	0.29221	1461	30	0	1491	1418	1461	
606,000	2,366,700	0.29216	1462	30	0	1492	1419	1462	
608,100	2,359,850	0.29214	1463	30	0	1493	1420	1463	
606,000	2,367,100	0.29204	1464	30	0	1494	1421	1464	
609,100	2,367,900	0.29198	1465	30	0	1495	1422	1465	
604,850	2,368,350	0.29189	1466	30	0	1496	1423	1466	
603,600	2,364,600	0.29181	1467	30	0	1497	1424	1467	
606,600	2,370,350	0.2917	1468	30	0	1498	1425	1468	
603,850	2,364,100	0.29165	1469	30	0	1499	1426	1469	
603,850	2,360,600	0.2915	1470	30	0	1500	1427	1470	
604,850	2,360,100	0.29137	1471	30	0	1501	1428	1471	

608,600	2,360,100	0.29136	1472	30	0	1502	1429	1472	
609,350	2,360,850	0.29125	1473	30	0	1503	1430	1473	
605,300	2,367,600	0.29124	1474	30	0	1504	1431	1474	
607,850	2,359,600	0.2912	1475	30	0	1505	1432	1475	
603,850	2,360,850	0.29116	1476	30	0	1506	1433	1476	
605,700	2,365,300	0.29111	1477	30	0	1507	1434	1477	
605,200	2,367,800	0.29109	1478	30	0	1508	1435	1478	
605,800	2,367,700	0.29097	1479	30	0	1509	1436	1479	
609,200	2,366,500	0.29093	1480	30	0	1510	1437	1480	
605,100	2,360,100	0.29092	1481	30	0	1511	1438	1481	
608,850	2,360,350	0.29081	1482	30	0	1512	1439	1482	
605,350	2,359,850	0.29074	1483	30	0	1513	1440	1483	
607,100	2,369,850	0.29062	1484	30	0	1514	1441	1484	
610,100	2,361,850	0.29054	1485	30	0	1515	1442	1485	
608,600	2,367,500	0.29048	1486	30	0	1516	1443	1486	
609,100	2,367,100	0.29036	1487	30	0	1517	1444	1487	
605,100	2,366,200	0.29029	1488	30	0	1518	1445	1488	
606,100	2,367,100	0.29014	1489	30	0	1519	1446	1489	
609,400	2,367,500	0.29009	1490	30	0	1520	1447	1490	
609,600	2,362,850	0.29001	1491	30	0	1521	1448	1491	
610,000	2,363,100	0.28994	1492	30	0	1522	1449	1492	
604,100	2,359,850	0.28983	1493	30	0	1523	1450	1493	
606,200	2,366,600	0.28964	1494	30	0	1524	1451	1494	
604,350	2,359,600	0.28956	1495	30	0	1525	1452	1495	
605,900	2,365,600	0.28931	1496	30	0	1526	1453	1496	
605,400	2,365,600	0.28926	1497	30	0	1527	1454	1497	
609,200	2,365,600	0.28918	1498	30	0	1528	1455	1498	
605,600	2,367,300	0.2891	1499	30	0	1529	1456	1499	
610,100	2,362,850	0.28898	1500	30	0	1530	1457	1500	
603,350	2,363,600	0.28891	1501	30	0	1531	1458	1501	
605,400	2,367,000	0.28884	1502	30	0	1532	1459	1502	
604,100	2,359,600	0.28882	1503	30	0	1533	1460	1503	
609,600	2,361,350	0.28876	1504	30	0	1534	1461	1504	
605,400	2,367,600	0.2887	1505	30	0	1535	1462	1505	
605,500	2,365,100	0.28869	1506	30	0	1536	1463	1506	
603,850	2,365,350	0.28863	1507	30	0	1537	1464	1507	
603,350	2,364,100	0.28862	1508	30	0	1538	1465	1508	
604,600	2,367,600	0.28858	1509	30	0	1539	1466	1509	
605,300	2,366,100	0.28854	1510	30	0	1540	1467	1510	
605,200	2,367,700	0.28831	1511	30	0	1541	1468	1511	
603,850	2,360,100	0.28829	1512	30	0	1542	1469	1512	
605,700	2,367,800	0.28828	1513	30	0	1543	1470	1513	
606,300	2,366,900	0.28823	1514	30	0	1544	1471	1514	
603,600	2,363,850	0.28816	1515	30	0	1545	1472	1515	
605,100	2,368,600	0.28813	1516	30	0	1546	1473	1516	
603,600	2,361,100	0.28807	1517	30	0	1547	1474	1517	
610,100	2,360,600	0.28797	1518	30	0	1548	1475	1518	
605,200	2,366,200	0.28789	1519	30	0	1549	1476	1519	
603,850	2,361,100	0.28774	1520	30	0	1550	1477	1520	
608,350	2,360,100	0.2877	1521	30	0	1551	1478	1521	
606,850	2,370,100	0.28765	1522	30	0	1552	1479	1522	
603,350	2,361,350	0.28764	1523	30	0	1553	1480	1523	
603,100	2,361,600	0.28758	1524	30	0	1554	1481	1524	
606,300	2,367,300	0.28757	1525	30	0	1555	1482	1525	
603,350	2,363,100	0.28749	1526	30	0	1556	1483	1526	
604,850	2,367,350	0.28747	1527	30	0	1557	1484	1527	
603,600	2,365,350	0.28743	1528	30	0	1558	1485	1528	
606,200	2,366,400	0.28737	1529	30	0	1559	1486	1529	
605,600	2,365,500	0.2873	1530	30	0	1560	1487	1530	

603,850	2,359,850	0.28722	1531	30	0	1561	1488	1531	
606,400	2,366,900	0.28716	1532	30	0	1562	1489	1532	
606,200	2,367,200	0.28708	1533	30	0	1563	1490	1533	
609,400	2,367,600	0.28684	1534	30	0	1564	1491	1534	
605,900	2,367,600	0.28684	1535	30	0	1565	1492	1535	
610,350	2,360,350	0.28674	1536	30	0	1566	1493	1536	
603,350	2,365,350	0.28662	1537	30	0	1567	1494	1537	
605,900	2,366,000	0.28647	1538	30	0	1568	1495	1538	
606,350	2,370,100	0.28645	1539	30	0	1569	1496	1539	
606,100	2,367,000	0.28641	1540	30	0	1570	1497	1540	
608,850	2,369,350	0.28638	1541	30	0	1571	1498	1541	
605,900	2,368,000	0.28638	1542	30	0	1572	1499	1542	
605,300	2,365,700	0.28634	1543	30	0	1573	1500	1543	
608,850	2,368,850	0.28625	1544	30	0	1574	1501	1544	
603,600	2,359,850	0.28622	1545	30	0	1575	1502	1545	
609,900	2,364,200	0.28621	1546	30	0	1576	1503	1546	
604,100	2,368,350	0.28614	1547	30	0	1577	1504	1547	
608,700	2,367,700	0.28612	1548	30	0	1578	1505	1548	
610,350	2,362,850	0.28607	1549	30	0	1579	1506	1549	
609,100	2,366,000	0.28587	1550	30	0	1580	1507	1550	
605,700	2,365,400	0.2857	1551	30	0	1581	1508	1551	
609,000	2,366,700	0.28567	1552	30	0	1582	1509	1552	
607,600	2,359,600	0.28555	1553	30	0	1583	1510	1553	
605,900	2,367,100	0.28541	1554	30	0	1584	1511	1554	
609,350	2,359,850	0.28535	1555	30	0	1585	1512	1555	
606,400	2,368,000	0.28524	1556	30	0	1586	1513	1556	
611,100	2,363,100	0.28501	1557	30	0	1587	1514	1557	
604,850	2,368,600	0.28498	1558	30	0	1588	1515	1558	
609,100	2,368,100	0.28482	1559	30	0	1589	1516	1559	
604,600	2,366,350	0.28469	1560	30	0	1590	1517	1560	
605,400	2,367,500	0.28457	1561	30	0	1591	1518	1561	
610,600	2,362,850	0.28456	1562	30	0	1592	1519	1562	
605,800	2,368,000	0.28449	1563	30	0	1593	1520	1563	
604,100	2,365,100	0.28439	1564	30	0	1594	1521	1564	
608,600	2,367,600	0.28437	1565	30	0	1595	1522	1565	
609,100	2,368,000	0.28437	1566	30	0	1596	1523	1566	
604,600	2,367,850	0.28428	1567	30	0	1597	1524	1567	
605,400	2,366,100	0.28427	1568	30	0	1598	1525	1568	
605,900	2,367,200	0.28417	1569	30	0	1599	1526	1569	
602,350	2,365,600	0.28407	1570	30	0	1600	1527	1570	
606,300	2,366,800	0.28399	1571	30	0	1601	1528	1571	
609,500	2,367,400	0.28399	1572	30	0	1602	1529	1572	
603,600	2,365,100	0.28386	1573	30	0	1603	1530	1573	
605,850	2,369,100	0.28382	1574	30	0	1604	1531	1574	
608,100	2,359,600	0.2838	1575	30	0	1605	1532	1575	
605,100	2,367,800	0.28364	1576	30	0	1606	1533	1576	
606,350	2,369,850	0.28362	1577	30	0	1607	1534	1577	
606,350	2,369,350	0.28358	1578	30	0	1608	1535	1578	
605,400	2,367,700	0.28342	1579	30	0	1609	1536	1579	
605,200	2,366,100	0.28339	1580	30	0	1610	1537	1580	
606,300	2,366,700	0.28336	1581	30	0	1611	1538	1581	
604,850	2,368,100	0.28334	1582	30	0	1612	1539	1582	
608,800	2,364,900	0.2833	1583	30	0	1613	1540	1583	
605,500	2,365,600	0.2831	1584	30	0	1614	1541	1584	
609,500	2,367,800	0.28309	1585	30	0	1615	1542	1585	
606,100	2,367,300	0.28306	1586	30	0	1616	1543	1586	
603,100	2,360,850	0.28302	1587	30	0	1617	1544	1587	
604,850	2,359,850	0.28297	1588	30	0	1618	1545	1588	
606,200	2,367,000	0.28293	1589	30	0	1619	1546	1589	

605,600	2,359,100	0.28277	1590	30	0	1620	1547	1590	
609,100	2,359,850	0.28269	1591	30	0	1621	1548	1591	
607,100	2,369,600	0.2826	1592	30	0	1622	1549	1592	
608,850	2,368,350	0.28256	1593	30	0	1623	1550	1593	
605,300	2,367,000	0.28252	1594	30	0	1624	1551	1594	
605,700	2,365,900	0.28244	1595	30	0	1625	1552	1595	
605,900	2,365,700	0.2824	1596	30	0	1626	1553	1596	
606,000	2,367,000	0.28235	1597	30	0	1627	1554	1597	
605,300	2,367,800	0.28232	1598	30	0	1628	1555	1598	
605,600	2,365,400	0.28229	1599	30	0	1629	1556	1599	
610,600	2,360,100	0.28227	1600	30	0	1630	1557	1600	
603,600	2,365,850	0.28227	1601	30	0	1631	1558	1601	
605,800	2,366,000	0.28214	1602	30	0	1632	1559	1602	
603,350	2,362,850	0.28211	1603	30	0	1633	1560	1603	
608,800	2,365,000	0.28187	1604	30	0	1634	1561	1604	
606,300	2,367,400	0.28186	1605	30	0	1635	1562	1605	
606,000	2,366,600	0.28172	1606	30	0	1636	1563	1606	
606,000	2,367,200	0.28169	1607	30	0	1637	1564	1607	
605,300	2,366,200	0.28152	1608	30	0	1638	1565	1608	
605,700	2,365,500	0.28151	1609	30	0	1639	1566	1609	
604,350	2,365,350	0.28148	1610	30	0	1640	1567	1610	
604,350	2,365,100	0.28146	1611	30	0	1641	1568	1611	
603,350	2,365,100	0.28141	1612	30	0	1642	1569	1612	
603,850	2,368,350	0.2814	1613	30	0	1643	1570	1613	
607,600	2,369,600	0.28136	1614	30	0	1644	1571	1614	
610,350	2,362,350	0.28132	1615	30	0	1645	1572	1615	
605,700	2,367,700	0.2813	1616	30	0	1646	1573	1616	
605,900	2,367,700	0.28125	1617	30	0	1647	1574	1617	
603,600	2,360,350	0.28122	1618	30	0	1648	1575	1618	
604,100	2,365,350	0.2811	1619	30	0	1649	1576	1619	
607,100	2,369,100	0.28107	1620	30	0	1650	1577	1620	
606,500	2,367,100	0.28094	1621	30	0	1651	1578	1621	
609,000	2,366,600	0.28091	1622	30	0	1652	1579	1622	
606,400	2,367,200	0.28069	1623	30	0	1653	1580	1623	
606,200	2,368,000	0.28068	1624	30	0	1654	1581	1624	
605,200	2,367,900	0.28068	1625	30	0	1655	1582	1625	
605,100	2,367,900	0.28067	1626	30	0	1656	1583	1626	
605,800	2,368,100	0.28063	1627	30	0	1657	1584	1627	
608,850	2,360,100	0.28029	1628	30	0	1658	1585	1628	
604,100	2,364,850	0.28016	1629	30	0	1659	1586	1629	
608,100	2,369,850	0.28003	1630	30	0	1660	1587	1630	
608,800	2,368,000	0.27996	1631	30	0	1661	1588	1631	
610,600	2,360,600	0.27989	1632	30	0	1662	1589	1632	
608,350	2,359,850	0.27984	1633	30	0	1663	1590	1633	
605,800	2,367,300	0.27984	1634	30	0	1664	1591	1634	
609,400	2,368,000	0.27982	1635	30	0	1665	1592	1635	
606,200	2,366,900	0.27977	1636	30	0	1666	1593	1636	
609,350	2,359,600	0.27973	1637	30	0	1667	1594	1637	
607,100	2,359,100	0.27969	1638	30	0	1668	1595	1638	
608,600	2,359,850	0.27967	1639	30	0	1669	1596	1639	
604,850	2,368,850	0.27966	1640	30	0	1670	1597	1640	
605,100	2,359,850	0.27958	1641	30	0	1671	1598	1641	
603,100	2,365,100	0.2795	1642	30	0	1672	1599	1642	
605,100	2,359,600	0.27949	1643	30	0	1673	1600	1643	
607,850	2,370,100	0.27948	1644	30	0	1674	1601	1644	
610,350	2,362,100	0.27946	1645	30	0	1675	1602	1645	
609,600	2,360,850	0.27938	1646	30	0	1676	1603	1646	
608,800	2,365,200	0.27938	1647	30	0	1677	1604	1647	
609,100	2,366,500	0.27915	1648	30	0	1678	1605	1648	

609,500	2,368,000	0.27912	1649	30	0	1679	1606	1649	
607,350	2,369,850	0.2791	1650	30	0	1680	1607	1650	
609,600	2,361,100	0.27897	1651	30	0	1681	1608	1651	
603,600	2,360,100	0.2789	1652	30	0	1682	1609	1652	
605,400	2,365,100	0.27873	1653	30	0	1683	1610	1653	
605,350	2,368,850	0.27858	1654	30	0	1684	1611	1654	
610,600	2,360,350	0.27855	1655	30	0	1685	1612	1655	
605,800	2,366,700	0.27852	1656	30	0	1686	1613	1656	
606,200	2,368,100	0.27837	1657	30	0	1687	1614	1657	
603,600	2,360,600	0.27823	1658	30	0	1688	1615	1658	
605,500	2,366,100	0.27819	1659	30	0	1689	1616	1659	
603,350	2,360,850	0.27813	1660	30	0	1690	1617	1660	
605,800	2,365,500	0.2781	1661	30	0	1691	1618	1661	
609,200	2,365,500	0.27796	1662	30	0	1692	1619	1662	
606,400	2,367,300	0.27796	1663	30	0	1693	1620	1663	
603,100	2,365,350	0.27783	1664	30	0	1694	1621	1664	
602,850	2,361,600	0.27779	1665	30	0	1695	1622	1665	
605,200	2,367,100	0.27771	1666	30	0	1696	1623	1666	
606,100	2,366,500	0.27769	1667	30	0	1697	1624	1667	
605,500	2,365,900	0.27768	1668	30	0	1698	1625	1668	
609,700	2,364,300	0.27766	1669	30	0	1699	1626	1669	
607,350	2,370,100	0.27764	1670	30	0	1700	1627	1670	
603,100	2,361,100	0.27759	1671	30	0	1701	1628	1671	
609,800	2,364,300	0.27751	1672	30	0	1702	1629	1672	
603,350	2,359,600	0.27748	1673	30	0	1703	1630	1673	
605,100	2,368,000	0.27745	1674	30	0	1704	1631	1674	
609,400	2,367,700	0.27741	1675	30	0	1705	1632	1675	
607,350	2,370,350	0.27723	1676	30	0	1706	1633	1676	
609,800	2,364,200	0.27705	1677	30	0	1707	1634	1677	
604,850	2,366,350	0.27705	1678	30	0	1708	1635	1678	
605,800	2,367,500	0.27693	1679	30	0	1709	1636	1679	
608,350	2,368,850	0.27691	1680	30	0	1710	1637	1680	
606,000	2,367,600	0.27691	1681	30	0	1711	1638	1681	
605,600	2,368,350	0.27686	1682	30	0	1712	1639	1682	
605,600	2,366,800	0.27684	1683	30	0	1713	1640	1683	
609,200	2,367,900	0.27683	1684	30	0	1714	1641	1684	
605,600	2,365,900	0.27671	1685	30	0	1715	1642	1685	
609,400	2,367,400	0.2767	1686	30	0	1716	1643	1686	
603,600	2,359,600	0.27668	1687	30	0	1717	1644	1687	
606,500	2,367,200	0.27663	1688	30	0	1718	1645	1688	
607,100	2,370,100	0.2766	1689	30	0	1719	1646	1689	
603,350	2,364,600	0.27647	1690	30	0	1720	1647	1690	
604,600	2,359,600	0.2764	1691	30	0	1721	1648	1691	
603,350	2,365,850	0.27636	1692	30	0	1722	1649	1692	
605,600	2,365,600	0.27628	1693	30	0	1723	1650	1693	
605,100	2,366,300	0.27623	1694	30	0	1724	1651	1694	
604,850	2,359,600	0.27614	1695	30	0	1725	1652	1695	
603,100	2,361,350	0.27607	1696	30	0	1726	1653	1696	
602,100	2,365,600	0.27607	1697	30	0	1727	1654	1697	
605,400	2,366,200	0.27597	1698	30	0	1728	1655	1698	
605,600	2,358,600	0.27586	1699	30	0	1729	1656	1699	
609,000	2,366,800	0.27586	1700	30	0	1730	1657	1700	
610,350	2,363,850	0.27582	1701	30	0	1731	1658	1701	
609,000	2,367,000	0.27557	1702	30	0	1732	1659	1702	
604,350	2,366,350	0.27555	1703	30	0	1733	1660	1703	
604,600	2,368,850	0.27547	1704	30	0	1734	1661	1704	
610,350	2,361,350	0.27538	1705	30	0	1735	1662	1705	
605,500	2,367,400	0.27538	1706	30	0	1736	1663	1706	
603,850	2,364,850	0.27536	1707	30	0	1737	1664	1707	

604,100	2,359,100	0.27522	1708	30	0	1738	1665	1708	
609,100	2,365,300	0.27515	1709	30	0	1739	1666	1709	
605,350	2,368,600	0.27502	1710	30	0	1740	1667	1710	
609,300	2,365,700	0.27501	1711	30	0	1741	1668	1711	
603,600	2,368,350	0.27481	1712	30	0	1742	1669	1712	
605,700	2,366,000	0.27479	1713	30	0	1743	1670	1713	
604,350	2,368,350	0.2746	1714	30	0	1744	1671	1714	
605,800	2,365,700	0.27443	1715	30	0	1745	1672	1715	
610,600	2,362,100	0.27436	1716	30	0	1746	1673	1716	
609,000	2,366,900	0.27431	1717	30	0	1747	1674	1717	
609,850	2,360,850	0.2743	1718	30	0	1748	1675	1718	
603,600	2,360,850	0.2743	1719	30	0	1749	1676	1719	
608,600	2,359,600	0.27427	1720	30	0	1750	1677	1720	
602,850	2,365,100	0.27404	1721	30	0	1751	1678	1721	
605,100	2,366,100	0.27402	1722	30	0	1752	1679	1722	
605,900	2,367,400	0.27377	1723	30	0	1753	1680	1723	
602,850	2,361,350	0.27375	1724	30	0	1754	1681	1724	
603,100	2,364,600	0.27369	1725	30	0	1755	1682	1725	
605,400	2,365,900	0.27369	1726	30	0	1756	1683	1726	
606,000	2,367,400	0.27366	1727	30	0	1757	1684	1727	
610,100	2,362,100	0.27364	1728	30	0	1758	1685	1728	
610,600	2,361,850	0.27341	1729	30	0	1759	1686	1729	
604,600	2,368,600	0.27341	1730	30	0	1760	1687	1730	
603,100	2,364,100	0.27339	1731	30	0	1761	1688	1731	
603,350	2,363,850	0.27335	1732	30	0	1762	1689	1732	
610,850	2,362,600	0.27335	1733	30	0	1763	1690	1733	
605,100	2,365,900	0.27325	1734	30	0	1764	1691	1734	
609,600	2,360,600	0.27323	1735	30	0	1765	1692	1735	
606,200	2,367,700	0.27316	1736	30	0	1766	1693	1736	
608,350	2,359,600	0.273	1737	30	0	1767	1694	1737	
605,600	2,366,100	0.27299	1738	30	0	1768	1695	1738	
605,600	2,369,850	0.27298	1739	30	0	1769	1696	1739	
603,850	2,368,100	0.27294	1740	30	0	1770	1697	1740	
606,100	2,358,100	0.27292	1741	30	0	1771	1698	1741	
605,800	2,365,800	0.27289	1742	30	0	1772	1699	1742	
602,850	2,361,850	0.27268	1743	30	0	1773	1700	1743	
605,100	2,359,100	0.27265	1744	30	0	1774	1701	1744	
605,100	2,369,350	0.27259	1745	30	0	1775	1702	1745	
606,100	2,369,850	0.27253	1746	30	0	1776	1703	1746	
606,100	2,366,900	0.2725	1747	30	0	1777	1704	1747	
603,850	2,365,850	0.27249	1748	30	0	1778	1705	1748	
605,100	2,366,700	0.27248	1749	30	0	1779	1706	1749	
606,100	2,366,300	0.27236	1750	30	0	1780	1707	1750	
605,900	2,367,500	0.27226	1751	30	0	1781	1708	1751	
603,350	2,360,100	0.27222	1752	30	0	1782	1709	1752	
606,100	2,366,100	0.27221	1753	30	0	1783	1710	1753	
610,850	2,362,850	0.27216	1754	30	0	1784	1711	1754	
603,100	2,365,850	0.27216	1755	30	0	1785	1712	1755	
610,350	2,361,600	0.27205	1756	30	0	1786	1713	1756	
609,100	2,359,600	0.27203	1757	30	0	1787	1714	1757	
602,850	2,360,600	0.27198	1758	30	0	1788	1715	1758	
605,700	2,367,400	0.27176	1759	30	0	1789	1716	1759	
606,100	2,367,500	0.27173	1760	30	0	1790	1717	1760	
605,300	2,366,600	0.27164	1761	30	0	1791	1718	1761	
606,350	2,369,600	0.27159	1762	30	0	1792	1719	1762	
609,200	2,368,100	0.2715	1763	30	0	1793	1720	1763	
606,100	2,366,200	0.27149	1764	30	0	1794	1721	1764	
606,600	2,370,600	0.27148	1765	30	0	1795	1722	1765	
605,900	2,367,300	0.27141	1766	30	0	1796	1723	1766	

610,350	2,362,600	0.27138	1767	30	0	1797	1724	1767	
606,200	2,367,800	0.27134	1768	30	0	1798	1725	1768	
603,850	2,359,600	0.27125	1769	30	0	1799	1726	1769	
608,350	2,369,850	0.27124	1770	30	0	1800	1727	1770	
610,850	2,363,600	0.27122	1771	30	0	1801	1728	1771	
606,200	2,366,800	0.27115	1772	30	0	1802	1729	1772	
609,100	2,369,350	0.27113	1773	30	0	1803	1730	1773	
609,100	2,366,200	0.27113	1774	30	0	1804	1731	1774	
605,100	2,367,100	0.27085	1775	30	0	1805	1732	1775	
609,100	2,366,900	0.27068	1776	30	0	1806	1733	1776	
605,800	2,366,100	0.27067	1777	30	0	1807	1734	1777	
609,500	2,367,700	0.27062	1778	30	0	1808	1735	1778	
605,100	2,369,600	0.27059	1779	30	0	1809	1736	1779	
605,700	2,366,100	0.27057	1780	30	0	1810	1737	1780	
606,200	2,367,100	0.27053	1781	30	0	1811	1738	1781	
605,100	2,366,000	0.27041	1782	30	0	1812	1739	1782	
605,500	2,365,800	0.27037	1783	30	0	1813	1740	1783	
605,700	2,365,600	0.27035	1784	30	0	1814	1741	1784	
605,200	2,366,300	0.27032	1785	30	0	1815	1742	1785	
605,600	2,366,000	0.27031	1786	30	0	1816	1743	1786	
609,600	2,359,850	0.27027	1787	30	0	1817	1744	1787	
610,600	2,362,600	0.27025	1788	30	0	1818	1745	1788	
609,300	2,366,400	0.27023	1789	30	0	1819	1746	1789	
605,800	2,367,400	0.27011	1790	30	0	1820	1747	1790	
609,500	2,368,100	0.27007	1791	30	0	1821	1748	1791	
608,100	2,359,100	0.27007	1792	30	0	1822	1749	1792	
609,600	2,359,600	0.27007	1793	30	0	1823	1750	1793	
606,350	2,370,600	0.26996	1794	30	0	1824	1751	1794	
601,850	2,365,600	0.26996	1795	30	0	1825	1752	1795	
605,300	2,365,900	0.26996	1796	30	0	1826	1753	1796	
611,350	2,362,850	0.26994	1797	30	0	1827	1754	1797	
610,350	2,360,100	0.26986	1798	30	0	1828	1755	1798	
605,200	2,366,000	0.26979	1799	30	0	1829	1756	1799	
608,350	2,370,100	0.26955	1800	30	0	1830	1757	1800	
608,100	2,370,100	0.26946	1801	30	0	1831	1758	1801	
606,100	2,368,000	0.26944	1802	30	0	1832	1759	1802	
609,200	2,367,100	0.26939	1803	30	0	1833	1760	1803	
606,600	2,358,600	0.26937	1804	30	0	1834	1761	1804	
602,600	2,361,350	0.26928	1805	30	0	1835	1762	1805	
608,850	2,359,850	0.26921	1806	30	0	1836	1763	1806	
605,800	2,367,200	0.26899	1807	30	0	1837	1764	1807	
606,300	2,367,900	0.26893	1808	30	0	1838	1765	1808	
604,850	2,366,850	0.26874	1809	30	0	1839	1766	1809	
603,350	2,360,350	0.26871	1810	30	0	1840	1767	1810	
605,800	2,367,600	0.26871	1811	30	0	1841	1768	1811	
609,100	2,367,000	0.26858	1812	30	0	1842	1769	1812	
606,200	2,367,900	0.26855	1813	30	0	1843	1770	1813	
605,700	2,367,500	0.26849	1814	30	0	1844	1771	1814	
611,350	2,362,600	0.26845	1815	30	0	1845	1772	1815	
606,100	2,367,900	0.26845	1816	30	0	1846	1773	1816	
605,500	2,366,000	0.26837	1817	30	0	1847	1774	1817	
603,100	2,360,600	0.26836	1818	30	0	1848	1775	1818	
606,850	2,370,350	0.26822	1819	30	0	1849	1776	1819	
609,100	2,366,600	0.26817	1820	30	0	1850	1777	1820	
602,850	2,361,100	0.26809	1821	30	0	1851	1778	1821	
606,200	2,366,300	0.26801	1822	30	0	1852	1779	1822	
602,850	2,360,850	0.26795	1823	30	0	1853	1780	1823	
608,850	2,359,600	0.26789	1824	30	0	1854	1781	1824	
607,600	2,359,100	0.26777	1825	30	0	1855	1782	1825	

605,800	2,365,600	0.2677	1826	30	0	1856	1783	1826	
602,850	2,365,350	0.2677	1827	30	0	1857	1784	1827	
604,600	2,366,850	0.26765	1828	30	0	1858	1785	1828	
606,000	2,367,300	0.26756	1829	30	0	1859	1786	1829	
609,600	2,360,100	0.26749	1830	30	0	1860	1787	1830	
608,600	2,368,850	0.26741	1831	30	0	1861	1788	1831	
605,200	2,365,900	0.2674	1832	30	0	1862	1789	1832	
603,100	2,363,850	0.26736	1833	30	0	1863	1790	1833	
608,900	2,364,900	0.26734	1834	30	0	1864	1791	1834	
605,500	2,367,600	0.26734	1835	30	0	1865	1792	1835	
602,850	2,365,850	0.26707	1836	30	0	1866	1793	1836	
605,600	2,365,800	0.26706	1837	30	0	1867	1794	1837	
605,200	2,366,700	0.26692	1838	30	0	1868	1795	1838	
605,200	2,366,600	0.2669	1839	30	0	1869	1796	1839	
609,100	2,366,800	0.2669	1840	30	0	1870	1797	1840	
606,400	2,367,900	0.26688	1841	30	0	1871	1798	1841	
604,850	2,369,100	0.26685	1842	30	0	1872	1799	1842	
605,900	2,367,800	0.26679	1843	30	0	1873	1800	1843	
602,600	2,365,100	0.26674	1844	30	0	1874	1801	1844	
605,600	2,369,350	0.26669	1845	30	0	1875	1802	1845	
605,600	2,370,350	0.26654	1846	30	0	1876	1803	1846	
605,600	2,367,600	0.26654	1847	30	0	1877	1804	1847	
606,300	2,367,000	0.26653	1848	30	0	1878	1805	1848	
605,700	2,365,800	0.2664	1849	30	0	1879	1806	1849	
608,350	2,370,350	0.26599	1850	30	0	1880	1807	1850	
605,400	2,365,700	0.26594	1851	30	0	1881	1808	1851	
604,100	2,366,350	0.26583	1852	30	0	1882	1809	1852	
606,000	2,366,300	0.26568	1853	30	0	1883	1810	1853	
609,600	2,360,350	0.26555	1854	30	0	1884	1811	1854	
608,600	2,369,100	0.26555	1855	30	0	1885	1812	1855	
609,300	2,365,800	0.26551	1856	30	0	1886	1813	1856	
606,100	2,367,700	0.2653	1857	30	0	1887	1814	1857	
604,600	2,369,100	0.26518	1858	30	0	1888	1815	1858	
602,850	2,364,600	0.26514	1859	30	0	1889	1816	1859	
609,100	2,366,100	0.26514	1860	30	0	1890	1817	1860	
602,350	2,365,350	0.26504	1861	30	0	1891	1818	1861	
610,600	2,360,850	0.26498	1862	30	0	1892	1819	1862	
610,600	2,359,850	0.26495	1863	30	0	1893	1820	1863	
603,600	2,364,850	0.26476	1864	30	0	1894	1821	1864	
603,600	2,359,100	0.26472	1865	30	0	1895	1822	1865	
606,350	2,370,350	0.26466	1866	30	0	1896	1823	1866	
609,100	2,368,350	0.26454	1867	30	0	1897	1824	1867	
607,850	2,370,350	0.26454	1868	30	0	1898	1825	1868	
605,350	2,370,600	0.26454	1869	30	0	1899	1826	1869	
606,350	2,370,850	0.26413	1870	30	0	1900	1827	1870	
609,500	2,367,900	0.26409	1871	30	0	1901	1828	1871	
609,400	2,366,800	0.26402	1872	30	0	1902	1829	1872	
610,850	2,360,100	0.26398	1873	30	0	1903	1830	1873	
606,350	2,371,100	0.26383	1874	30	0	1904	1831	1874	
604,600	2,368,100	0.26378	1875	30	0	1905	1832	1875	
605,100	2,366,600	0.26373	1876	30	0	1906	1833	1876	
606,000	2,368,000	0.26368	1877	30	0	1907	1834	1877	
609,200	2,366,000	0.26341	1878	30	0	1908	1835	1878	
610,100	2,360,350	0.26331	1879	30	0	1909	1836	1879	
605,600	2,367,400	0.2633	1880	30	0	1910	1837	1880	
605,500	2,367,500	0.26323	1881	30	0	1911	1838	1881	
603,350	2,360,600	0.26314	1882	30	0	1912	1839	1882	
609,200	2,367,000	0.26314	1883	30	0	1913	1840	1883	
605,900	2,366,100	0.26297	1884	30	0	1914	1841	1884	

604,600	2,368,350	0.26293	1885	30	0	1915	1842	1885	
609,200	2,364,800	0.26264	1886	30	0	1916	1843	1886	
602,600	2,365,350	0.26253	1887	30	0	1917	1844	1887	
602,600	2,360,350	0.26227	1888	30	0	1918	1845	1888	
606,000	2,366,100	0.26219	1889	30	0	1919	1846	1889	
607,600	2,369,850	0.2621	1890	30	0	1920	1847	1890	
606,300	2,368,100	0.2621	1891	30	0	1921	1848	1891	
603,350	2,359,850	0.26209	1892	30	0	1922	1849	1892	
610,850	2,359,850	0.26205	1893	30	0	1923	1850	1893	
605,700	2,367,300	0.26202	1894	30	0	1924	1851	1894	
603,100	2,359,850	0.26197	1895	30	0	1925	1852	1895	
609,500	2,367,600	0.26181	1896	30	0	1926	1853	1896	
605,500	2,365,700	0.26174	1897	30	0	1927	1854	1897	
605,600	2,367,500	0.26173	1898	30	0	1928	1855	1898	
605,500	2,366,200	0.26163	1899	30	0	1929	1856	1899	
610,850	2,361,600	0.26157	1900	30	0	1930	1857	1900	
605,400	2,366,900	0.2614	1901	30	0	1931	1858	1901	
605,700	2,365,700	0.26139	1902	30	0	1932	1859	1902	
605,800	2,366,200	0.26137	1903	30	0	1933	1860	1903	
605,700	2,366,700	0.26134	1904	30	0	1934	1861	1904	
611,350	2,363,100	0.26122	1905	30	0	1935	1862	1905	
606,100	2,366,400	0.26109	1906	30	0	1936	1863	1906	
605,100	2,368,850	0.26108	1907	30	0	1937	1864	1907	
605,400	2,366,000	0.26105	1908	30	0	1938	1865	1908	
605,300	2,366,000	0.26094	1909	30	0	1939	1866	1909	
604,100	2,365,850	0.26089	1910	30	0	1940	1867	1910	
610,600	2,362,350	0.2608	1911	30	0	1941	1868	1911	
611,100	2,362,350	0.26073	1912	30	0	1942	1869	1912	
610,850	2,361,850	0.26052	1913	30	0	1943	1870	1913	
605,850	2,370,100	0.26043	1914	30	0	1944	1871	1914	
606,000	2,367,700	0.26038	1915	30	0	1945	1872	1915	
606,000	2,366,200	0.26024	1916	30	0	1946	1873	1916	
602,600	2,365,850	0.26018	1917	30	0	1947	1874	1917	
605,200	2,365,800	0.26012	1918	30	0	1948	1875	1918	
602,350	2,365,100	0.26005	1919	30	0	1949	1876	1919	
604,350	2,369,100	0.26003	1920	30	0	1950	1877	1920	
605,400	2,365,800	0.25998	1921	30	0	1951	1878	1921	
603,100	2,360,100	0.25993	1922	30	0	1952	1879	1922	
610,850	2,359,600	0.25992	1923	30	0	1953	1880	1923	
602,600	2,361,100	0.25991	1924	30	0	1954	1881	1924	
605,100	2,369,850	0.25983	1925	30	0	1955	1882	1925	
605,900	2,367,900	0.25983	1926	30	0	1956	1883	1926	
609,300	2,365,900	0.2598	1927	30	0	1957	1884	1927	
606,100	2,367,800	0.25979	1928	30	0	1958	1885	1928	
605,900	2,366,600	0.25974	1929	30	0	1959	1886	1929	
610,850	2,360,350	0.25971	1930	30	0	1960	1887	1930	
609,400	2,366,500	0.2597	1931	30	0	1961	1888	1931	
605,400	2,366,500	0.25968	1932	30	0	1962	1889	1932	
611,100	2,362,600	0.25965	1933	30	0	1963	1890	1933	
609,400	2,366,600	0.25961	1934	30	0	1964	1891	1934	
603,350	2,368,600	0.25957	1935	30	0	1965	1892	1935	
609,600	2,367,800	0.25955	1936	30	0	1966	1893	1936	
609,850	2,360,350	0.25949	1937	30	0	1967	1894	1937	
609,600	2,367,500	0.25948	1938	30	0	1968	1895	1938	
609,100	2,365,400	0.25947	1939	30	0	1969	1896	1939	
602,600	2,360,850	0.25935	1940	30	0	1970	1897	1940	
609,850	2,360,600	0.25933	1941	30	0	1971	1898	1941	
602,850	2,360,350	0.2593	1942	30	0	1972	1899	1942	
609,300	2,367,100	0.25897	1943	30	0	1973	1900	1943	

602,350	2,361,100	0.25893	1944	30	0	1974	1901	1944	
607,850	2,370,600	0.25885	1945	30	0	1975	1902	1945	
604,600	2,359,100	0.25875	1946	30	0	1976	1903	1946	
605,200	2,367,000	0.25867	1947	30	0	1977	1904	1947	
603,850	2,368,600	0.25865	1948	30	0	1978	1905	1948	
606,300	2,368,000	0.2585	1949	30	0	1979	1906	1949	
606,000	2,367,800	0.25835	1950	30	0	1980	1907	1950	
605,100	2,358,600	0.25831	1951	30	0	1981	1908	1951	
609,300	2,365,600	0.25825	1952	30	0	1982	1909	1952	
602,600	2,360,600	0.25817	1953	30	0	1983	1910	1953	
605,500	2,366,500	0.25817	1954	30	0	1984	1911	1954	
604,350	2,368,850	0.25816	1955	30	0	1985	1912	1955	
602,600	2,361,600	0.25814	1956	30	0	1986	1913	1956	
604,850	2,366,100	0.25813	1957	30	0	1987	1914	1957	
604,100	2,367,850	0.25805	1958	30	0	1988	1915	1958	
607,100	2,370,350	0.25801	1959	30	0	1989	1916	1959	
605,600	2,358,100	0.25797	1960	30	0	1990	1917	1960	
611,600	2,362,600	0.25793	1961	30	0	1991	1918	1961	
604,100	2,368,600	0.25781	1962	30	0	1992	1919	1962	
609,600	2,368,100	0.25779	1963	30	0	1993	1920	1963	
605,900	2,366,200	0.25766	1964	30	0	1994	1921	1964	
609,300	2,364,700	0.25713	1965	30	0	1995	1922	1965	
606,100	2,367,600	0.25696	1966	30	0	1996	1923	1966	
609,600	2,359,100	0.25688	1967	30	0	1997	1924	1967	
601,600	2,365,600	0.25688	1968	30	0	1998	1925	1968	
610,850	2,362,350	0.25685	1969	30	0	1999	1926	1969	
609,200	2,366,800	0.25684	1970	30	0	2000	1927	1970	
605,300	2,365,800	0.25678	1971	30	0	2001	1928	1971	
609,300	2,368,000	0.25668	1972	30	0	2002	1929	1972	
605,900	2,366,300	0.25643	1973	30	0	2003	1930	1973	
605,400	2,366,600	0.25641	1974	30	0	2004	1931	1974	
609,200	2,368,000	0.25638	1975	30	0	2005	1932	1975	
609,400	2,368,100	0.25636	1976	30	0	2006	1933	1976	
603,350	2,364,850	0.25625	1977	30	0	2007	1934	1977	
603,100	2,359,100	0.25613	1978	30	0	2008	1935	1978	
609,850	2,360,100	0.25612	1979	30	0	2009	1936	1979	
608,100	2,370,350	0.25598	1980	30	0	2010	1937	1980	
606,000	2,366,500	0.25591	1981	30	0	2011	1938	1981	
603,600	2,366,600	0.25586	1982	30	0	2012	1939	1982	
610,350	2,361,850	0.25541	1983	30	0	2013	1940	1983	
604,350	2,365,850	0.25541	1984	30	0	2014	1941	1984	
611,100	2,363,350	0.2554	1985	30	0	2015	1942	1985	
610,600	2,361,100	0.25535	1986	30	0	2016	1943	1986	
605,600	2,366,400	0.25529	1987	30	0	2017	1944	1987	
609,100	2,366,700	0.2551	1988	30	0	2018	1945	1988	
608,900	2,365,100	0.2551	1989	30	0	2019	1946	1989	
607,600	2,370,100	0.25505	1990	30	0	2020	1947	1990	
605,600	2,365,700	0.25491	1991	30	0	2021	1948	1991	
602,350	2,365,850	0.2549	1992	30	0	2022	1949	1992	
609,200	2,365,300	0.25482	1993	30	0	2023	1950	1993	
608,900	2,365,000	0.25456	1994	30	0	2024	1951	1994	
603,100	2,359,600	0.25441	1995	30	0	2025	1952	1995	
608,900	2,365,200	0.25433	1996	30	0	2026	1953	1996	
603,600	2,368,600	0.25424	1997	30	0	2027	1954	1997	
602,350	2,361,850	0.25423	1998	30	0	2028	1955	1998	
603,100	2,364,850	0.25423	1999	30	0	2029	1956	1999	
602,350	2,361,600	0.2542	2000	30	0	2030	1957	2000	
603,600	2,358,600	0.25408	2001	30	0	2031	1958	2001	
611,350	2,362,350	0.25404	2002	30	0	2032	1959	2002	

604,850	2,365,850	0.25398	2003	30	0	2033	1960	2003	
608,600	2,369,600	0.25395	2004	30	0	2034	1961	2004	
605,700	2,366,400	0.25391	2005	30	0	2035	1962	2005	
601,850	2,364,100	0.25376	2006	30	0	2036	1963	2006	
603,850	2,366,600	0.25373	2007	30	0	2037	1964	2007	
604,850	2,369,850	0.25372	2008	30	0	2038	1965	2008	
605,300	2,366,500	0.25363	2009	30	0	2039	1966	2009	
611,600	2,362,850	0.25362	2010	30	0	2040	1967	2010	
604,600	2,366,100	0.2536	2011	30	0	2041	1968	2011	
604,600	2,365,850	0.25345	2012	30	0	2042	1969	2012	
605,100	2,365,800	0.25329	2013	30	0	2043	1970	2013	
601,850	2,365,350	0.25322	2014	30	0	2044	1971	2014	
607,350	2,370,600	0.25321	2015	30	0	2045	1972	2015	
602,600	2,364,600	0.2531	2016	30	0	2046	1973	2016	
608,350	2,370,600	0.25304	2017	30	0	2047	1974	2017	
609,600	2,368,350	0.25297	2018	30	0	2048	1975	2018	
605,300	2,366,300	0.25287	2019	30	0	2049	1976	2019	
608,100	2,358,600	0.25276	2020	30	0	2050	1977	2020	
609,200	2,366,600	0.25266	2021	30	0	2051	1978	2021	
609,400	2,366,900	0.25258	2022	30	0	2052	1979	2022	
606,000	2,367,900	0.25258	2023	30	0	2053	1980	2023	
609,400	2,365,800	0.25216	2024	30	0	2054	1981	2024	
602,350	2,360,100	0.25215	2025	30	0	2055	1982	2025	
602,850	2,364,850	0.25212	2026	30	0	2056	1983	2026	
603,100	2,360,350	0.25211	2027	30	0	2057	1984	2027	
610,600	2,361,600	0.25206	2028	30	0	2058	1985	2028	
604,600	2,369,350	0.25194	2029	30	0	2059	1986	2029	
609,000	2,364,900	0.25184	2030	30	0	2060	1987	2030	
609,200	2,366,200	0.25177	2031	30	0	2061	1988	2031	
603,350	2,366,600	0.25158	2032	30	0	2062	1989	2032	
611,850	2,362,350	0.25156	2033	30	0	2063	1990	2033	
610,850	2,362,100	0.25151	2034	30	0	2064	1991	2034	
604,100	2,367,100	0.2515	2035	30	0	2065	1992	2035	
605,350	2,369,600	0.25131	2036	30	0	2066	1993	2036	
602,100	2,365,350	0.25122	2037	30	0	2067	1994	2037	
605,800	2,366,600	0.25116	2038	30	0	2068	1995	2038	
610,600	2,359,600	0.25113	2039	30	0	2069	1996	2039	
608,600	2,359,100	0.2508	2040	30	0	2070	1997	2040	
609,100	2,359,100	0.25068	2041	30	0	2071	1998	2041	
602,850	2,359,850	0.25068	2042	30	0	2072	1999	2042	
607,600	2,358,600	0.25061	2043	30	0	2073	2000	2043	
601,850	2,365,850	0.25055	2044	30	0	2074	2001	2044	
602,350	2,361,350	0.25033	2045	30	0	2075	2002	2045	
605,100	2,366,800	0.25031	2046	30	0	2076	2003	2046	
603,100	2,368,850	0.25027	2047	30	0	2077	2004	2047	
609,900	2,364,300	0.25017	2048	30	0	2078	2005	2048	
606,000	2,366,400	0.25016	2049	30	0	2079	2006	2049	
602,100	2,360,850	0.25002	2050	30	0	2080	2007	2050	
602,850	2,359,600	0.24999	2051	30	0	2081	2008	2051	
605,500	2,366,400	0.2499	2052	30	0	2082	2009	2052	
611,100	2,361,350	0.24988	2053	30	0	2083	2010	2053	
609,300	2,365,500	0.24975	2054	30	0	2084	2011	2054	
610,000	2,366,700	0.24974	2055	30	0	2085	2012	2055	
604,350	2,368,600	0.24965	2056	30	0	2086	2013	2056	
608,850	2,369,600	0.2496	2057	30	0	2087	2014	2057	
609,500	2,367,500	0.24946	2058	30	0	2088	2015	2058	
611,600	2,362,350	0.24921	2059	30	0	2089	2016	2059	
605,500	2,366,800	0.24909	2060	30	0	2090	2017	2060	
609,300	2,366,800	0.24898	2061	30	0	2091	2018	2061	

609,600	2,358,600	0.24897	2062	30	0	2092	2019	2062	
611,100	2,359,850	0.24878	2063	30	0	2093	2020	2063	
605,200	2,366,500	0.2486	2064	30	0	2094	2021	2064	
602,100	2,361,600	0.24857	2065	30	0	2095	2022	2065	
609,500	2,366,800	0.24857	2066	30	0	2096	2023	2066	
602,100	2,361,850	0.24836	2067	30	0	2097	2024	2067	
605,100	2,369,100	0.24829	2068	30	0	2098	2025	2068	
602,350	2,360,600	0.24827	2069	30	0	2099	2026	2069	
611,850	2,362,600	0.24804	2070	30	0	2100	2027	2070	
602,600	2,360,100	0.24803	2071	30	0	2101	2028	2071	
605,600	2,369,600	0.24798	2072	30	0	2102	2029	2072	
610,600	2,361,350	0.24791	2073	30	0	2103	2030	2073	
609,400	2,364,700	0.24784	2074	30	0	2104	2031	2074	
602,350	2,360,850	0.24779	2075	30	0	2105	2032	2075	
611,350	2,362,100	0.24775	2076	30	0	2106	2033	2076	
605,600	2,366,300	0.24774	2077	30	0	2107	2034	2077	
603,100	2,366,600	0.24771	2078	30	0	2108	2035	2078	
605,800	2,366,400	0.24767	2079	30	0	2109	2036	2079	
609,300	2,366,600	0.24764	2080	30	0	2110	2037	2080	
604,350	2,367,100	0.24758	2081	30	0	2111	2038	2081	
605,600	2,366,500	0.24751	2082	30	0	2112	2039	2082	
602,350	2,360,350	0.2475	2083	30	0	2113	2040	2083	
605,400	2,366,400	0.24744	2084	30	0	2114	2041	2084	
604,350	2,367,600	0.24743	2085	30	0	2115	2042	2085	
602,100	2,365,850	0.2473	2086	30	0	2116	2043	2086	
609,200	2,366,100	0.24703	2087	30	0	2117	2044	2087	
605,600	2,366,200	0.24703	2088	30	0	2118	2045	2088	
609,200	2,365,400	0.24701	2089	30	0	2119	2046	2089	
611,100	2,359,600	0.24698	2090	30	0	2120	2047	2090	
609,500	2,366,900	0.24692	2091	30	0	2121	2048	2091	
605,300	2,366,900	0.24691	2092	30	0	2122	2049	2092	
609,850	2,359,850	0.24676	2093	30	0	2123	2050	2093	
602,100	2,361,350	0.24676	2094	30	0	2124	2051	2094	
609,300	2,365,300	0.24661	2095	30	0	2125	2052	2095	
611,100	2,361,600	0.24658	2096	30	0	2126	2053	2096	
603,350	2,368,850	0.24654	2097	30	0	2127	2054	2097	
606,600	2,358,100	0.24649	2098	30	0	2128	2055	2098	
611,350	2,363,350	0.24642	2099	30	0	2129	2056	2099	
605,900	2,366,400	0.24641	2100	30	0	2130	2057	2100	
609,800	2,364,400	0.24624	2101	30	0	2131	2058	2101	
601,850	2,364,350	0.24613	2102	30	0	2132	2059	2102	
607,600	2,370,350	0.24606	2103	30	0	2133	2060	2103	
603,850	2,366,350	0.24592	2104	30	0	2134	2061	2104	
605,700	2,366,200	0.2459	2105	30	0	2135	2062	2105	
605,100	2,358,100	0.2459	2106	30	0	2136	2063	2106	
602,100	2,365,100	0.24577	2107	30	0	2137	2064	2107	
604,350	2,369,350	0.24575	2108	30	0	2138	2065	2108	
609,100	2,369,100	0.24558	2109	30	0	2139	2066	2109	
601,600	2,364,100	0.24535	2110	30	0	2140	2067	2110	
609,500	2,364,600	0.2452	2111	30	0	2141	2068	2111	
609,100	2,370,350	0.24514	2112	30	0	2142	2069	2112	
605,500	2,366,300	0.24486	2113	30	0	2143	2070	2113	
605,200	2,366,900	0.24466	2114	30	0	2144	2071	2114	
606,850	2,370,600	0.24448	2115	30	0	2145	2072	2115	
609,400	2,365,700	0.24447	2116	30	0	2146	2073	2116	
605,850	2,370,350	0.24445	2117	30	0	2147	2074	2117	
609,300	2,368,100	0.24438	2118	30	0	2148	2075	2118	
605,700	2,366,300	0.24425	2119	30	0	2149	2076	2119	
605,350	2,370,850	0.24423	2120	30	0	2150	2077	2120	

610,600	2,363,850	0.24421	2121	30	0	2151	2078	2121	
608,100	2,370,600	0.24419	2122	30	0	2152	2079	2122	
611,600	2,362,100	0.24413	2123	30	0	2153	2080	2123	
609,500	2,366,600	0.24408	2124	30	0	2154	2081	2124	
601,850	2,361,350	0.24404	2125	30	0	2155	2082	2125	
602,100	2,361,100	0.244	2126	30	0	2156	2083	2126	
608,600	2,369,850	0.24399	2127	30	0	2157	2084	2127	
606,600	2,370,850	0.24391	2128	30	0	2158	2085	2128	
604,100	2,358,600	0.24388	2129	30	0	2159	2086	2129	
610,350	2,359,850	0.24387	2130	30	0	2160	2087	2130	
604,600	2,358,600	0.24382	2131	30	0	2161	2088	2131	
609,200	2,366,700	0.24381	2132	30	0	2162	2089	2132	
605,350	2,370,350	0.24373	2133	30	0	2163	2090	2133	
604,850	2,369,600	0.24373	2134	30	0	2164	2091	2134	
602,600	2,364,850	0.24334	2135	30	0	2165	2092	2135	
611,100	2,359,100	0.24333	2136	30	0	2166	2093	2136	
602,600	2,358,600	0.2431	2137	30	0	2167	2094	2137	
610,100	2,360,100	0.24304	2138	30	0	2168	2095	2138	
609,300	2,366,300	0.24301	2139	30	0	2169	2096	2139	
602,850	2,360,100	0.2429	2140	30	0	2170	2097	2140	
604,100	2,366,600	0.2427	2141	30	0	2171	2098	2141	
604,350	2,366,600	0.24256	2142	30	0	2172	2099	2142	
605,100	2,371,100	0.2424	2143	30	0	2173	2100	2143	
602,100	2,359,850	0.24238	2144	30	0	2174	2101	2144	
605,400	2,366,800	0.24235	2145	30	0	2175	2102	2145	
602,350	2,364,600	0.24225	2146	30	0	2176	2103	2146	
605,600	2,366,700	0.24213	2147	30	0	2177	2104	2147	
604,100	2,369,100	0.24207	2148	30	0	2178	2105	2148	
610,850	2,361,350	0.24199	2149	30	0	2179	2106	2149	
607,100	2,370,600	0.24195	2150	30	0	2180	2107	2150	
609,300	2,366,700	0.24186	2151	30	0	2181	2108	2151	
604,850	2,370,100	0.24181	2152	30	0	2182	2109	2152	
605,900	2,366,500	0.24168	2153	30	0	2183	2110	2153	
603,100	2,358,600	0.24167	2154	30	0	2184	2111	2154	
601,850	2,361,600	0.24157	2155	30	0	2185	2112	2155	
609,200	2,366,900	0.24152	2156	30	0	2186	2113	2156	
605,800	2,366,300	0.24152	2157	30	0	2187	2114	2157	
602,600	2,359,600	0.2415	2158	30	0	2188	2115	2158	
610,850	2,360,600	0.24149	2159	30	0	2189	2116	2159	
611,100	2,361,850	0.24134	2160	30	0	2190	2117	2160	
609,600	2,364,500	0.24131	2161	30	0	2191	2118	2161	
604,350	2,366,850	0.24129	2162	30	0	2192	2119	2162	
604,100	2,369,350	0.24128	2163	30	0	2193	2120	2163	
611,100	2,362,100	0.2412	2164	30	0	2194	2121	2164	
609,300	2,366,000	0.24105	2165	30	0	2195	2122	2165	
605,100	2,367,000	0.24105	2166	30	0	2196	2123	2166	
612,100	2,362,100	0.24083	2167	30	0	2197	2124	2167	
605,300	2,366,400	0.24049	2168	30	0	2198	2125	2168	
601,850	2,365,100	0.24047	2169	30	0	2199	2126	2169	
609,400	2,365,600	0.24043	2170	30	0	2200	2127	2170	
604,100	2,367,350	0.24038	2171	30	0	2201	2128	2171	
609,350	2,368,350	0.2403	2172	30	0	2202	2129	2172	
608,600	2,370,350	0.24029	2173	30	0	2203	2130	2173	
604,100	2,367,600	0.24029	2174	30	0	2204	2131	2174	
601,100	2,365,600	0.24018	2175	30	0	2205	2132	2175	
610,850	2,360,850	0.23981	2176	30	0	2206	2133	2176	
608,100	2,370,850	0.2398	2177	30	0	2207	2134	2177	
601,600	2,365,350	0.23979	2178	30	0	2208	2135	2178	
610,000	2,364,300	0.2396	2179	30	0	2209	2136	2179	

605,300	2,366,700	0.23949	2180	30	0	2210	2137	2180	
609,350	2,368,600	0.23929	2181	30	0	2211	2138	2181	
603,850	2,368,850	0.2392	2182	30	0	2212	2139	2182	
609,800	2,367,100	0.23919	2183	30	0	2213	2140	2183	
609,850	2,359,600	0.23883	2184	30	0	2214	2141	2184	
609,600	2,366,700	0.23882	2185	30	0	2215	2142	2185	
604,350	2,366,100	0.23881	2186	30	0	2216	2143	2186	
609,100	2,368,600	0.23879	2187	30	0	2217	2144	2187	
604,600	2,367,350	0.23874	2188	30	0	2218	2145	2188	
605,400	2,366,300	0.23867	2189	30	0	2219	2146	2189	
609,400	2,365,300	0.23866	2190	30	0	2220	2147	2190	
610,600	2,365,850	0.23865	2191	30	0	2221	2148	2191	
609,300	2,364,800	0.23833	2192	30	0	2222	2149	2192	
601,850	2,360,600	0.23832	2193	30	0	2223	2150	2193	
608,350	2,370,850	0.23821	2194	30	0	2224	2151	2194	
601,600	2,364,350	0.23819	2195	30	0	2225	2152	2195	
609,000	2,365,200	0.23819	2196	30	0	2226	2153	2196	
602,350	2,359,850	0.23816	2197	30	0	2227	2154	2197	
603,850	2,367,100	0.23814	2198	30	0	2228	2155	2198	
610,100	2,366,700	0.23804	2199	30	0	2229	2156	2199	
609,300	2,365,400	0.23783	2200	30	0	2230	2157	2200	
602,600	2,359,100	0.23783	2201	30	0	2231	2158	2201	
609,500	2,365,700	0.23769	2202	30	0	2232	2159	2202	
609,600	2,368,000	0.23769	2203	30	0	2233	2160	2203	
605,600	2,370,600	0.2376	2204	30	0	2234	2161	2204	
610,100	2,359,600	0.23759	2205	30	0	2235	2162	2205	
611,350	2,361,100	0.23752	2206	30	0	2236	2163	2206	
608,600	2,369,350	0.23749	2207	30	0	2237	2164	2207	
605,100	2,366,900	0.23747	2208	30	0	2238	2165	2208	
601,850	2,360,850	0.23744	2209	30	0	2239	2166	2209	
605,100	2,366,400	0.23744	2210	30	0	2240	2167	2210	
602,100	2,360,100	0.23738	2211	30	0	2241	2168	2211	
612,100	2,362,350	0.23734	2212	30	0	2242	2169	2212	
602,850	2,368,850	0.23715	2213	30	0	2243	2170	2213	
611,100	2,361,100	0.23711	2214	30	0	2244	2171	2214	
608,600	2,358,600	0.23698	2215	30	0	2245	2172	2215	
605,200	2,366,400	0.23694	2216	30	0	2246	2173	2216	
605,350	2,369,850	0.2369	2217	30	0	2247	2174	2217	
604,850	2,367,100	0.23687	2218	30	0	2248	2175	2218	
609,500	2,367,000	0.23683	2219	30	0	2249	2176	2219	
609,000	2,365,100	0.23672	2220	30	0	2250	2177	2220	
606,100	2,370,100	0.23667	2221	30	0	2251	2178	2221	
606,100	2,370,850	0.23653	2222	30	0	2252	2179	2222	
607,600	2,370,600	0.2365	2223	30	0	2253	2180	2223	
602,350	2,364,850	0.23642	2224	30	0	2254	2181	2224	
611,850	2,361,850	0.23638	2225	30	0	2255	2182	2225	
609,100	2,370,100	0.23629	2226	30	0	2256	2183	2226	
611,350	2,360,850	0.23622	2227	30	0	2257	2184	2227	
609,400	2,366,400	0.23613	2228	30	0	2258	2185	2228	
603,100	2,358,100	0.23603	2229	30	0	2259	2186	2229	
604,100	2,368,850	0.236	2230	30	0	2260	2187	2230	
609,100	2,364,900	0.23598	2231	30	0	2261	2188	2231	
609,300	2,366,900	0.23597	2232	30	0	2262	2189	2232	
603,850	2,366,100	0.23592	2233	30	0	2263	2190	2233	
603,100	2,369,100	0.23588	2234	30	0	2264	2191	2234	
601,850	2,364,850	0.23586	2235	30	0	2265	2192	2235	
605,100	2,366,500	0.23584	2236	30	0	2266	2193	2236	
608,100	2,358,100	0.23583	2237	30	0	2267	2194	2237	
610,100	2,359,850	0.23583	2238	30	0	2268	2195	2238	

602,100	2,360,600	0.23582	2239	30	0	2269	2196	2239	
603,600	2,368,850	0.23576	2240	30	0	2270	2197	2240	
604,100	2,369,600	0.23572	2241	30	0	2271	2198	2241	
602,100	2,360,350	0.23567	2242	30	0	2272	2199	2242	
611,350	2,365,600	0.23566	2243	30	0	2273	2200	2243	
603,600	2,358,100	0.23531	2244	30	0	2274	2201	2244	
609,700	2,367,900	0.23529	2245	30	0	2275	2202	2245	
605,300	2,366,800	0.23525	2246	30	0	2276	2203	2246	
606,600	2,371,100	0.23514	2247	30	0	2277	2204	2247	
605,800	2,366,500	0.23501	2248	30	0	2278	2205	2248	
603,600	2,366,100	0.23498	2249	30	0	2279	2206	2249	
609,900	2,364,400	0.23496	2250	30	0	2280	2207	2250	
611,600	2,361,850	0.2346	2251	30	0	2281	2208	2251	
604,850	2,366,600	0.2345	2252	30	0	2282	2209	2252	
609,400	2,365,500	0.23434	2253	30	0	2283	2210	2253	
606,100	2,370,600	0.23434	2254	30	0	2284	2211	2254	
609,600	2,367,900	0.23432	2255	30	0	2285	2212	2255	
609,500	2,366,700	0.2343	2256	30	0	2286	2213	2256	
609,400	2,365,400	0.23419	2257	30	0	2287	2214	2257	
609,400	2,365,900	0.234	2258	30	0	2288	2215	2258	
605,700	2,366,600	0.23396	2259	30	0	2289	2216	2259	
605,200	2,366,800	0.23388	2260	30	0	2290	2217	2260	
602,600	2,359,850	0.23374	2261	30	0	2291	2218	2261	
612,600	2,361,850	0.23361	2262	30	0	2292	2219	2262	
603,100	2,368,600	0.23359	2263	30	0	2293	2220	2263	
604,600	2,358,100	0.23353	2264	30	0	2294	2221	2264	
609,500	2,365,800	0.23338	2265	30	0	2295	2222	2265	
603,600	2,367,350	0.23332	2266	30	0	2296	2223	2266	
609,900	2,367,800	0.23331	2267	30	0	2297	2224	2267	
609,000	2,365,000	0.23322	2268	30	0	2298	2225	2268	
606,350	2,371,350	0.23316	2269	30	0	2299	2226	2269	
601,850	2,359,600	0.23311	2270	30	0	2300	2227	2270	
609,400	2,367,200	0.23303	2271	30	0	2301	2228	2271	
600,600	2,363,600	0.23287	2272	30	0	2302	2229	2272	
601,600	2,365,850	0.23283	2273	30	0	2303	2230	2273	
604,100	2,366,100	0.23267	2274	30	0	2304	2231	2274	
601,600	2,361,100	0.23266	2275	30	0	2305	2232	2275	
611,350	2,361,600	0.23249	2276	30	0	2306	2233	2276	
611,100	2,360,100	0.23246	2277	30	0	2307	2234	2277	
609,600	2,367,100	0.23243	2278	30	0	2308	2235	2278	
612,350	2,362,100	0.23226	2279	30	0	2309	2236	2279	
601,600	2,364,850	0.23219	2280	30	0	2310	2237	2280	
601,600	2,365,100	0.23218	2281	30	0	2311	2238	2281	
611,100	2,365,600	0.23207	2282	30	0	2312	2239	2282	
610,000	2,364,400	0.23202	2283	30	0	2313	2240	2283	
612,350	2,361,850	0.23201	2284	30	0	2314	2241	2284	
607,350	2,370,850	0.23199	2285	30	0	2315	2242	2285	
609,900	2,366,800	0.23198	2286	30	0	2316	2243	2286	
602,100	2,364,850	0.23189	2287	30	0	2317	2244	2287	
604,600	2,366,600	0.23187	2288	30	0	2318	2245	2288	
601,850	2,361,100	0.2318	2289	30	0	2319	2246	2289	
609,800	2,364,500	0.23178	2290	30	0	2320	2247	2290	
605,500	2,366,600	0.23174	2291	30	0	2321	2248	2291	
609,700	2,367,800	0.23163	2292	30	0	2322	2249	2292	
611,850	2,362,100	0.23156	2293	30	0	2323	2250	2293	
611,600	2,363,100	0.23156	2294	30	0	2324	2251	2294	
609,100	2,358,600	0.23138	2295	30	0	2325	2252	2295	
601,600	2,360,600	0.23133	2296	30	0	2326	2253	2296	
608,600	2,370,600	0.23108	2297	30	0	2327	2254	2297	

606,100	2,371,100	0.23106	2298	30	0	2328	2255	2298	
602,100	2,359,600	0.23105	2299	30	0	2329	2256	2299	
611,350	2,361,350	0.23078	2300	30	0	2330	2257	2300	
609,400	2,366,000	0.23073	2301	30	0	2331	2258	2301	
609,600	2,367,000	0.23057	2302	30	0	2332	2259	2302	
609,700	2,367,200	0.23054	2303	30	0	2333	2260	2303	
601,100	2,363,600	0.23051	2304	30	0	2334	2261	2304	
604,350	2,369,600	0.23048	2305	30	0	2335	2262	2305	
610,100	2,364,300	0.23047	2306	30	0	2336	2263	2306	
609,100	2,365,200	0.23027	2307	30	0	2337	2264	2307	
609,700	2,367,100	0.23007	2308	30	0	2338	2265	2308	
611,350	2,361,850	0.23005	2309	30	0	2339	2266	2309	
610,600	2,365,600	0.22994	2310	30	0	2340	2267	2310	
603,600	2,366,350	0.22989	2311	30	0	2341	2268	2311	
610,100	2,364,500	0.22988	2312	30	0	2342	2269	2312	
609,900	2,364,600	0.22983	2313	30	0	2343	2270	2313	
610,850	2,361,100	0.2298	2314	30	0	2344	2271	2314	
601,600	2,361,600	0.22966	2315	30	0	2345	2272	2315	
610,000	2,366,600	0.22951	2316	30	0	2346	2273	2316	
609,400	2,364,800	0.22937	2317	30	0	2347	2274	2317	
609,900	2,367,100	0.22936	2318	30	0	2348	2275	2318	
609,800	2,366,800	0.22915	2319	30	0	2349	2276	2319	
606,100	2,370,350	0.22912	2320	30	0	2350	2277	2320	
601,600	2,360,350	0.22906	2321	30	0	2351	2278	2321	
608,600	2,370,850	0.22899	2322	30	0	2352	2279	2322	
605,400	2,366,700	0.22891	2323	30	0	2353	2280	2323	
601,850	2,360,350	0.22887	2324	30	0	2354	2281	2324	
605,500	2,366,700	0.22864	2325	30	0	2355	2282	2325	
611,100	2,360,350	0.22861	2326	30	0	2356	2283	2326	
601,600	2,361,350	0.22857	2327	30	0	2357	2284	2327	
603,850	2,367,350	0.22826	2328	30	0	2358	2285	2328	
609,300	2,367,000	0.22825	2329	30	0	2359	2286	2329	
609,500	2,365,600	0.22816	2330	30	0	2360	2287	2330	
602,100	2,364,600	0.22812	2331	30	0	2361	2288	2331	
609,600	2,358,100	0.22795	2332	30	0	2362	2289	2332	
609,800	2,367,800	0.22782	2333	30	0	2363	2290	2333	
601,850	2,359,850	0.22781	2334	30	0	2364	2291	2334	
609,600	2,367,700	0.22764	2335	30	0	2365	2292	2335	
602,850	2,366,600	0.22757	2336	30	0	2366	2293	2336	
601,100	2,364,100	0.22755	2337	30	0	2367	2294	2337	
611,600	2,360,850	0.22754	2338	30	0	2368	2295	2338	
610,000	2,365,800	0.2275	2339	30	0	2369	2296	2339	
602,850	2,369,100	0.22749	2340	30	0	2370	2297	2340	
602,350	2,366,850	0.22746	2341	30	0	2371	2298	2341	
609,500	2,364,700	0.22746	2342	30	0	2372	2299	2342	
609,300	2,366,200	0.22744	2343	30	0	2373	2300	2343	
606,100	2,371,600	0.22727	2344	30	0	2374	2301	2344	
611,850	2,362,850	0.22717	2345	30	0	2375	2302	2345	
607,100	2,370,850	0.2271	2346	30	0	2376	2303	2346	
612,100	2,362,600	0.227	2347	30	0	2377	2304	2347	
609,900	2,366,600	0.22693	2348	30	0	2378	2305	2348	
609,900	2,366,700	0.22685	2349	30	0	2379	2306	2349	
611,600	2,360,600	0.22663	2350	30	0	2380	2307	2350	
611,350	2,359,600	0.22661	2351	30	0	2381	2308	2351	
610,000	2,364,500	0.22656	2352	30	0	2382	2309	2352	
607,600	2,370,850	0.2265	2353	30	0	2383	2310	2353	
605,350	2,371,100	0.22649	2354	30	0	2384	2311	2354	
610,850	2,365,850	0.22645	2355	30	0	2385	2312	2355	
603,850	2,369,350	0.22627	2356	30	0	2386	2313	2356	

609,100	2,368,850	0.22624	2357	30	0	2387	2314	2357	
609,500	2,365,300	0.22623	2358	30	0	2388	2315	2358	
608,600	2,371,100	0.22606	2359	30	0	2389	2316	2359	
609,900	2,367,200	0.22579	2360	30	0	2390	2317	2360	
609,600	2,364,600	0.22579	2361	30	0	2391	2318	2361	
609,700	2,366,900	0.22574	2362	30	0	2392	2319	2362	
611,100	2,360,600	0.22574	2363	30	0	2393	2320	2363	
612,350	2,362,350	0.22554	2364	30	0	2394	2321	2364	
609,100	2,365,100	0.22553	2365	30	0	2395	2322	2365	
609,100	2,365,000	0.22542	2366	30	0	2396	2323	2366	
611,850	2,361,600	0.22532	2367	30	0	2397	2324	2367	
609,700	2,368,000	0.22531	2368	30	0	2398	2325	2368	
609,700	2,366,800	0.22531	2369	30	0	2399	2326	2369	
609,400	2,367,000	0.22518	2370	30	0	2400	2327	2370	
609,500	2,367,300	0.22517	2371	30	0	2401	2328	2371	
604,100	2,358,100	0.22517	2372	30	0	2402	2329	2372	
604,350	2,370,600	0.22515	2373	30	0	2403	2330	2373	
604,850	2,369,350	0.22511	2374	30	0	2404	2331	2374	
605,700	2,366,500	0.22511	2375	30	0	2405	2332	2375	
603,350	2,366,100	0.22506	2376	30	0	2406	2333	2376	
610,100	2,364,400	0.22499	2377	30	0	2407	2334	2377	
602,600	2,366,850	0.22492	2378	30	0	2408	2335	2378	
602,600	2,369,100	0.2249	2379	30	0	2409	2336	2379	
609,100	2,358,100	0.22489	2380	30	0	2410	2337	2380	
606,350	2,371,600	0.22481	2381	30	0	2411	2338	2381	
602,850	2,366,850	0.22479	2382	30	0	2412	2339	2382	
605,600	2,366,600	0.22476	2383	30	0	2413	2340	2383	
600,600	2,365,600	0.22445	2384	30	0	2414	2341	2384	
604,600	2,370,100	0.22427	2385	30	0	2415	2342	2385	
601,600	2,363,100	0.2242	2386	30	0	2416	2343	2386	
610,100	2,359,100	0.2242	2387	30	0	2417	2344	2387	
612,100	2,361,600	0.22419	2388	30	0	2418	2345	2388	
609,800	2,367,200	0.22415	2389	30	0	2419	2346	2389	
609,600	2,367,200	0.22408	2390	30	0	2420	2347	2390	
610,350	2,359,600	0.22399	2391	30	0	2421	2348	2391	
609,700	2,364,700	0.22394	2392	30	0	2422	2349	2392	
610,350	2,365,850	0.2239	2393	30	0	2423	2350	2393	
609,500	2,367,100	0.22387	2394	30	0	2424	2351	2394	
609,800	2,366,600	0.22378	2395	30	0	2425	2352	2395	
610,100	2,358,100	0.22375	2396	30	0	2426	2353	2396	
604,600	2,367,100	0.22372	2397	30	0	2427	2354	2397	
603,850	2,369,600	0.22369	2398	30	0	2428	2355	2398	
603,600	2,367,600	0.22366	2399	30	0	2429	2356	2399	
602,600	2,358,100	0.22364	2400	30	0	2430	2357	2400	
609,400	2,367,100	0.22363	2401	30	0	2431	2358	2401	
601,850	2,360,100	0.22355	2402	30	0	2432	2359	2402	
601,600	2,360,850	0.22354	2403	30	0	2433	2360	2403	
609,800	2,366,700	0.22353	2404	30	0	2434	2361	2404	
609,500	2,365,500	0.22351	2405	30	0	2435	2362	2405	
609,800	2,364,600	0.22349	2406	30	0	2436	2363	2406	
609,900	2,364,500	0.22339	2407	30	0	2437	2364	2407	
609,600	2,365,700	0.22333	2408	30	0	2438	2365	2408	
604,350	2,367,350	0.22329	2409	30	0	2439	2366	2409	
603,100	2,366,850	0.22323	2410	30	0	2440	2367	2410	
608,600	2,358,100	0.2232	2411	30	0	2441	2368	2411	
604,600	2,370,600	0.22319	2412	30	0	2442	2369	2412	
603,350	2,368,350	0.22307	2413	30	0	2443	2370	2413	
602,100	2,358,600	0.22302	2414	30	0	2444	2371	2414	
604,600	2,370,350	0.22302	2415	30	0	2445	2372	2415	

611,100	2,363,600	0.22292	2416	30	0	2446	2373	2416	
605,100	2,371,350	0.2229	2417	30	0	2447	2374	2417	
607,850	2,370,850	0.22286	2418	30	0	2448	2375	2418	
602,350	2,359,600	0.22285	2419	30	0	2449	2376	2419	
603,350	2,367,350	0.22284	2420	30	0	2450	2377	2420	
609,600	2,364,700	0.22277	2421	30	0	2451	2378	2421	
610,100	2,365,800	0.22262	2422	30	0	2452	2379	2422	
609,700	2,367,000	0.22255	2423	30	0	2453	2380	2423	
608,600	2,370,100	0.22242	2424	30	0	2454	2381	2424	
603,350	2,369,100	0.22242	2425	30	0	2455	2382	2425	
609,850	2,368,350	0.22241	2426	30	0	2456	2383	2426	
610,100	2,358,600	0.2223	2427	30	0	2457	2384	2427	
609,900	2,365,800	0.22227	2428	30	0	2458	2385	2428	
603,600	2,367,850	0.22202	2429	30	0	2459	2386	2429	
609,700	2,366,700	0.22195	2430	30	0	2460	2387	2430	
602,100	2,366,850	0.22195	2431	30	0	2461	2388	2431	
610,350	2,364,350	0.22193	2432	30	0	2462	2389	2432	
612,600	2,361,600	0.22177	2433	30	0	2463	2390	2433	
610,000	2,364,600	0.22176	2434	30	0	2464	2391	2434	
609,800	2,365,500	0.22164	2435	30	0	2465	2392	2435	
602,100	2,359,100	0.22157	2436	30	0	2466	2393	2436	
611,100	2,360,850	0.22153	2437	30	0	2467	2394	2437	
609,700	2,365,500	0.22148	2438	30	0	2468	2395	2438	
601,850	2,364,600	0.22147	2439	30	0	2469	2396	2439	
603,850	2,367,850	0.22142	2440	30	0	2470	2397	2440	
601,100	2,362,600	0.22138	2441	30	0	2471	2398	2441	
603,850	2,369,100	0.22123	2442	30	0	2472	2399	2442	
605,350	2,370,100	0.22112	2443	30	0	2473	2400	2443	
609,500	2,364,800	0.22106	2444	30	0	2474	2401	2444	
601,600	2,360,100	0.22103	2445	30	0	2475	2402	2445	
606,850	2,370,850	0.22096	2446	30	0	2476	2403	2446	
603,850	2,369,850	0.22091	2447	30	0	2477	2404	2447	
611,600	2,361,350	0.2209	2448	30	0	2478	2405	2448	
610,350	2,365,600	0.22086	2449	30	0	2479	2406	2449	
601,100	2,361,100	0.2208	2450	30	0	2480	2407	2450	
604,100	2,366,850	0.2208	2451	30	0	2481	2408	2451	
609,500	2,365,400	0.22075	2452	30	0	2482	2409	2452	
603,600	2,369,100	0.22055	2453	30	0	2483	2410	2453	
609,900	2,365,500	0.22055	2454	30	0	2484	2411	2454	
602,850	2,369,350	0.22054	2455	30	0	2485	2412	2455	
611,850	2,360,600	0.22051	2456	30	0	2486	2413	2456	
609,500	2,365,900	0.22037	2457	30	0	2487	2414	2457	
605,850	2,370,600	0.22032	2458	30	0	2488	2415	2458	
611,600	2,361,100	0.22025	2459	30	0	2489	2416	2459	
601,600	2,361,850	0.22018	2460	30	0	2490	2417	2460	
609,200	2,365,100	0.22012	2461	30	0	2491	2418	2461	
610,000	2,366,800	0.21974	2462	30	0	2492	2419	2462	
609,700	2,368,100	0.21964	2463	30	0	2493	2420	2463	
606,850	2,371,100	0.21943	2464	30	0	2494	2421	2464	
604,850	2,371,600	0.21927	2465	30	0	2495	2422	2465	
609,100	2,369,850	0.21924	2466	30	0	2496	2423	2466	
609,800	2,367,300	0.21901	2467	30	0	2497	2424	2467	
609,700	2,367,600	0.21896	2468	30	0	2498	2425	2468	
612,850	2,361,600	0.21883	2469	30	0	2499	2426	2469	
601,600	2,359,600	0.21877	2470	30	0	2500	2427	2470	
602,350	2,369,350	0.21859	2471	30	0	2501	2428	2471	
601,100	2,362,100	0.21856	2472	30	0	2502	2429	2472	
612,600	2,362,100	0.21842	2473	30	0	2503	2430	2473	
609,700	2,364,600	0.21832	2474	30	0	2504	2431	2474	

610,000	2,365,500	0.21831	2475	30	0	2505	2432	2475	
611,350	2,360,100	0.21824	2476	30	0	2506	2433	2476	
610,000	2,366,900	0.2182	2477	30	0	2507	2434	2477	
609,600	2,366,800	0.21817	2478	30	0	2508	2435	2478	
610,100	2,365,500	0.21808	2479	30	0	2509	2436	2479	
609,600	2,365,500	0.21806	2480	30	0	2510	2437	2480	
609,400	2,366,700	0.21803	2481	30	0	2511	2438	2481	
611,600	2,365,600	0.21791	2482	30	0	2512	2439	2482	
611,850	2,360,350	0.21788	2483	30	0	2513	2440	2483	
609,600	2,364,800	0.21777	2484	30	0	2514	2441	2484	
609,600	2,365,800	0.21775	2485	30	0	2515	2442	2485	
603,100	2,367,600	0.21764	2486	30	0	2516	2443	2486	
605,100	2,370,850	0.21759	2487	30	0	2517	2444	2487	
610,000	2,365,900	0.21737	2488	30	0	2518	2445	2488	
609,800	2,366,900	0.21732	2489	30	0	2519	2446	2489	
609,600	2,367,400	0.21729	2490	30	0	2520	2447	2490	
603,350	2,366,850	0.21728	2491	30	0	2521	2448	2491	
611,100	2,358,600	0.21725	2492	30	0	2522	2449	2492	
609,200	2,364,900	0.21722	2493	30	0	2523	2450	2493	
601,600	2,359,100	0.21721	2494	30	0	2524	2451	2494	
607,350	2,371,100	0.21704	2495	30	0	2525	2452	2495	
609,900	2,365,700	0.21702	2496	30	0	2526	2453	2496	
611,600	2,358,600	0.217	2497	30	0	2527	2454	2497	
601,600	2,364,600	0.21698	2498	30	0	2528	2455	2498	
602,100	2,358,100	0.21696	2499	30	0	2529	2456	2499	
606,100	2,372,100	0.21693	2500	30	0	2530	2457	2500	
606,100	2,371,350	0.21676	2501	30	0	2531	2458	2501	
601,100	2,360,100	0.21675	2502	30	0	2532	2459	2502	
611,600	2,359,100	0.21673	2503	30	0	2533	2460	2503	
609,500	2,366,000	0.21662	2504	30	0	2534	2461	2504	
604,850	2,370,350	0.21661	2505	30	0	2535	2462	2505	
609,200	2,365,000	0.21658	2506	30	0	2536	2463	2506	
609,600	2,365,400	0.21648	2507	30	0	2537	2464	2507	
600,100	2,363,600	0.21645	2508	30	0	2538	2465	2508	
604,100	2,369,850	0.21605	2509	30	0	2539	2466	2509	
609,300	2,366,100	0.21604	2510	30	0	2540	2467	2510	
610,100	2,366,800	0.216	2511	30	0	2541	2468	2511	
609,800	2,364,700	0.21598	2512	30	0	2542	2469	2512	
610,350	2,366,100	0.21593	2513	30	0	2543	2470	2513	
612,100	2,362,850	0.21558	2514	30	0	2544	2471	2514	
610,600	2,364,100	0.21558	2515	30	0	2545	2472	2515	
609,600	2,365,600	0.2154	2516	30	0	2546	2473	2516	
611,350	2,360,600	0.21537	2517	30	0	2547	2474	2517	
609,800	2,365,800	0.21536	2518	30	0	2548	2475	2518	
601,100	2,365,100	0.21533	2519	30	0	2549	2476	2519	
609,400	2,366,300	0.21519	2520	30	0	2550	2477	2520	
609,900	2,365,600	0.21514	2521	30	0	2551	2478	2521	
609,900	2,366,900	0.21511	2522	30	0	2552	2479	2522	
609,700	2,365,800	0.21504	2523	30	0	2553	2480	2523	
611,350	2,359,850	0.21496	2524	30	0	2554	2481	2524	
604,350	2,370,350	0.21496	2525	30	0	2555	2482	2525	
604,600	2,369,850	0.21491	2526	30	0	2556	2483	2526	
601,100	2,363,100	0.21489	2527	30	0	2557	2484	2527	
610,000	2,365,700	0.21475	2528	30	0	2558	2485	2528	
603,350	2,367,600	0.21465	2529	30	0	2559	2486	2529	
612,100	2,361,350	0.21448	2530	30	0	2560	2487	2530	
611,600	2,358,100	0.21448	2531	30	0	2561	2488	2531	
606,600	2,371,350	0.21447	2532	30	0	2562	2489	2532	
612,850	2,361,350	0.21437	2533	30	0	2563	2490	2533	

610,100	2,364,600	0.21436	2534	30	0	2564	2491	2534	
609,800	2,368,100	0.21435	2535	30	0	2565	2492	2535	
609,800	2,365,600	0.21427	2536	30	0	2566	2493	2536	
609,200	2,365,200	0.21412	2537	30	0	2567	2494	2537	
609,400	2,365,000	0.2141	2538	30	0	2568	2495	2538	
612,350	2,361,350	0.21379	2539	30	0	2569	2496	2539	
604,600	2,369,600	0.2137	2540	30	0	2570	2497	2540	
610,100	2,367,200	0.21369	2541	30	0	2571	2498	2541	
601,100	2,361,600	0.21369	2542	30	0	2572	2499	2542	
607,100	2,371,100	0.21356	2543	30	0	2573	2500	2543	
610,000	2,367,900	0.21352	2544	30	0	2574	2501	2544	
609,800	2,368,000	0.21346	2545	30	0	2575	2502	2545	
601,100	2,360,600	0.21345	2546	30	0	2576	2503	2546	
600,600	2,362,100	0.21342	2547	30	0	2577	2504	2547	
609,700	2,367,300	0.21341	2548	30	0	2578	2505	2548	
610,000	2,367,300	0.21338	2549	30	0	2579	2506	2549	
603,600	2,369,600	0.21332	2550	30	0	2580	2507	2550	
609,600	2,366,600	0.21331	2551	30	0	2581	2508	2551	
600,600	2,364,100	0.21327	2552	30	0	2582	2509	2552	
609,900	2,364,700	0.21317	2553	30	0	2583	2510	2553	
601,600	2,359,850	0.21312	2554	30	0	2584	2511	2554	
609,700	2,365,600	0.21305	2555	30	0	2585	2512	2555	
610,100	2,365,900	0.21299	2556	30	0	2586	2513	2556	
611,600	2,361,600	0.21291	2557	30	0	2587	2514	2557	
612,850	2,361,850	0.21283	2558	30	0	2588	2515	2558	
605,600	2,370,850	0.21266	2559	30	0	2589	2516	2559	
612,100	2,360,350	0.2125	2560	30	0	2590	2517	2560	
609,600	2,366,900	0.21243	2561	30	0	2591	2518	2561	
611,850	2,363,100	0.21236	2562	30	0	2592	2519	2562	
600,600	2,363,100	0.21233	2563	30	0	2593	2520	2563	
609,900	2,365,900	0.21229	2564	30	0	2594	2521	2564	
605,850	2,371,600	0.21225	2565	30	0	2595	2522	2565	
603,850	2,366,850	0.21225	2566	30	0	2596	2523	2566	
610,600	2,359,100	0.2122	2567	30	0	2597	2524	2567	
603,600	2,368,100	0.21213	2568	30	0	2598	2525	2568	
609,300	2,364,900	0.21208	2569	30	0	2599	2526	2569	
612,100	2,361,850	0.21203	2570	30	0	2600	2527	2570	
613,100	2,361,600	0.21199	2571	30	0	2601	2528	2571	
609,600	2,368,600	0.21197	2572	30	0	2602	2529	2572	
608,600	2,371,350	0.2117	2573	30	0	2603	2530	2573	
609,500	2,367,200	0.21169	2574	30	0	2604	2531	2574	
603,850	2,367,600	0.21167	2575	30	0	2605	2532	2575	
611,850	2,360,850	0.2116	2576	30	0	2606	2533	2576	
612,350	2,362,600	0.21151	2577	30	0	2607	2534	2577	
610,850	2,363,850	0.21151	2578	30	0	2608	2535	2578	
611,600	2,360,350	0.21148	2579	30	0	2609	2536	2579	
604,350	2,369,850	0.21127	2580	30	0	2610	2537	2580	
610,000	2,367,200	0.21117	2581	30	0	2611	2538	2581	
612,100	2,360,100	0.21114	2582	30	0	2612	2539	2582	
611,850	2,365,850	0.21072	2583	30	0	2613	2540	2583	
609,300	2,365,100	0.21067	2584	30	0	2614	2541	2584	
611,850	2,361,100	0.21065	2585	30	0	2615	2542	2585	
602,600	2,369,350	0.2106	2586	30	0	2616	2543	2586	
608,850	2,370,850	0.21052	2587	30	0	2617	2544	2587	
609,700	2,365,400	0.21031	2588	30	0	2618	2545	2588	
605,100	2,370,100	0.21024	2589	30	0	2619	2546	2589	
608,850	2,371,100	0.21023	2590	30	0	2620	2547	2590	
603,600	2,366,850	0.2102	2591	30	0	2621	2548	2591	
603,350	2,366,350	0.21005	2592	30	0	2622	2549	2592	

609,400	2,365,200	0.21002	2593	30	0	2623	2550	2593	
610,600	2,364,350	0.20999	2594	30	0	2624	2551	2594	
605,600	2,371,100	0.20987	2595	30	0	2625	2552	2595	
609,800	2,367,000	0.20986	2596	30	0	2626	2553	2596	
609,350	2,370,350	0.20986	2597	30	0	2627	2554	2597	
611,350	2,360,350	0.20982	2598	30	0	2628	2555	2598	
604,350	2,370,850	0.20963	2599	30	0	2629	2556	2599	
609,850	2,368,600	0.20958	2600	30	0	2630	2557	2600	
609,700	2,365,700	0.20936	2601	30	0	2631	2558	2601	
609,900	2,367,300	0.20932	2602	30	0	2632	2559	2602	
603,100	2,366,100	0.2093	2603	30	0	2633	2560	2603	
600,100	2,365,600	0.20916	2604	30	0	2634	2561	2604	
610,100	2,365,700	0.20905	2605	30	0	2635	2562	2605	
608,600	2,371,600	0.20896	2606	30	0	2636	2563	2606	
609,700	2,367,500	0.2089	2607	30	0	2637	2564	2607	
608,100	2,371,100	0.20888	2608	30	0	2638	2565	2608	
610,100	2,366,100	0.2088	2609	30	0	2639	2566	2609	
602,100	2,369,600	0.20877	2610	30	0	2640	2567	2610	
609,100	2,369,600	0.20875	2611	30	0	2641	2568	2611	
607,350	2,371,350	0.20866	2612	30	0	2642	2569	2612	
609,600	2,365,900	0.20864	2613	30	0	2643	2570	2613	
608,350	2,371,100	0.20832	2614	30	0	2644	2571	2614	
607,850	2,371,100	0.20826	2615	30	0	2645	2572	2615	
605,100	2,371,600	0.20822	2616	30	0	2646	2573	2616	
601,100	2,359,600	0.20817	2617	30	0	2647	2574	2617	
609,600	2,365,300	0.20802	2618	30	0	2648	2575	2618	
603,600	2,370,100	0.20802	2619	30	0	2649	2576	2619	
602,600	2,366,600	0.20802	2620	30	0	2650	2577	2620	
609,300	2,365,200	0.2077	2621	30	0	2651	2578	2621	
610,600	2,358,600	0.20748	2622	30	0	2652	2579	2622	
612,600	2,362,350	0.20737	2623	30	0	2653	2580	2623	
607,600	2,371,100	0.20737	2624	30	0	2654	2581	2624	
609,800	2,365,700	0.2073	2625	30	0	2655	2582	2625	
609,300	2,365,000	0.2071	2626	30	0	2656	2583	2626	
603,100	2,369,350	0.20709	2627	30	0	2657	2584	2627	
600,600	2,361,600	0.20671	2628	30	0	2658	2585	2628	
610,850	2,364,100	0.20671	2629	30	0	2659	2586	2629	
610,100	2,366,900	0.20669	2630	30	0	2660	2587	2630	
603,600	2,367,100	0.20667	2631	30	0	2661	2588	2631	
609,400	2,364,900	0.20657	2632	30	0	2662	2589	2632	
611,850	2,365,600	0.20649	2633	30	0	2663	2590	2633	
609,800	2,365,400	0.20636	2634	30	0	2664	2591	2634	
611,600	2,359,850	0.20628	2635	30	0	2665	2592	2635	
609,900	2,367,000	0.20621	2636	30	0	2666	2593	2636	
609,500	2,366,500	0.20613	2637	30	0	2667	2594	2637	
612,350	2,361,600	0.20594	2638	30	0	2668	2595	2638	
610,100	2,366,600	0.2059	2639	30	0	2669	2596	2639	
603,600	2,369,850	0.20578	2640	30	0	2670	2597	2640	
608,850	2,369,850	0.20572	2641	30	0	2671	2598	2641	
609,600	2,367,600	0.20563	2642	30	0	2672	2599	2642	
609,900	2,367,900	0.20551	2643	30	0	2673	2600	2643	
613,100	2,361,350	0.20547	2644	30	0	2674	2601	2644	
612,100	2,360,850	0.20547	2645	30	0	2675	2602	2645	
612,350	2,361,100	0.20538	2646	30	0	2676	2603	2646	
605,100	2,370,350	0.20531	2647	30	0	2677	2604	2647	
612,600	2,361,350	0.2053	2648	30	0	2678	2605	2648	
603,100	2,367,850	0.20527	2649	30	0	2679	2606	2649	
612,600	2,361,100	0.20524	2650	30	0	2680	2607	2650	
609,100	2,370,600	0.20507	2651	30	0	2681	2608	2651	

603,600	2,369,350	0.20502	2652	30	0	2682	2609	2652	
613,350	2,361,350	0.20502	2653	30	0	2683	2610	2653	
607,100	2,371,350	0.20493	2654	30	0	2684	2611	2654	
610,000	2,367,100	0.20489	2655	30	0	2685	2612	2655	
609,350	2,369,350	0.20486	2656	30	0	2686	2613	2656	
610,350	2,365,350	0.20461	2657	30	0	2687	2614	2657	
610,100	2,365,400	0.20459	2658	30	0	2688	2615	2658	
608,350	2,371,350	0.20444	2659	30	0	2689	2616	2659	
602,350	2,369,600	0.20431	2660	30	0	2690	2617	2660	
610,000	2,365,600	0.20425	2661	30	0	2691	2618	2661	
607,850	2,371,350	0.20422	2662	30	0	2692	2619	2662	
611,600	2,359,600	0.2042	2663	30	0	2693	2620	2663	
601,600	2,358,100	0.20397	2664	30	0	2694	2621	2664	
601,600	2,358,600	0.20395	2665	30	0	2695	2622	2665	
611,850	2,361,350	0.20391	2666	30	0	2696	2623	2666	
608,850	2,370,350	0.20388	2667	30	0	2697	2624	2667	
601,100	2,364,600	0.2038	2668	30	0	2698	2625	2668	
601,100	2,359,100	0.20373	2669	30	0	2699	2626	2669	
612,350	2,359,850	0.20367	2670	30	0	2700	2627	2670	
602,850	2,367,600	0.20346	2671	30	0	2701	2628	2671	
609,700	2,364,800	0.20331	2672	30	0	2702	2629	2672	
603,350	2,368,100	0.20327	2673	30	0	2703	2630	2673	
606,600	2,371,600	0.20318	2674	30	0	2704	2631	2674	
612,350	2,360,100	0.20312	2675	30	0	2705	2632	2675	
611,850	2,360,100	0.20309	2676	30	0	2706	2633	2676	
601,100	2,358,600	0.20304	2677	30	0	2707	2634	2677	
602,100	2,369,350	0.20302	2678	30	0	2708	2635	2678	
611,100	2,365,850	0.203	2679	30	0	2709	2636	2679	
609,500	2,364,900	0.20298	2680	30	0	2710	2637	2680	
609,500	2,365,000	0.20294	2681	30	0	2711	2638	2681	
601,600	2,367,100	0.20292	2682	30	0	2712	2639	2682	
609,700	2,367,700	0.20286	2683	30	0	2713	2640	2683	
610,000	2,365,300	0.20277	2684	30	0	2714	2641	2684	
603,350	2,369,350	0.20275	2685	30	0	2715	2642	2685	
609,800	2,365,900	0.20267	2686	30	0	2716	2643	2686	
600,600	2,359,600	0.2026	2687	30	0	2717	2644	2687	
603,350	2,369,850	0.20226	2688	30	0	2718	2645	2688	
610,100	2,368,850	0.20219	2689	30	0	2719	2646	2689	
608,850	2,371,350	0.20214	2690	30	0	2720	2647	2690	
609,600	2,364,900	0.20208	2691	30	0	2721	2648	2691	
601,850	2,366,850	0.20206	2692	30	0	2722	2649	2692	
612,100	2,359,850	0.20202	2693	30	0	2723	2650	2693	
609,400	2,366,100	0.20198	2694	30	0	2724	2651	2694	
612,850	2,361,100	0.20195	2695	30	0	2725	2652	2695	
604,100	2,370,100	0.2019	2696	30	0	2726	2653	2696	
610,000	2,366,000	0.20183	2697	30	0	2727	2654	2697	
612,100	2,360,600	0.20178	2698	30	0	2728	2655	2698	
600,600	2,362,600	0.20176	2699	30	0	2729	2656	2699	
609,600	2,367,300	0.20168	2700	30	0	2730	2657	2700	
603,100	2,367,350	0.20168	2701	30	0	2731	2658	2701	
608,100	2,371,350	0.20153	2702	30	0	2732	2659	2702	
610,000	2,366,100	0.20153	2703	30	0	2733	2660	2703	
602,600	2,367,850	0.20146	2704	30	0	2734	2661	2704	
612,850	2,362,100	0.20126	2705	30	0	2735	2662	2705	
609,900	2,366,000	0.20119	2706	30	0	2736	2663	2706	
600,100	2,362,100	0.20116	2707	30	0	2737	2664	2707	
602,600	2,369,600	0.20116	2708	30	0	2738	2665	2708	
610,350	2,366,850	0.20114	2709	30	0	2739	2666	2709	
613,100	2,361,850	0.20111	2710	30	0	2740	2667	2710	

602,850	2,366,100	0.20095	2711	30	0	2741	2668	2711	
605,350	2,371,350	0.20088	2712	30	0	2742	2669	2712	
600,600	2,360,600	0.20083	2713	30	0	2743	2670	2713	
605,100	2,370,600	0.20058	2714	30	0	2744	2671	2714	
610,100	2,367,000	0.20054	2715	30	0	2745	2672	2715	
609,600	2,366,000	0.20045	2716	30	0	2746	2673	2716	
608,100	2,371,600	0.2003	2717	30	0	2747	2674	2717	
612,350	2,359,600	0.20026	2718	30	0	2748	2675	2718	
609,400	2,366,200	0.20019	2719	30	0	2749	2676	2719	
606,850	2,371,350	0.20018	2720	30	0	2750	2677	2720	
609,500	2,365,100	0.2001	2721	30	0	2751	2678	2721	
610,000	2,367,000	0.20002	2722	30	0	2752	2679	2722	
609,500	2,366,400	0.19999	2723	30	0	2753	2680	2723	
609,350	2,371,100	0.19994	2724	30	0	2754	2681	2724	
610,600	2,358,100	0.19992	2725	30	0	2755	2682	2725	
610,100	2,366,000	0.19979	2726	30	0	2756	2683	2726	
609,700	2,365,900	0.19979	2727	30	0	2757	2684	2727	
609,700	2,366,600	0.19978	2728	30	0	2758	2685	2728	
603,350	2,367,100	0.19976	2729	30	0	2759	2686	2729	
610,100	2,365,300	0.19969	2730	30	0	2760	2687	2730	
609,800	2,367,900	0.19958	2731	30	0	2761	2688	2731	
603,850	2,370,100	0.19955	2732	30	0	2762	2689	2732	
613,100	2,361,100	0.19949	2733	30	0	2763	2690	2733	
611,600	2,360,100	0.19944	2734	30	0	2764	2691	2734	
610,100	2,367,300	0.19931	2735	30	0	2765	2692	2735	
607,600	2,371,350	0.19916	2736	30	0	2766	2693	2736	
607,350	2,371,600	0.19912	2737	30	0	2767	2694	2737	
613,350	2,361,600	0.19907	2738	30	0	2768	2695	2738	
600,600	2,361,100	0.19902	2739	30	0	2769	2696	2739	
611,100	2,365,350	0.19899	2740	30	0	2770	2697	2740	
602,850	2,367,850	0.19891	2741	30	0	2771	2698	2741	
609,900	2,367,400	0.1989	2742	30	0	2772	2699	2742	
609,600	2,365,100	0.1989	2743	30	0	2773	2700	2743	
612,850	2,362,350	0.19872	2744	30	0	2774	2701	2744	
602,350	2,369,100	0.19862	2745	30	0	2775	2702	2745	
610,850	2,365,600	0.19853	2746	30	0	2776	2703	2746	
609,900	2,365,400	0.1985	2747	30	0	2777	2704	2747	
611,350	2,365,350	0.19846	2748	30	0	2778	2705	2748	
609,800	2,367,400	0.19844	2749	30	0	2779	2706	2749	
601,850	2,367,100	0.19833	2750	30	0	2780	2707	2750	
610,100	2,365,600	0.19825	2751	30	0	2781	2708	2751	
613,600	2,361,100	0.19815	2752	30	0	2782	2709	2752	
609,350	2,371,350	0.19814	2753	30	0	2783	2710	2753	
600,100	2,363,100	0.1981	2754	30	0	2784	2711	2754	
609,350	2,370,850	0.19804	2755	30	0	2785	2712	2755	
612,100	2,365,600	0.19787	2756	30	0	2786	2713	2756	
605,850	2,370,850	0.19784	2757	30	0	2787	2714	2757	
610,000	2,364,700	0.1977	2758	30	0	2788	2715	2758	
609,500	2,366,100	0.19767	2759	30	0	2789	2716	2759	
609,400	2,365,100	0.19763	2760	30	0	2790	2717	2760	
610,000	2,367,400	0.19758	2761	30	0	2791	2718	2761	
604,350	2,371,100	0.19741	2762	30	0	2792	2719	2762	
602,100	2,369,850	0.19735	2763	30	0	2793	2720	2763	
605,850	2,371,350	0.19734	2764	30	0	2794	2721	2764	
605,850	2,371,100	0.19733	2765	30	0	2795	2722	2765	
602,350	2,367,100	0.19724	2766	30	0	2796	2723	2766	
611,100	2,364,100	0.19716	2767	30	0	2797	2724	2767	
609,600	2,369,350	0.19712	2768	30	0	2798	2725	2768	
602,600	2,366,100	0.19703	2769	30	0	2799	2726	2769	

603,100	2,368,100	0.19685	2770	30	0	2800	2727	2770	
609,600	2,366,500	0.19682	2771	30	0	2801	2728	2771	
609,800	2,364,800	0.19677	2772	30	0	2802	2729	2772	
613,350	2,361,100	0.19673	2773	30	0	2803	2730	2773	
612,600	2,360,850	0.19656	2774	30	0	2804	2731	2774	
604,600	2,372,100	0.19622	2775	30	0	2805	2732	2775	
609,700	2,367,400	0.19615	2776	30	0	2806	2733	2776	
609,900	2,364,800	0.19614	2777	30	0	2807	2734	2777	
603,350	2,367,850	0.19612	2778	30	0	2808	2735	2778	
612,350	2,360,600	0.19608	2779	30	0	2809	2736	2779	
610,100	2,364,700	0.19606	2780	30	0	2810	2737	2780	
609,700	2,365,100	0.19604	2781	30	0	2811	2738	2781	
609,600	2,365,000	0.19604	2782	30	0	2812	2739	2782	
609,600	2,365,200	0.19583	2783	30	0	2813	2740	2783	
610,100	2,367,100	0.19581	2784	30	0	2814	2741	2784	
612,850	2,360,850	0.19577	2785	30	0	2815	2742	2785	
601,850	2,366,100	0.19568	2786	30	0	2816	2743	2786	
609,500	2,366,300	0.19556	2787	30	0	2817	2744	2787	
610,850	2,364,350	0.19554	2788	30	0	2818	2745	2788	
612,600	2,359,600	0.19552	2789	30	0	2819	2746	2789	
603,350	2,370,350	0.1955	2790	30	0	2820	2747	2790	
607,100	2,371,600	0.1954	2791	30	0	2821	2748	2791	
600,600	2,365,100	0.19537	2792	30	0	2822	2749	2792	
603,850	2,370,350	0.19514	2793	30	0	2823	2750	2793	
609,500	2,365,200	0.19512	2794	30	0	2824	2751	2794	
609,800	2,366,000	0.19503	2795	30	0	2825	2752	2795	
611,600	2,365,850	0.19496	2796	30	0	2826	2753	2796	
604,850	2,371,350	0.19491	2797	30	0	2827	2754	2797	
602,100	2,367,100	0.19488	2798	30	0	2828	2755	2798	
600,600	2,359,100	0.19483	2799	30	0	2829	2756	2799	
612,100	2,358,100	0.19481	2800	30	0	2830	2757	2800	
610,100	2,367,400	0.19473	2801	30	0	2831	2758	2801	
602,600	2,367,100	0.19473	2802	30	0	2832	2759	2802	
611,100	2,363,850	0.19454	2803	30	0	2833	2760	2803	
610,600	2,365,350	0.1945	2804	30	0	2834	2761	2804	
604,100	2,371,100	0.19447	2805	30	0	2835	2762	2805	
611,600	2,363,350	0.19446	2806	30	0	2836	2763	2806	
609,900	2,365,300	0.19446	2807	30	0	2837	2764	2807	
613,100	2,360,850	0.19441	2808	30	0	2838	2765	2808	
600,600	2,360,100	0.19437	2809	30	0	2839	2766	2809	
609,700	2,364,900	0.19429	2810	30	0	2840	2767	2810	
609,700	2,365,000	0.19425	2811	30	0	2841	2768	2811	
604,600	2,370,850	0.19419	2812	30	0	2842	2769	2812	
606,100	2,372,600	0.19411	2813	30	0	2843	2770	2813	
612,100	2,361,100	0.19401	2814	30	0	2844	2771	2814	
612,600	2,362,600	0.19397	2815	30	0	2845	2772	2815	
609,800	2,365,000	0.1938	2816	30	0	2846	2773	2816	
603,350	2,370,100	0.1938	2817	30	0	2847	2774	2817	
609,700	2,365,300	0.19373	2818	30	0	2848	2775	2818	
611,350	2,363,600	0.19368	2819	30	0	2849	2776	2819	
605,600	2,371,350	0.19366	2820	30	0	2850	2777	2820	
600,100	2,364,100	0.19355	2821	30	0	2851	2778	2821	
613,100	2,362,100	0.19353	2822	30	0	2852	2779	2822	
602,600	2,368,850	0.19352	2823	30	0	2853	2780	2823	
600,100	2,361,100	0.19349	2824	30	0	2854	2781	2824	
601,100	2,367,100	0.19346	2825	30	0	2855	2782	2825	
611,850	2,359,850	0.1934	2826	30	0	2856	2783	2826	
611,350	2,365,850	0.1934	2827	30	0	2857	2784	2827	
610,000	2,364,800	0.19338	2828	30	0	2858	2785	2828	

612,600	2,360,350	0.19334	2829	30	0	2859	2786	2829	
603,100	2,367,100	0.19323	2830	30	0	2860	2787	2830	
609,900	2,364,900	0.19323	2831	30	0	2861	2788	2831	
610,000	2,365,400	0.1932	2832	30	0	2862	2789	2832	
600,100	2,360,100	0.19313	2833	30	0	2863	2790	2833	
610,850	2,365,350	0.1931	2834	30	0	2864	2791	2834	
602,850	2,369,600	0.193	2835	30	0	2865	2792	2835	
602,600	2,367,600	0.19289	2836	30	0	2866	2793	2836	
612,350	2,360,350	0.19283	2837	30	0	2867	2794	2837	
603,350	2,369,600	0.19273	2838	30	0	2868	2795	2838	
610,600	2,366,100	0.19266	2839	30	0	2869	2796	2839	
611,850	2,359,600	0.19257	2840	30	0	2870	2797	2840	
608,850	2,370,600	0.19249	2841	30	0	2871	2798	2841	
612,600	2,359,850	0.19245	2842	30	0	2872	2799	2842	
604,850	2,370,850	0.19243	2843	30	0	2873	2800	2843	
613,600	2,361,350	0.19237	2844	30	0	2874	2801	2844	
609,700	2,365,200	0.19214	2845	30	0	2875	2802	2845	
611,850	2,365,350	0.19212	2846	30	0	2876	2803	2846	
609,900	2,365,000	0.19206	2847	30	0	2877	2804	2847	
600,100	2,361,600	0.1918	2848	30	0	2878	2805	2848	
601,850	2,369,600	0.19171	2849	30	0	2879	2806	2849	
603,100	2,370,100	0.1917	2850	30	0	2880	2807	2850	
601,100	2,366,100	0.19165	2851	30	0	2881	2808	2851	
609,800	2,364,900	0.19147	2852	30	0	2882	2809	2852	
607,600	2,371,600	0.19141	2853	30	0	2883	2810	2853	
610,100	2,364,800	0.19138	2854	30	0	2884	2811	2854	
609,600	2,366,100	0.19121	2855	30	0	2885	2812	2855	
600,600	2,364,600	0.19107	2856	30	0	2886	2813	2856	
600,100	2,360,600	0.19093	2857	30	0	2887	2814	2857	
611,350	2,363,850	0.19081	2858	30	0	2888	2815	2858	
600,600	2,366,100	0.19069	2859	30	0	2889	2816	2859	
604,100	2,371,350	0.19066	2860	30	0	2890	2817	2860	
600,600	2,358,600	0.19056	2861	30	0	2891	2818	2861	
608,850	2,370,100	0.19047	2862	30	0	2892	2819	2862	
601,600	2,366,100	0.19037	2863	30	0	2893	2820	2863	
603,600	2,370,600	0.19028	2864	30	0	2894	2821	2864	
602,350	2,366,100	0.19024	2865	30	0	2895	2822	2865	
608,600	2,372,100	0.19022	2866	30	0	2896	2823	2866	
610,850	2,366,100	0.19018	2867	30	0	2897	2824	2867	
600,600	2,358,100	0.19008	2868	30	0	2898	2825	2868	
610,100	2,365,100	0.18987	2869	30	0	2899	2826	2869	
604,100	2,370,850	0.18952	2870	30	0	2900	2827	2870	
603,600	2,370,350	0.18948	2871	30	0	2901	2828	2871	
605,350	2,371,600	0.18943	2872	30	0	2902	2829	2872	
609,900	2,365,100	0.18943	2873	30	0	2903	2830	2873	
609,600	2,366,400	0.18935	2874	30	0	2904	2831	2874	
613,600	2,360,850	0.18923	2875	30	0	2905	2832	2875	
609,800	2,365,300	0.18918	2876	30	0	2906	2833	2876	
603,100	2,369,600	0.1891	2877	30	0	2907	2834	2877	
602,850	2,368,350	0.18909	2878	30	0	2908	2835	2878	
609,800	2,365,100	0.189	2879	30	0	2909	2836	2879	
602,350	2,366,600	0.1889	2880	30	0	2910	2837	2880	
611,100	2,358,100	0.18887	2881	30	0	2911	2838	2881	
609,800	2,367,600	0.18877	2882	30	0	2912	2839	2882	
602,600	2,369,850	0.1887	2883	30	0	2913	2840	2883	
609,800	2,367,500	0.1887	2884	30	0	2914	2841	2884	
604,350	2,370,100	0.18861	2885	30	0	2915	2842	2885	
602,600	2,368,100	0.18843	2886	30	0	2916	2843	2886	
610,000	2,365,100	0.18818	2887	30	0	2917	2844	2887	

609,900	2,366,100	0.18817	2888	30	0	2918	2845	2888	
612,850	2,360,600	0.18812	2889	30	0	2919	2846	2889	
611,600	2,365,350	0.18812	2890	30	0	2920	2847	2890	
608,850	2,371,600	0.18812	2891	30	0	2921	2848	2891	
600,100	2,366,100	0.1881	2892	30	0	2922	2849	2892	
609,700	2,366,000	0.18806	2893	30	0	2923	2850	2893	
612,350	2,362,850	0.18804	2894	30	0	2924	2851	2894	
603,100	2,368,350	0.18799	2895	30	0	2925	2852	2895	
606,850	2,371,600	0.18791	2896	30	0	2926	2853	2896	
611,100	2,364,350	0.18782	2897	30	0	2927	2854	2897	
613,350	2,361,850	0.18782	2898	30	0	2928	2855	2898	
600,100	2,359,100	0.18777	2899	30	0	2929	2856	2899	
610,350	2,364,600	0.18775	2900	30	0	2930	2857	2900	
602,850	2,367,100	0.18764	2901	30	0	2931	2858	2901	
601,850	2,369,850	0.18764	2902	30	0	2932	2859	2902	
601,100	2,358,100	0.18754	2903	30	0	2933	2860	2903	
609,350	2,370,600	0.18741	2904	30	0	2934	2861	2904	
613,350	2,360,850	0.1874	2905	30	0	2935	2862	2905	
601,600	2,366,850	0.18738	2906	30	0	2936	2863	2906	
612,100	2,359,600	0.18737	2907	30	0	2937	2864	2907	
609,350	2,369,100	0.18725	2908	30	0	2938	2865	2908	
601,850	2,370,100	0.18724	2909	30	0	2939	2866	2909	
609,800	2,365,200	0.18723	2910	30	0	2940	2867	2910	
611,350	2,364,100	0.18718	2911	30	0	2941	2868	2911	
602,350	2,369,850	0.18707	2912	30	0	2942	2869	2912	
600,100	2,362,600	0.18703	2913	30	0	2943	2870	2913	
601,600	2,369,850	0.18693	2914	30	0	2944	2871	2914	
612,100	2,365,350	0.18683	2915	30	0	2945	2872	2915	
602,850	2,368,600	0.1868	2916	30	0	2946	2873	2916	
603,850	2,371,350	0.18678	2917	30	0	2947	2874	2917	
609,500	2,366,200	0.18673	2918	30	0	2948	2875	2918	
613,100	2,360,600	0.18672	2919	30	0	2949	2876	2919	
602,100	2,366,100	0.18668	2920	30	0	2950	2877	2920	
609,900	2,368,100	0.18667	2921	30	0	2951	2878	2921	
609,800	2,367,700	0.18663	2922	30	0	2952	2879	2922	
602,350	2,367,850	0.18656	2923	30	0	2953	2880	2923	
613,350	2,360,600	0.18644	2924	30	0	2954	2881	2924	
600,100	2,359,600	0.18593	2925	30	0	2955	2882	2925	
602,850	2,370,350	0.18569	2926	30	0	2956	2883	2926	
612,350	2,360,850	0.1856	2927	30	0	2957	2884	2927	
612,600	2,360,100	0.18546	2928	30	0	2958	2885	2928	
610,000	2,367,800	0.18545	2929	30	0	2959	2886	2929	
610,600	2,364,600	0.18544	2930	30	0	2960	2887	2930	
604,850	2,370,600	0.18538	2931	30	0	2961	2888	2931	
603,100	2,370,850	0.18521	2932	30	0	2962	2889	2932	
612,100	2,359,100	0.18513	2933	30	0	2963	2890	2933	
609,600	2,370,350	0.18513	2934	30	0	2964	2891	2934	
611,600	2,363,850	0.18482	2935	30	0	2965	2892	2935	
605,600	2,372,600	0.18466	2936	30	0	2966	2893	2936	
610,000	2,365,000	0.18464	2937	30	0	2967	2894	2937	
609,700	2,366,500	0.18443	2938	30	0	2968	2895	2938	
609,700	2,366,400	0.18438	2939	30	0	2969	2896	2939	
609,600	2,366,200	0.18403	2940	30	0	2970	2897	2940	
609,850	2,369,600	0.18402	2941	30	0	2971	2898	2941	
602,850	2,370,850	0.1838	2942	30	0	2972	2899	2942	
603,100	2,370,600	0.18379	2943	30	0	2973	2900	2943	
609,600	2,366,300	0.18376	2944	30	0	2974	2901	2944	
602,100	2,368,100	0.18372	2945	30	0	2975	2902	2945	
609,600	2,371,600	0.1837	2946	30	0	2976	2903	2946	

610,100	2,368,000	0.1837	2947	30	0	2977	2904	2947	
603,100	2,369,850	0.18366	2948	30	0	2978	2905	2948	
610,000	2,367,500	0.18361	2949	30	0	2979	2906	2949	
604,100	2,370,600	0.18358	2950	30	0	2980	2907	2950	
612,850	2,360,100	0.18333	2951	30	0	2981	2908	2951	
609,850	2,368,850	0.18322	2952	30	0	2982	2909	2952	
612,850	2,359,600	0.18297	2953	30	0	2983	2910	2953	
609,600	2,371,350	0.18275	2954	30	0	2984	2911	2954	
604,850	2,371,100	0.18243	2955	30	0	2985	2912	2955	
603,350	2,370,600	0.18243	2956	30	0	2986	2913	2956	
600,100	2,364,600	0.18236	2957	30	0	2987	2914	2957	
603,100	2,366,350	0.18234	2958	30	0	2988	2915	2958	
600,100	2,358,600	0.1823	2959	30	0	2989	2916	2959	
609,600	2,369,600	0.18211	2960	30	0	2990	2917	2960	
602,850	2,367,350	0.1819	2961	30	0	2991	2918	2961	
609,900	2,367,600	0.18146	2962	30	0	2992	2919	2962	
602,850	2,368,100	0.18109	2963	30	0	2993	2920	2963	
610,100	2,368,600	0.181	2964	30	0	2994	2921	2964	
609,700	2,366,300	0.18085	2965	30	0	2995	2922	2965	
614,100	2,360,600	0.18072	2966	30	0	2996	2923	2966	
603,100	2,370,350	0.18069	2967	30	0	2997	2924	2967	
613,600	2,361,600	0.1805	2968	30	0	2998	2925	2968	
602,850	2,369,850	0.18048	2969	30	0	2999	2926	2969	
607,850	2,371,600	0.18032	2970	30	0	3000	2927	2970	
612,100	2,358,600	0.18029	2971	30	0	3001	2928	2971	
611,850	2,364,100	0.18028	2972	30	0	3002	2929	2972	
612,600	2,360,600	0.18018	2973	30	0	3003	2930	2973	
613,100	2,360,350	0.18014	2974	30	0	3004	2931	2974	
609,350	2,369,600	0.18009	2975	30	0	3005	2932	2975	
609,900	2,368,000	0.17993	2976	30	0	3006	2933	2976	
600,100	2,365,100	0.17989	2977	30	0	3007	2934	2977	
603,350	2,370,850	0.17985	2978	30	0	3008	2935	2978	
609,900	2,367,500	0.17969	2979	30	0	3009	2936	2979	
613,350	2,360,350	0.17968	2980	30	0	3010	2937	2980	
610,100	2,368,350	0.17954	2981	30	0	3011	2938	2981	
609,900	2,365,200	0.17952	2982	30	0	3012	2939	2982	
610,350	2,367,350	0.17949	2983	30	0	3013	2940	2983	
602,850	2,366,350	0.17946	2984	30	0	3014	2941	2984	
613,600	2,361,850	0.17944	2985	30	0	3015	2942	2985	
610,600	2,365,100	0.1793	2986	30	0	3016	2943	2986	
613,100	2,359,100	0.17927	2987	30	0	3017	2944	2987	
602,100	2,366,600	0.17911	2988	30	0	3018	2945	2988	
610,100	2,367,900	0.17905	2989	30	0	3019	2946	2989	
610,850	2,364,600	0.17898	2990	30	0	3020	2947	2990	
602,100	2,367,850	0.17898	2991	30	0	3021	2948	2991	
609,700	2,366,200	0.17897	2992	30	0	3022	2949	2992	
600,100	2,358,100	0.17861	2993	30	0	3023	2950	2993	
611,600	2,363,600	0.17853	2994	30	0	3024	2951	2994	
607,600	2,372,100	0.17844	2995	30	0	3025	2952	2995	
610,100	2,365,000	0.17843	2996	30	0	3026	2953	2996	
613,600	2,360,350	0.178	2997	30	0	3027	2954	2997	
610,000	2,364,900	0.17782	2998	30	0	3028	2955	2998	
609,800	2,366,100	0.17756	2999	30	0	3029	2956	2999	
611,100	2,366,350	0.17755	3000	30	0	3030	2957	3000	
613,100	2,362,350	0.17752	3001	30	0	3031	2958	3001	
614,100	2,361,100	0.17745	3002	30	0	3032	2959	3002	
611,100	2,366,100	0.17742	3003	30	0	3033	2960	3003	
610,350	2,365,100	0.17721	3004	30	0	3034	2961	3004	
601,600	2,370,100	0.17709	3005	30	0	3035	2962	3005	

602,850	2,370,600	0.17707	3006	30	0	3036	2963	3006	
612,350	2,365,600	0.17705	3007	30	0	3037	2964	3007	
611,600	2,364,100	0.17699	3008	30	0	3038	2965	3008	
612,100	2,365,850	0.17695	3009	30	0	3039	2966	3009	
602,350	2,368,100	0.17691	3010	30	0	3040	2967	3010	
613,100	2,359,850	0.1768	3011	30	0	3041	2968	3011	
611,100	2,364,850	0.17673	3012	30	0	3042	2969	3012	
612,850	2,359,850	0.17666	3013	30	0	3043	2970	3013	
611,850	2,363,600	0.17659	3014	30	0	3044	2971	3014	
610,100	2,367,500	0.17656	3015	30	0	3045	2972	3015	
608,350	2,371,600	0.17646	3016	30	0	3046	2973	3016	
608,100	2,372,100	0.17645	3017	30	0	3047	2974	3017	
602,850	2,370,100	0.17627	3018	30	0	3048	2975	3018	
609,850	2,371,600	0.1761	3019	30	0	3049	2976	3019	
603,850	2,371,600	0.17603	3020	30	0	3050	2977	3020	
606,600	2,372,600	0.17596	3021	30	0	3051	2978	3021	
603,100	2,371,100	0.17593	3022	30	0	3052	2979	3022	
612,350	2,365,350	0.17591	3023	30	0	3053	2980	3023	
601,850	2,368,100	0.1755	3024	30	0	3054	2981	3024	
604,600	2,372,600	0.17548	3025	30	0	3055	2982	3025	
609,800	2,366,400	0.17539	3026	30	0	3056	2983	3026	
602,350	2,368,600	0.17534	3027	30	0	3057	2984	3027	
611,350	2,364,350	0.17532	3028	30	0	3058	2985	3028	
609,700	2,366,100	0.17525	3029	30	0	3059	2986	3029	
605,600	2,372,100	0.17522	3030	30	0	3060	2987	3030	
607,100	2,372,100	0.17521	3031	30	0	3061	2988	3031	
606,600	2,372,100	0.1752	3032	30	0	3062	2989	3032	
612,600	2,359,100	0.17519	3033	30	0	3063	2990	3033	
604,100	2,370,350	0.17499	3034	30	0	3064	2991	3034	
611,850	2,363,850	0.17482	3035	30	0	3065	2992	3035	
602,600	2,367,350	0.17476	3036	30	0	3066	2993	3036	
610,850	2,366,350	0.17471	3037	30	0	3067	2994	3037	
609,800	2,366,300	0.17455	3038	30	0	3068	2995	3038	
601,600	2,367,350	0.17454	3039	30	0	3069	2996	3039	
612,100	2,363,100	0.17449	3040	30	0	3070	2997	3040	
613,350	2,362,100	0.17442	3041	30	0	3071	2998	3041	
602,600	2,366,350	0.17439	3042	30	0	3072	2999	3042	
601,850	2,366,350	0.17436	3043	30	0	3073	3000	3043	
613,600	2,360,600	0.17397	3044	30	0	3074	3001	3044	
610,100	2,364,900	0.17397	3045	30	0	3075	3002	3045	
611,350	2,364,850	0.17395	3046	30	0	3076	3003	3046	
604,600	2,371,350	0.17391	3047	30	0	3077	3004	3047	
611,350	2,366,350	0.17385	3048	30	0	3078	3005	3048	
609,800	2,366,200	0.17374	3049	30	0	3079	3006	3049	
604,600	2,371,100	0.1737	3050	30	0	3080	3007	3050	
601,600	2,369,600	0.17367	3051	30	0	3081	3008	3051	
610,000	2,365,200	0.17364	3052	30	0	3082	3009	3052	
602,600	2,370,600	0.17358	3053	30	0	3083	3010	3053	
602,600	2,370,100	0.17353	3054	30	0	3084	3011	3054	
602,350	2,370,100	0.17353	3055	30	0	3085	3012	3055	
610,350	2,367,100	0.17315	3056	30	0	3086	3013	3056	
602,100	2,368,350	0.17307	3057	30	0	3087	3014	3057	
609,900	2,367,700	0.17302	3058	30	0	3088	3015	3058	
605,600	2,371,600	0.17278	3059	30	0	3089	3016	3059	
609,100	2,371,100	0.17269	3060	30	0	3090	3017	3060	
613,350	2,360,100	0.17264	3061	30	0	3091	3018	3061	
602,350	2,367,350	0.17244	3062	30	0	3092	3019	3062	
613,600	2,360,100	0.17244	3063	30	0	3093	3020	3063	
612,850	2,362,600	0.17227	3064	30	0	3094	3021	3064	

602,100	2,370,100	0.17223	3065	30	0	3095	3022	3065	
611,850	2,363,350	0.17221	3066	30	0	3096	3023	3066	
610,850	2,365,100	0.17218	3067	30	0	3097	3024	3067	
611,600	2,366,100	0.17212	3068	30	0	3098	3025	3068	
610,350	2,369,100	0.1721	3069	30	0	3099	3026	3069	
602,350	2,367,600	0.17207	3070	30	0	3100	3027	3070	
612,600	2,365,350	0.172	3071	30	0	3101	3028	3071	
601,850	2,367,350	0.17153	3072	30	0	3102	3029	3072	
601,600	2,370,350	0.1714	3073	30	0	3103	3030	3073	
610,850	2,370,100	0.17128	3074	30	0	3104	3031	3074	
610,600	2,366,850	0.17105	3075	30	0	3105	3032	3075	
605,100	2,372,100	0.17095	3076	30	0	3106	3033	3076	
612,850	2,360,350	0.1708	3077	30	0	3107	3034	3077	
612,100	2,364,100	0.17072	3078	30	0	3108	3035	3078	
612,100	2,363,600	0.17058	3079	30	0	3109	3036	3079	
610,100	2,365,200	0.17044	3080	30	0	3110	3037	3080	
603,850	2,371,100	0.17029	3081	30	0	3111	3038	3081	
609,600	2,372,100	0.17019	3082	30	0	3112	3039	3082	
602,600	2,368,600	0.17015	3083	30	0	3113	3040	3083	
612,100	2,363,850	0.17008	3084	30	0	3114	3041	3084	
609,100	2,371,600	0.16999	3085	30	0	3115	3042	3085	
610,850	2,364,850	0.16984	3086	30	0	3116	3043	3086	
602,350	2,368,350	0.1697	3087	30	0	3117	3044	3087	
613,350	2,359,600	0.16956	3088	30	0	3118	3045	3088	
610,600	2,364,850	0.16919	3089	30	0	3119	3046	3089	
601,850	2,368,350	0.16918	3090	30	0	3120	3047	3090	
602,600	2,368,350	0.16891	3091	30	0	3121	3048	3091	
602,100	2,367,350	0.16887	3092	30	0	3122	3049	3092	
614,600	2,360,600	0.16885	3093	30	0	3123	3050	3093	
604,600	2,371,600	0.16884	3094	30	0	3124	3051	3094	
609,100	2,370,850	0.16857	3095	30	0	3125	3052	3095	
613,100	2,359,600	0.16857	3096	30	0	3126	3053	3096	
604,100	2,373,100	0.1685	3097	30	0	3127	3054	3097	
611,350	2,366,100	0.16847	3098	30	0	3128	3055	3098	
613,100	2,358,600	0.16832	3099	30	0	3129	3056	3099	
602,350	2,366,350	0.1682	3100	30	0	3130	3057	3100	
603,350	2,371,100	0.16815	3101	30	0	3131	3058	3101	
603,600	2,372,100	0.16797	3102	30	0	3132	3059	3102	
601,850	2,369,350	0.16796	3103	30	0	3133	3060	3103	
604,350	2,371,350	0.16773	3104	30	0	3134	3061	3104	
602,850	2,371,100	0.16735	3105	30	0	3135	3062	3105	
609,100	2,371,350	0.1673	3106	30	0	3136	3063	3106	
610,350	2,364,850	0.16704	3107	30	0	3137	3064	3107	
609,350	2,368,850	0.167	3108	30	0	3138	3065	3108	
601,100	2,370,100	0.16699	3109	30	0	3139	3066	3109	
611,850	2,366,100	0.16684	3110	30	0	3140	3067	3110	
612,600	2,363,850	0.16664	3111	30	0	3141	3068	3111	
601,600	2,366,350	0.16664	3112	30	0	3142	3069	3112	
601,600	2,368,100	0.16655	3113	30	0	3143	3070	3113	
607,100	2,373,100	0.16645	3114	30	0	3144	3071	3114	
610,000	2,367,700	0.16643	3115	30	0	3145	3072	3115	
609,350	2,371,600	0.1664	3116	30	0	3146	3073	3116	
609,900	2,366,400	0.16624	3117	30	0	3147	3074	3117	
608,100	2,372,600	0.16611	3118	30	0	3148	3075	3118	
608,600	2,372,600	0.16598	3119	30	0	3149	3076	3119	
609,800	2,366,500	0.16595	3120	30	0	3150	3077	3120	
603,100	2,371,350	0.16585	3121	30	0	3151	3078	3121	
607,600	2,372,600	0.16569	3122	30	0	3152	3079	3122	
612,350	2,363,850	0.16562	3123	30	0	3153	3080	3123	

601,600	2,368,350	0.16561	3124	30	0	3154	3081	3124	
609,900	2,366,200	0.1655	3125	30	0	3155	3082	3125	
603,850	2,370,600	0.16545	3126	30	0	3156	3083	3126	
607,100	2,372,600	0.16541	3127	30	0	3157	3084	3127	
613,600	2,359,850	0.1654	3128	30	0	3158	3085	3128	
609,900	2,366,300	0.1654	3129	30	0	3159	3086	3129	
603,600	2,371,600	0.16535	3130	30	0	3160	3087	3130	
604,100	2,371,600	0.1653	3131	30	0	3161	3088	3131	
610,000	2,367,600	0.16522	3132	30	0	3162	3089	3132	
614,100	2,361,600	0.16521	3133	30	0	3163	3090	3133	
612,850	2,365,350	0.16518	3134	30	0	3164	3091	3134	
601,100	2,370,600	0.16487	3135	30	0	3165	3092	3135	
611,600	2,364,350	0.16471	3136	30	0	3166	3093	3136	
602,100	2,366,350	0.16461	3137	30	0	3167	3094	3137	
610,100	2,369,850	0.16459	3138	30	0	3168	3095	3138	
602,600	2,370,350	0.16457	3139	30	0	3169	3096	3139	
613,100	2,360,100	0.16451	3140	30	0	3170	3097	3140	
601,850	2,367,850	0.16421	3141	30	0	3171	3098	3141	
612,600	2,358,100	0.16413	3142	30	0	3172	3099	3142	
609,350	2,369,850	0.16408	3143	30	0	3173	3100	3143	
612,350	2,363,600	0.16403	3144	30	0	3174	3101	3144	
610,100	2,367,800	0.16384	3145	30	0	3175	3102	3145	
602,600	2,370,850	0.16366	3146	30	0	3176	3103	3146	
602,100	2,369,100	0.16365	3147	30	0	3177	3104	3147	
600,600	2,370,600	0.1635	3148	30	0	3178	3105	3148	
612,350	2,365,850	0.16329	3149	30	0	3179	3106	3149	
611,100	2,365,100	0.16329	3150	30	0	3180	3107	3150	
612,100	2,363,350	0.16304	3151	30	0	3181	3108	3151	
612,600	2,358,600	0.16298	3152	30	0	3182	3109	3152	
605,600	2,373,100	0.16298	3153	30	0	3183	3110	3153	
614,600	2,360,100	0.16297	3154	30	0	3184	3111	3154	
610,100	2,367,600	0.16291	3155	30	0	3185	3112	3155	
613,600	2,358,600	0.16281	3156	30	0	3186	3113	3156	
610,350	2,369,850	0.16268	3157	30	0	3187	3114	3157	
600,600	2,367,100	0.16258	3158	30	0	3188	3115	3158	
609,900	2,366,500	0.16244	3159	30	0	3189	3116	3159	
610,600	2,369,850	0.16243	3160	30	0	3190	3117	3160	
612,350	2,363,350	0.16242	3161	30	0	3191	3118	3161	
602,100	2,367,600	0.1624	3162	30	0	3192	3119	3162	
611,100	2,364,600	0.16201	3163	30	0	3193	3120	3163	
609,350	2,370,100	0.16182	3164	30	0	3194	3121	3164	
603,600	2,370,850	0.16126	3165	30	0	3195	3122	3165	
602,350	2,368,850	0.16112	3166	30	0	3196	3123	3166	
603,850	2,370,850	0.16106	3167	30	0	3197	3124	3167	
613,600	2,362,100	0.16105	3168	30	0	3198	3125	3168	
611,350	2,365,100	0.16096	3169	30	0	3199	3126	3169	
610,000	2,368,000	0.1607	3170	30	0	3200	3127	3170	
611,600	2,364,850	0.16067	3171	30	0	3201	3128	3171	
602,100	2,370,350	0.16062	3172	30	0	3202	3129	3172	
610,350	2,368,600	0.16055	3173	30	0	3203	3130	3173	
602,350	2,370,850	0.16024	3174	30	0	3204	3131	3174	
610,100	2,366,500	0.16015	3175	30	0	3205	3132	3175	
610,100	2,372,100	0.16012	3176	30	0	3206	3133	3176	
602,600	2,371,100	0.16002	3177	30	0	3207	3134	3177	
608,100	2,373,100	0.15991	3178	30	0	3208	3135	3178	
611,850	2,364,350	0.15977	3179	30	0	3209	3136	3179	
612,100	2,364,600	0.15961	3180	30	0	3210	3137	3180	
602,100	2,368,850	0.1595	3181	30	0	3211	3138	3181	
612,600	2,363,600	0.15949	3182	30	0	3212	3139	3182	

610,350	2,367,600	0.15949	3183	30	0	3213	3140	3183	
614,100	2,360,100	0.15937	3184	30	0	3214	3141	3184	
606,100	2,373,100	0.15923	3185	30	0	3215	3142	3185	
615,100	2,360,100	0.1592	3186	30	0	3216	3143	3186	
602,850	2,371,350	0.15916	3187	30	0	3217	3144	3187	
612,600	2,363,350	0.15909	3188	30	0	3218	3145	3188	
612,600	2,365,600	0.15875	3189	30	0	3219	3146	3189	
603,350	2,371,600	0.15863	3190	30	0	3220	3147	3190	
603,600	2,371,350	0.15858	3191	30	0	3221	3148	3191	
610,000	2,366,400	0.15855	3192	30	0	3222	3149	3192	
601,600	2,368,600	0.15835	3193	30	0	3223	3150	3193	
609,850	2,370,350	0.15823	3194	30	0	3224	3151	3194	
611,600	2,365,100	0.15823	3195	30	0	3225	3152	3195	
601,850	2,366,600	0.15821	3196	30	0	3226	3153	3196	
612,350	2,363,100	0.1582	3197	30	0	3227	3154	3197	
612,600	2,362,850	0.15812	3198	30	0	3228	3155	3198	
612,100	2,366,100	0.15812	3199	30	0	3229	3156	3199	
613,350	2,359,850	0.15803	3200	30	0	3230	3157	3200	
602,350	2,370,350	0.15787	3201	30	0	3231	3158	3201	
610,000	2,366,500	0.15781	3202	30	0	3232	3159	3202	
601,850	2,368,850	0.15751	3203	30	0	3233	3160	3203	
614,600	2,361,100	0.1575	3204	30	0	3234	3161	3204	
601,850	2,370,350	0.15747	3205	30	0	3235	3162	3205	
605,100	2,372,600	0.15739	3206	30	0	3236	3163	3206	
608,600	2,373,100	0.15695	3207	30	0	3237	3164	3207	
610,000	2,368,100	0.15693	3208	30	0	3238	3165	3208	
610,350	2,366,600	0.15679	3209	30	0	3239	3166	3209	
602,600	2,371,350	0.15659	3210	30	0	3240	3167	3210	
604,350	2,371,600	0.15611	3211	30	0	3241	3168	3211	
610,600	2,367,350	0.15601	3212	30	0	3242	3169	3212	
612,350	2,365,100	0.15592	3213	30	0	3243	3170	3213	
614,100	2,359,600	0.15591	3214	30	0	3244	3171	3214	
609,600	2,370,600	0.15582	3215	30	0	3245	3172	3215	
612,350	2,364,600	0.15562	3216	30	0	3246	3173	3216	
600,600	2,371,100	0.15534	3217	30	0	3247	3174	3217	
610,600	2,366,350	0.15523	3218	30	0	3248	3175	3218	
602,350	2,371,100	0.15519	3219	30	0	3249	3176	3219	
613,350	2,362,350	0.15516	3220	30	0	3250	3177	3220	
612,100	2,364,850	0.15498	3221	30	0	3251	3178	3221	
610,000	2,366,200	0.15447	3222	30	0	3252	3179	3222	
602,350	2,370,600	0.15432	3223	30	0	3253	3180	3223	
612,850	2,363,600	0.15423	3224	30	0	3254	3181	3224	
610,000	2,366,300	0.15417	3225	30	0	3255	3182	3225	
607,600	2,373,100	0.15412	3226	30	0	3256	3183	3226	
613,100	2,363,600	0.15412	3227	30	0	3257	3184	3227	
601,850	2,367,600	0.15409	3228	30	0	3258	3185	3228	
612,850	2,363,850	0.15396	3229	30	0	3259	3186	3229	
610,100	2,367,700	0.15381	3230	30	0	3260	3187	3230	
601,100	2,367,600	0.1538	3231	30	0	3261	3188	3231	
611,850	2,365,100	0.15377	3232	30	0	3262	3189	3232	
612,850	2,365,600	0.15362	3233	30	0	3263	3190	3233	
612,850	2,363,350	0.15329	3234	30	0	3264	3191	3234	
613,600	2,359,100	0.15317	3235	30	0	3265	3192	3235	
614,600	2,359,600	0.15317	3236	30	0	3266	3193	3236	
601,850	2,368,600	0.15317	3237	30	0	3267	3194	3237	
611,600	2,366,350	0.15307	3238	30	0	3268	3195	3238	
611,850	2,364,850	0.15279	3239	30	0	3269	3196	3239	
613,100	2,365,350	0.15262	3240	30	0	3270	3197	3240	
601,100	2,368,600	0.15261	3241	30	0	3271	3198	3241	

602,850	2,371,600	0.15254	3242	30	0	3272	3199	3242	
613,350	2,363,600	0.1525	3243	30	0	3273	3200	3243	
610,100	2,366,400	0.1524	3244	30	0	3274	3201	3244	
600,100	2,367,600	0.15212	3245	30	0	3275	3202	3245	
612,100	2,365,100	0.15203	3246	30	0	3276	3203	3246	
601,600	2,367,600	0.15172	3247	30	0	3277	3204	3247	
613,600	2,359,600	0.15153	3248	30	0	3278	3205	3248	
610,100	2,369,600	0.15141	3249	30	0	3279	3206	3249	
612,350	2,364,100	0.15135	3250	30	0	3280	3207	3250	
602,350	2,371,350	0.15121	3251	30	0	3281	3208	3251	
604,600	2,373,100	0.1512	3252	30	0	3282	3209	3252	
602,600	2,371,600	0.15115	3253	30	0	3283	3210	3253	
610,850	2,367,600	0.15098	3254	30	0	3284	3211	3254	
600,600	2,367,600	0.15095	3255	30	0	3285	3212	3255	
602,100	2,371,100	0.15089	3256	30	0	3286	3213	3256	
609,100	2,372,100	0.15063	3257	30	0	3287	3214	3257	
611,850	2,364,600	0.15046	3258	30	0	3288	3215	3258	
615,100	2,359,600	0.15043	3259	30	0	3289	3216	3259	
610,100	2,366,300	0.1503	3260	30	0	3290	3217	3260	
601,600	2,367,850	0.14986	3261	30	0	3291	3218	3261	
601,600	2,369,100	0.14981	3262	30	0	3292	3219	3262	
602,350	2,371,600	0.14974	3263	30	0	3293	3220	3263	
613,100	2,363,350	0.14968	3264	30	0	3294	3221	3264	
613,100	2,365,600	0.14966	3265	30	0	3295	3222	3265	
612,600	2,363,100	0.14922	3266	30	0	3296	3223	3266	
612,850	2,363,100	0.14894	3267	30	0	3297	3224	3267	
609,600	2,371,100	0.14889	3268	30	0	3298	3225	3268	
613,100	2,358,100	0.14865	3269	30	0	3299	3226	3269	
611,100	2,370,100	0.14827	3270	30	0	3300	3227	3270	
606,600	2,373,100	0.14825	3271	30	0	3301	3228	3271	
609,600	2,369,850	0.14821	3272	30	0	3302	3229	3272	
610,100	2,366,200	0.1479	3273	30	0	3303	3230	3273	
602,100	2,368,600	0.14778	3274	30	0	3304	3231	3274	
610,600	2,367,600	0.14766	3275	30	0	3305	3232	3275	
601,850	2,370,600	0.14753	3276	30	0	3306	3233	3276	
601,850	2,369,100	0.14749	3277	30	0	3307	3234	3277	
602,100	2,371,350	0.14741	3278	30	0	3308	3235	3278	
612,850	2,362,850	0.14687	3279	30	0	3309	3236	3279	
610,600	2,367,100	0.14665	3280	30	0	3310	3237	3280	
613,100	2,363,100	0.14664	3281	30	0	3311	3238	3281	
603,100	2,372,600	0.14661	3282	30	0	3312	3239	3282	
602,100	2,370,850	0.14651	3283	30	0	3313	3240	3283	
615,100	2,360,600	0.14641	3284	30	0	3314	3241	3284	
611,350	2,364,600	0.14583	3285	30	0	3315	3242	3285	
612,600	2,364,100	0.14582	3286	30	0	3316	3243	3286	
604,100	2,372,600	0.14557	3287	30	0	3317	3244	3287	
610,850	2,369,850	0.14533	3288	30	0	3318	3245	3288	
601,600	2,366,600	0.14528	3289	30	0	3319	3246	3289	
613,350	2,365,350	0.1451	3290	30	0	3320	3247	3290	
601,600	2,370,600	0.14498	3291	30	0	3321	3248	3291	
612,600	2,365,100	0.14491	3292	30	0	3322	3249	3292	
613,100	2,362,600	0.14486	3293	30	0	3323	3250	3293	
602,100	2,370,600	0.14483	3294	30	0	3324	3251	3294	
613,350	2,363,100	0.14462	3295	30	0	3325	3252	3295	
615,100	2,359,100	0.1444	3296	30	0	3326	3253	3296	
605,100	2,373,100	0.14433	3297	30	0	3327	3254	3297	
610,850	2,367,100	0.14425	3298	30	0	3328	3255	3298	
612,600	2,364,600	0.14408	3299	30	0	3329	3256	3299	
603,350	2,371,350	0.14405	3300	30	0	3330	3257	3300	

611,600	2,364,600	0.14398	3301	30	0	3331	3258	3301	
601,850	2,371,350	0.14384	3302	30	0	3332	3259	3302	
601,100	2,368,100	0.14379	3303	30	0	3333	3260	3303	
610,850	2,366,850	0.14366	3304	30	0	3334	3261	3304	
600,100	2,367,100	0.14365	3305	30	0	3335	3262	3305	
611,100	2,366,600	0.14361	3306	30	0	3336	3263	3306	
610,600	2,369,350	0.14361	3307	30	0	3337	3264	3307	
600,100	2,371,100	0.1434	3308	30	0	3338	3265	3308	
610,350	2,367,850	0.14337	3309	30	0	3339	3266	3309	
604,100	2,372,100	0.14322	3310	30	0	3340	3267	3310	
609,600	2,368,850	0.14279	3311	30	0	3341	3268	3311	
610,350	2,366,350	0.1427	3312	30	0	3342	3269	3312	
610,350	2,368,100	0.14261	3313	30	0	3343	3270	3313	
602,100	2,371,600	0.14243	3314	30	0	3344	3271	3314	
603,600	2,371,100	0.14237	3315	30	0	3345	3272	3315	
613,350	2,363,350	0.1406	3316	30	0	3346	3273	3316	
612,350	2,364,850	0.14046	3317	30	0	3347	3274	3317	
610,350	2,368,850	0.14041	3318	30	0	3348	3275	3318	
609,100	2,372,600	0.14041	3319	30	0	3349	3276	3319	
613,600	2,363,600	0.14034	3320	30	0	3350	3277	3320	
609,600	2,369,100	0.14024	3321	30	0	3351	3278	3321	
601,850	2,371,600	0.14023	3322	30	0	3352	3279	3322	
612,100	2,364,350	0.13997	3323	30	0	3353	3280	3323	
601,600	2,369,350	0.13997	3324	30	0	3354	3281	3324	
609,600	2,370,100	0.13987	3325	30	0	3355	3282	3325	
613,100	2,362,850	0.13986	3326	30	0	3356	3283	3326	
610,100	2,368,100	0.13986	3327	30	0	3357	3284	3327	
609,600	2,370,850	0.13975	3328	30	0	3358	3285	3328	
613,350	2,362,850	0.13967	3329	30	0	3359	3286	3329	
601,600	2,370,850	0.13946	3330	30	0	3360	3287	3330	
613,600	2,363,100	0.13938	3331	30	0	3361	3288	3331	
601,850	2,371,100	0.13929	3332	30	0	3362	3289	3332	
614,100	2,359,100	0.13915	3333	30	0	3363	3290	3333	
613,600	2,363,350	0.13909	3334	30	0	3364	3291	3334	
600,600	2,368,600	0.13907	3335	30	0	3365	3292	3335	
613,100	2,363,850	0.13849	3336	30	0	3366	3293	3336	
612,850	2,364,600	0.13821	3337	30	0	3367	3294	3337	
613,600	2,365,350	0.13811	3338	30	0	3368	3295	3338	
601,600	2,371,600	0.13736	3339	30	0	3369	3296	3339	
602,100	2,372,100	0.13725	3340	30	0	3370	3297	3340	
609,850	2,371,350	0.13711	3341	30	0	3371	3298	3341	
610,600	2,368,100	0.13703	3342	30	0	3372	3299	3342	
612,850	2,365,100	0.13697	3343	30	0	3373	3300	3343	
610,600	2,368,600	0.13695	3344	30	0	3374	3301	3344	
610,100	2,369,100	0.13692	3345	30	0	3375	3302	3345	
613,600	2,362,850	0.13672	3346	30	0	3376	3303	3346	
609,100	2,373,100	0.13584	3347	30	0	3377	3304	3347	
610,100	2,371,600	0.13579	3348	30	0	3378	3305	3348	
613,350	2,365,850	0.13549	3349	30	0	3379	3306	3349	
600,100	2,370,600	0.13533	3350	30	0	3380	3307	3350	
601,850	2,370,850	0.13522	3351	30	0	3381	3308	3351	
603,100	2,371,600	0.13518	3352	30	0	3382	3309	3352	
612,100	2,366,350	0.13515	3353	30	0	3383	3310	3353	
609,600	2,372,600	0.13496	3354	30	0	3384	3311	3354	
601,600	2,368,850	0.13465	3355	30	0	3385	3312	3355	
601,100	2,366,600	0.13449	3356	30	0	3386	3313	3356	
613,350	2,362,600	0.13383	3357	30	0	3387	3314	3357	
603,100	2,373,100	0.13376	3358	30	0	3388	3315	3358	
614,600	2,361,600	0.13373	3359	30	0	3389	3316	3359	

609,850	2,369,350	0.13371	3360	30	0	3390	3317	3360	
611,850	2,366,350	0.13347	3361	30	0	3391	3318	3361	
613,600	2,362,350	0.13344	3362	30	0	3392	3319	3362	
612,850	2,364,100	0.13328	3363	30	0	3393	3320	3363	
615,100	2,358,600	0.13324	3364	30	0	3394	3321	3364	
600,600	2,369,600	0.13304	3365	30	0	3395	3322	3365	
601,600	2,371,350	0.13304	3366	30	0	3396	3323	3366	
612,350	2,364,350	0.1329	3367	30	0	3397	3324	3367	
601,100	2,371,100	0.13256	3368	30	0	3398	3325	3368	
612,350	2,366,100	0.13241	3369	30	0	3399	3326	3369	
610,600	2,366,600	0.13236	3370	30	0	3400	3327	3370	
614,600	2,365,600	0.13232	3371	30	0	3401	3328	3371	
611,100	2,369,850	0.13217	3372	30	0	3402	3329	3372	
610,850	2,366,600	0.13208	3373	30	0	3403	3330	3373	
613,350	2,365,600	0.13195	3374	30	0	3404	3331	3374	
612,600	2,366,100	0.13153	3375	30	0	3405	3332	3375	
609,850	2,371,100	0.13149	3376	30	0	3406	3333	3376	
612,350	2,366,350	0.13099	3377	30	0	3407	3334	3377	
615,100	2,361,100	0.13078	3378	30	0	3408	3335	3378	
612,600	2,366,600	0.13078	3379	30	0	3409	3336	3379	
611,350	2,370,100	0.13063	3380	30	0	3410	3337	3380	
611,350	2,366,600	0.13039	3381	30	0	3411	3338	3381	
613,100	2,364,600	0.13025	3382	30	0	3412	3339	3382	
613,350	2,363,850	0.12999	3383	30	0	3413	3340	3383	
613,100	2,366,100	0.12979	3384	30	0	3414	3341	3384	
601,600	2,372,100	0.1297	3385	30	0	3415	3342	3385	
601,600	2,371,100	0.12919	3386	30	0	3416	3343	3386	
609,850	2,369,850	0.1291	3387	30	0	3417	3344	3387	
601,100	2,369,600	0.129	3388	30	0	3418	3345	3388	
600,100	2,371,600	0.12878	3389	30	0	3419	3346	3389	
600,100	2,369,100	0.12836	3390	30	0	3420	3347	3390	
600,600	2,369,100	0.12836	3391	30	0	3421	3348	3391	
612,850	2,364,350	0.12833	3392	30	0	3422	3349	3392	
615,100	2,366,100	0.12824	3393	30	0	3423	3350	3393	
612,600	2,364,850	0.12785	3394	30	0	3424	3351	3394	
602,600	2,372,100	0.12781	3395	30	0	3425	3352	3395	
613,100	2,365,100	0.1278	3396	30	0	3426	3353	3396	
613,600	2,362,600	0.12777	3397	30	0	3427	3354	3397	
602,600	2,373,100	0.12737	3398	30	0	3428	3355	3398	
613,350	2,364,350	0.12719	3399	30	0	3429	3356	3399	
600,100	2,368,600	0.12706	3400	30	0	3430	3357	3400	
613,600	2,364,350	0.12669	3401	30	0	3431	3358	3401	
600,600	2,370,100	0.12669	3402	30	0	3432	3359	3402	
614,100	2,362,600	0.12608	3403	30	0	3433	3360	3403	
611,600	2,366,850	0.12582	3404	30	0	3434	3361	3404	
614,100	2,362,100	0.1257	3405	30	0	3435	3362	3405	
601,100	2,369,100	0.12563	3406	30	0	3436	3363	3406	
603,100	2,372,100	0.12555	3407	30	0	3437	3364	3407	
611,100	2,366,850	0.12552	3408	30	0	3438	3365	3408	
600,600	2,368,100	0.12532	3409	30	0	3439	3366	3409	
602,100	2,372,600	0.12521	3410	30	0	3440	3367	3410	
614,600	2,363,100	0.12517	3411	30	0	3441	3368	3411	
601,600	2,372,600	0.12489	3412	30	0	3442	3369	3412	
612,600	2,364,350	0.12485	3413	30	0	3443	3370	3413	
612,600	2,365,850	0.12472	3414	30	0	3444	3371	3414	
609,850	2,370,850	0.12464	3415	30	0	3445	3372	3415	
613,350	2,365,100	0.12434	3416	30	0	3446	3373	3416	
610,850	2,369,600	0.12405	3417	30	0	3447	3374	3417	
609,850	2,370,600	0.12405	3418	30	0	3448	3375	3418	

601,100	2,372,100	0.12387	3419	30	0	3449	3376	3419	
609,850	2,370,100	0.12352	3420	30	0	3450	3377	3420	
613,600	2,363,850	0.12336	3421	30	0	3451	3378	3421	
614,100	2,363,100	0.12328	3422	30	0	3452	3379	3422	
613,350	2,364,600	0.12323	3423	30	0	3453	3380	3423	
612,850	2,365,850	0.12322	3424	30	0	3454	3381	3424	
613,100	2,364,350	0.1224	3425	30	0	3455	3382	3425	
610,350	2,369,600	0.12227	3426	30	0	3456	3383	3426	
601,600	2,373,100	0.12226	3427	30	0	3457	3384	3427	
603,600	2,372,600	0.12209	3428	30	0	3458	3385	3428	
614,600	2,362,600	0.1218	3429	30	0	3459	3386	3429	
613,100	2,364,850	0.12173	3430	30	0	3460	3387	3430	
612,850	2,366,600	0.12172	3431	30	0	3461	3388	3431	
610,350	2,369,350	0.12133	3432	30	0	3462	3389	3432	
611,350	2,366,850	0.12133	3433	30	0	3463	3390	3433	
610,100	2,370,850	0.12096	3434	30	0	3464	3391	3434	
600,600	2,371,600	0.12095	3435	30	0	3465	3392	3435	
611,100	2,367,350	0.12036	3436	30	0	3466	3393	3436	
612,350	2,366,600	0.12015	3437	30	0	3467	3394	3437	
615,100	2,358,100	0.12003	3438	30	0	3468	3395	3438	
611,850	2,367,100	0.11984	3439	30	0	3469	3396	3439	
603,600	2,373,100	0.11967	3440	30	0	3470	3397	3440	
613,600	2,365,600	0.11967	3441	30	0	3471	3398	3441	
612,850	2,364,850	0.1195	3442	30	0	3472	3399	3442	
600,600	2,366,600	0.11937	3443	30	0	3473	3400	3443	
613,100	2,364,100	0.11919	3444	30	0	3474	3401	3444	
601,100	2,372,600	0.11903	3445	30	0	3475	3402	3445	
614,100	2,363,600	0.11902	3446	30	0	3476	3403	3446	
613,600	2,364,600	0.11886	3447	30	0	3477	3404	3447	
610,100	2,373,100	0.11851	3448	30	0	3478	3405	3448	
613,350	2,364,850	0.11849	3449	30	0	3479	3406	3449	
610,100	2,370,350	0.11821	3450	30	0	3480	3407	3450	
611,100	2,367,100	0.11819	3451	30	0	3481	3408	3451	
613,600	2,366,100	0.11811	3452	30	0	3482	3409	3452	
612,600	2,366,350	0.1179	3453	30	0	3483	3410	3453	
610,100	2,371,350	0.11761	3454	30	0	3484	3411	3454	
610,600	2,370,100	0.11744	3455	30	0	3485	3412	3455	
610,100	2,371,100	0.11738	3456	30	0	3486	3413	3456	
601,100	2,373,100	0.11728	3457	30	0	3487	3414	3457	
612,100	2,366,850	0.11727	3458	30	0	3488	3415	3458	
600,100	2,366,600	0.11725	3459	30	0	3489	3416	3459	
611,850	2,366,850	0.11718	3460	30	0	3490	3417	3460	
615,100	2,363,100	0.11695	3461	30	0	3491	3418	3461	
600,600	2,372,600	0.11689	3462	30	0	3492	3419	3462	
610,350	2,371,600	0.11631	3463	30	0	3493	3420	3463	
600,100	2,368,100	0.1162	3464	30	0	3494	3421	3464	
611,600	2,370,350	0.11607	3465	30	0	3495	3422	3465	
615,100	2,362,600	0.11594	3466	30	0	3496	3423	3466	
612,850	2,366,100	0.11566	3467	30	0	3497	3424	3467	
601,100	2,371,600	0.11552	3468	30	0	3498	3425	3468	
611,350	2,369,850	0.11551	3469	30	0	3499	3426	3469	
610,600	2,372,100	0.11474	3470	30	0	3500	3427	3470	
610,850	2,367,350	0.11462	3471	30	0	3501	3428	3471	
600,600	2,373,100	0.11458	3472	30	0	3502	3429	3472	
611,100	2,367,850	0.11457	3473	30	0	3503	3430	3473	
610,600	2,369,100	0.1145	3474	30	0	3504	3431	3474	
610,600	2,367,850	0.1142	3475	30	0	3505	3432	3475	
613,600	2,365,100	0.11416	3476	30	0	3506	3433	3476	
610,100	2,370,600	0.11406	3477	30	0	3507	3434	3477	

611,600	2,366,600	0.11395	3478	30	0	3508	3435	3478	
612,100	2,367,100	0.11389	3479	30	0	3509	3436	3479	
610,350	2,371,350	0.11371	3480	30	0	3510	3437	3480	
611,100	2,370,350	0.11346	3481	30	0	3511	3438	3481	
611,350	2,370,350	0.11345	3482	30	0	3512	3439	3482	
610,100	2,369,350	0.11279	3483	30	0	3513	3440	3483	
613,100	2,365,850	0.11263	3484	30	0	3514	3441	3484	
611,350	2,367,100	0.11262	3485	30	0	3515	3442	3485	
609,850	2,369,100	0.11224	3486	30	0	3516	3443	3486	
613,350	2,364,100	0.11172	3487	30	0	3517	3444	3487	
610,350	2,368,350	0.11172	3488	30	0	3518	3445	3488	
612,350	2,367,100	0.11169	3489	30	0	3519	3446	3489	
611,100	2,367,600	0.11142	3490	30	0	3520	3447	3490	
611,850	2,366,600	0.1114	3491	30	0	3521	3448	3491	
614,100	2,365,100	0.11127	3492	30	0	3522	3449	3492	
611,600	2,370,100	0.111	3493	30	0	3523	3450	3493	
600,100	2,370,100	0.11079	3494	30	0	3524	3451	3494	
614,100	2,365,600	0.11078	3495	30	0	3525	3452	3495	
613,600	2,364,850	0.11075	3496	30	0	3526	3453	3496	
614,600	2,362,100	0.11053	3497	30	0	3527	3454	3497	
611,350	2,368,100	0.10988	3498	30	0	3528	3455	3498	
615,100	2,362,100	0.10984	3499	30	0	3529	3456	3499	
610,600	2,368,850	0.10948	3500	30	0	3530	3457	3500	
613,350	2,366,850	0.1087	3501	30	0	3531	3458	3501	
612,850	2,366,350	0.10848	3502	30	0	3532	3459	3502	
614,600	2,364,100	0.10833	3503	30	0	3533	3460	3503	
612,100	2,366,600	0.10827	3504	30	0	3534	3461	3504	
614,600	2,366,100	0.10816	3505	30	0	3535	3462	3505	
615,100	2,361,600	0.10802	3506	30	0	3536	3463	3506	
613,600	2,364,100	0.10779	3507	30	0	3537	3464	3507	
610,600	2,372,600	0.10701	3508	30	0	3538	3465	3508	
613,100	2,366,600	0.10697	3509	30	0	3539	3466	3509	
614,100	2,364,100	0.10664	3510	30	0	3540	3467	3510	
600,600	2,372,100	0.10662	3511	30	0	3541	3468	3511	
600,100	2,372,100	0.10659	3512	30	0	3542	3469	3512	
611,600	2,370,850	0.10657	3513	30	0	3543	3470	3513	
610,600	2,369,600	0.10637	3514	30	0	3544	3471	3514	
611,600	2,367,100	0.10636	3515	30	0	3545	3472	3515	
612,350	2,366,850	0.10617	3516	30	0	3546	3473	3516	
610,600	2,373,100	0.10592	3517	30	0	3547	3474	3517	
611,350	2,370,600	0.10571	3518	30	0	3548	3475	3518	
600,100	2,369,600	0.10489	3519	30	0	3549	3476	3519	
600,100	2,373,100	0.10471	3520	30	0	3550	3477	3520	
610,850	2,368,350	0.10417	3521	30	0	3551	3478	3521	
611,600	2,367,350	0.10411	3522	30	0	3552	3479	3522	
612,600	2,367,350	0.10405	3523	30	0	3553	3480	3523	
610,350	2,370,600	0.10404	3524	30	0	3554	3481	3524	
610,100	2,370,100	0.10366	3525	30	0	3555	3482	3525	
610,850	2,368,100	0.10301	3526	30	0	3556	3483	3526	
602,600	2,372,600	0.103	3527	30	0	3557	3484	3527	
611,350	2,367,350	0.10278	3528	30	0	3558	3485	3528	
614,600	2,365,100	0.10193	3529	30	0	3559	3486	3529	
612,600	2,367,100	0.10183	3530	30	0	3560	3487	3530	
615,100	2,364,100	0.10173	3531	30	0	3561	3488	3531	
610,850	2,369,350	0.10154	3532	30	0	3562	3489	3532	
612,100	2,370,100	0.10135	3533	30	0	3563	3490	3533	
611,600	2,371,100	0.10126	3534	30	0	3564	3491	3534	
611,350	2,367,850	0.10126	3535	30	0	3565	3492	3535	
613,350	2,366,100	0.10116	3536	30	0	3566	3493	3536	

610,850	2,367,850	0.10105	3537	30	0	3567	3494	3537	
611,850	2,371,350	0.10094	3538	30	0	3568	3495	3538	
613,100	2,366,350	0.10054	3539	30	0	3569	3496	3539	
612,850	2,367,350	0.10023	3540	30	0	3570	3497	3540	
600,100	2,372,600	0.09996	3541	30	0	3571	3498	3541	
612,100	2,371,600	0.0996	3542	30	0	3572	3499	3542	
610,600	2,370,850	0.09933	3543	30	0	3573	3500	3543	
614,600	2,363,600	0.09931	3544	30	0	3574	3501	3544	
610,350	2,370,350	0.09927	3545	30	0	3575	3502	3545	
612,850	2,367,850	0.09905	3546	30	0	3576	3503	3546	
611,600	2,368,100	0.09888	3547	30	0	3577	3504	3547	
611,600	2,370,600	0.09865	3548	30	0	3578	3505	3548	
610,850	2,370,850	0.09859	3549	30	0	3579	3506	3549	
611,850	2,370,600	0.09857	3550	30	0	3580	3507	3550	
610,350	2,370,850	0.09793	3551	30	0	3581	3508	3551	
613,100	2,366,850	0.09714	3552	30	0	3582	3509	3552	
611,100	2,368,850	0.0969	3553	30	0	3583	3510	3553	
613,600	2,368,350	0.0965	3554	30	0	3584	3511	3554	
611,100	2,368,600	0.09649	3555	30	0	3585	3512	3555	
611,350	2,368,850	0.09637	3556	30	0	3586	3513	3556	
602,100	2,373,100	0.09615	3557	30	0	3587	3514	3557	
611,850	2,370,100	0.09562	3558	30	0	3588	3515	3558	
615,100	2,365,100	0.09552	3559	30	0	3589	3516	3559	
610,600	2,368,350	0.09531	3560	30	0	3590	3517	3560	
613,100	2,367,350	0.09467	3561	30	0	3591	3518	3561	
610,850	2,369,100	0.09427	3562	30	0	3592	3519	3562	
614,100	2,364,600	0.09374	3563	30	0	3593	3520	3563	
613,350	2,368,100	0.09328	3564	30	0	3594	3521	3564	
610,850	2,368,600	0.09302	3565	30	0	3595	3522	3565	
613,600	2,365,850	0.09299	3566	30	0	3596	3523	3566	
612,100	2,367,600	0.09299	3567	30	0	3597	3524	3567	
612,100	2,371,350	0.09291	3568	30	0	3598	3525	3568	
611,850	2,367,350	0.09259	3569	30	0	3599	3526	3569	
611,350	2,367,600	0.09234	3570	30	0	3600	3527	3570	
613,350	2,366,350	0.09227	3571	30	0	3601	3528	3571	
611,100	2,368,100	0.09202	3572	30	0	3602	3529	3572	
612,350	2,370,100	0.09164	3573	30	0	3603	3530	3573	
612,850	2,367,600	0.09144	3574	30	0	3604	3531	3574	
611,850	2,368,350	0.09138	3575	30	0	3605	3532	3575	
611,100	2,368,350	0.0911	3576	30	0	3606	3533	3576	
611,100	2,373,100	0.09085	3577	30	0	3607	3534	3577	
611,350	2,370,850	0.09084	3578	30	0	3608	3535	3578	
611,850	2,370,850	0.09076	3579	30	0	3609	3536	3579	
615,100	2,365,600	0.09046	3580	30	0	3610	3537	3580	
612,600	2,372,600	0.09039	3581	30	0	3611	3538	3581	
611,600	2,367,600	0.09035	3582	30	0	3612	3539	3582	
613,100	2,367,850	0.09033	3583	30	0	3613	3540	3583	
612,100	2,367,350	0.09032	3584	30	0	3614	3541	3584	
611,100	2,369,600	0.09019	3585	30	0	3615	3542	3585	
610,350	2,370,100	0.08971	3586	30	0	3616	3543	3586	
613,350	2,366,600	0.08929	3587	30	0	3617	3544	3587	
613,600	2,366,600	0.08927	3588	30	0	3618	3545	3588	
610,600	2,371,100	0.089	3589	30	0	3619	3546	3589	
611,600	2,369,850	0.08857	3590	30	0	3620	3547	3590	
611,100	2,369,350	0.08804	3591	30	0	3621	3548	3591	
612,350	2,367,350	0.08786	3592	30	0	3622	3549	3592	
611,600	2,367,850	0.08783	3593	30	0	3623	3550	3593	
610,100	2,372,600	0.08764	3594	30	0	3624	3551	3594	
612,350	2,371,600	0.08762	3595	30	0	3625	3552	3595	

610,850	2,370,350	0.0876	3596	30	0	3626	3553	3596	
610,850	2,368,850	0.0875	3597	30	0	3627	3554	3597	
610,600	2,371,350	0.08691	3598	30	0	3628	3555	3598	
611,850	2,369,850	0.08627	3599	30	0	3629	3556	3599	
612,600	2,366,850	0.08623	3600	30	0	3630	3557	3600	
613,600	2,367,100	0.08608	3601	30	0	3631	3558	3601	
614,600	2,364,600	0.08584	3602	30	0	3632	3559	3602	
614,100	2,366,600	0.08581	3603	30	0	3633	3560	3603	
611,100	2,370,600	0.08579	3604	30	0	3634	3561	3604	
611,350	2,368,350	0.08572	3605	30	0	3635	3562	3605	
614,100	2,366,100	0.08569	3606	30	0	3636	3563	3606	
613,600	2,366,350	0.08567	3607	30	0	3637	3564	3607	
612,100	2,370,600	0.08549	3608	30	0	3638	3565	3608	
611,850	2,371,600	0.08547	3609	30	0	3639	3566	3609	
610,600	2,371,600	0.08544	3610	30	0	3640	3567	3610	
611,350	2,371,100	0.08524	3611	30	0	3641	3568	3611	
610,850	2,371,350	0.08523	3612	30	0	3642	3569	3612	
612,600	2,367,600	0.08491	3613	30	0	3643	3570	3613	
611,100	2,370,850	0.08479	3614	30	0	3644	3571	3614	
613,600	2,367,600	0.08473	3615	30	0	3645	3572	3615	
611,600	2,369,100	0.08437	3616	30	0	3646	3573	3616	
613,100	2,368,100	0.08402	3617	30	0	3647	3574	3617	
612,600	2,367,850	0.084	3618	30	0	3648	3575	3618	
613,600	2,366,850	0.0833	3619	30	0	3649	3576	3619	
615,100	2,363,600	0.08286	3620	30	0	3650	3577	3620	
612,350	2,367,600	0.08285	3621	30	0	3651	3578	3621	
611,850	2,368,100	0.08258	3622	30	0	3652	3579	3622	
609,600	2,373,100	0.08247	3623	30	0	3653	3580	3623	
612,350	2,369,850	0.08246	3624	30	0	3654	3581	3624	
611,600	2,371,350	0.08244	3625	30	0	3655	3582	3625	
613,100	2,367,600	0.08241	3626	30	0	3656	3583	3626	
611,350	2,369,600	0.08231	3627	30	0	3657	3584	3627	
614,100	2,368,600	0.08229	3628	30	0	3658	3585	3628	
613,600	2,368,600	0.08222	3629	30	0	3659	3586	3629	
611,350	2,368,600	0.08213	3630	30	0	3660	3587	3630	
611,600	2,372,100	0.08192	3631	30	0	3661	3588	3631	
610,850	2,371,600	0.08174	3632	30	0	3662	3589	3632	
611,600	2,368,850	0.08173	3633	30	0	3663	3590	3633	
611,600	2,368,600	0.08153	3634	30	0	3664	3591	3634	
612,850	2,366,850	0.08145	3635	30	0	3665	3592	3635	
611,850	2,367,600	0.08051	3636	30	0	3666	3593	3636	
615,100	2,364,600	0.07973	3637	30	0	3667	3594	3637	
611,850	2,367,850	0.07962	3638	30	0	3668	3595	3638	
612,600	2,370,100	0.07923	3639	30	0	3669	3596	3639	
612,100	2,372,100	0.07915	3640	30	0	3670	3597	3640	
612,100	2,368,350	0.07912	3641	30	0	3671	3598	3641	
613,600	2,368,100	0.07911	3642	30	0	3672	3599	3642	
610,600	2,370,600	0.07887	3643	30	0	3673	3600	3643	
611,850	2,370,350	0.07857	3644	30	0	3674	3601	3644	
611,100	2,372,100	0.07845	3645	30	0	3675	3602	3645	
613,350	2,367,850	0.07808	3646	30	0	3676	3603	3646	
612,850	2,367,100	0.07782	3647	30	0	3677	3604	3647	
613,350	2,367,600	0.07761	3648	30	0	3678	3605	3648	
612,100	2,367,850	0.07728	3649	30	0	3679	3606	3649	
611,850	2,369,100	0.07723	3650	30	0	3680	3607	3650	
611,850	2,368,850	0.07671	3651	30	0	3681	3608	3651	
611,600	2,368,350	0.07653	3652	30	0	3682	3609	3652	
610,350	2,371,100	0.07651	3653	30	0	3683	3610	3653	
611,100	2,372,600	0.07583	3654	30	0	3684	3611	3654	

612,850	2,368,100	0.07573	3655	30	0	3685	3612	3655	
611,850	2,371,100	0.07567	3656	30	0	3686	3613	3656	
613,350	2,368,350	0.07532	3657	30	0	3687	3614	3657	
610,850	2,371,100	0.07528	3658	30	0	3688	3615	3658	
612,350	2,371,350	0.07503	3659	30	0	3689	3616	3659	
611,100	2,369,100	0.07481	3660	30	0	3690	3617	3660	
612,100	2,369,350	0.07448	3661	30	0	3691	3618	3661	
613,100	2,370,100	0.07399	3662	30	0	3692	3619	3662	
612,350	2,368,600	0.07396	3663	30	0	3693	3620	3663	
612,100	2,368,600	0.07387	3664	30	0	3694	3621	3664	
610,600	2,370,350	0.07387	3665	30	0	3695	3622	3665	
611,350	2,369,100	0.07376	3666	30	0	3696	3623	3666	
612,350	2,370,850	0.07336	3667	30	0	3697	3624	3667	
612,100	2,368,100	0.07317	3668	30	0	3698	3625	3668	
612,600	2,369,850	0.07315	3669	30	0	3699	3626	3669	
612,350	2,367,850	0.07304	3670	30	0	3700	3627	3670	
611,100	2,371,600	0.07299	3671	30	0	3701	3628	3671	
612,100	2,369,600	0.07268	3672	30	0	3702	3629	3672	
612,850	2,370,350	0.07262	3673	30	0	3703	3630	3673	
612,100	2,369,850	0.07164	3674	30	0	3704	3631	3674	
613,350	2,367,350	0.07136	3675	30	0	3705	3632	3675	
612,350	2,368,350	0.07122	3676	30	0	3706	3633	3676	
612,600	2,371,600	0.07113	3677	30	0	3707	3634	3677	
612,100	2,371,100	0.07087	3678	30	0	3708	3635	3678	
612,600	2,368,850	0.07033	3679	30	0	3709	3636	3679	
613,350	2,367,100	0.07013	3680	30	0	3710	3637	3680	
611,850	2,368,600	0.07012	3681	30	0	3711	3638	3681	
611,350	2,369,350	0.06999	3682	30	0	3712	3639	3682	
613,100	2,370,350	0.06998	3683	30	0	3713	3640	3683	
611,850	2,369,350	0.06979	3684	30	0	3714	3641	3684	
612,850	2,370,100	0.06961	3685	30	0	3715	3642	3685	
613,100	2,367,100	0.06929	3686	30	0	3716	3643	3686	
611,600	2,372,600	0.06928	3687	30	0	3717	3644	3687	
615,100	2,366,600	0.06903	3688	30	0	3718	3645	3688	
612,600	2,368,600	0.06858	3689	30	0	3719	3646	3689	
613,350	2,370,600	0.06836	3690	30	0	3720	3647	3690	
612,100	2,370,850	0.06823	3691	30	0	3721	3648	3691	
612,600	2,368,100	0.06809	3692	30	0	3722	3649	3692	
611,600	2,373,100	0.06679	3693	30	0	3723	3650	3693	
612,350	2,368,100	0.06668	3694	30	0	3724	3651	3694	
612,600	2,372,100	0.06657	3695	30	0	3725	3652	3695	
614,100	2,367,100	0.0665	3696	30	0	3726	3653	3696	
610,850	2,370,600	0.06642	3697	30	0	3727	3654	3697	
612,350	2,369,600	0.06618	3698	30	0	3728	3655	3698	
613,600	2,367,350	0.06604	3699	30	0	3729	3656	3699	
612,100	2,368,850	0.06596	3700	30	0	3730	3657	3700	
614,600	2,368,600	0.06538	3701	30	0	3731	3658	3701	
613,100	2,372,600	0.06501	3702	30	0	3732	3659	3702	
612,850	2,368,350	0.06495	3703	30	0	3733	3660	3703	
613,100	2,370,600	0.06494	3704	30	0	3734	3661	3704	
611,600	2,369,600	0.06468	3705	30	0	3735	3662	3705	
614,600	2,366,600	0.06406	3706	30	0	3736	3663	3706	
612,100	2,370,350	0.06404	3707	30	0	3737	3664	3707	
612,600	2,368,350	0.06388	3708	30	0	3738	3665	3708	
613,600	2,370,600	0.06382	3709	30	0	3739	3666	3709	
612,850	2,368,600	0.06372	3710	30	0	3740	3667	3710	
612,100	2,369,100	0.06355	3711	30	0	3741	3668	3711	
611,100	2,371,100	0.06336	3712	30	0	3742	3669	3712	
611,600	2,369,350	0.06334	3713	30	0	3743	3670	3713	

611,850	2,369,600	0.06308	3714	30	0	3744	3671	3714	
611,100	2,371,350	0.06281	3715	30	0	3745	3672	3715	
612,350	2,370,600	0.06261	3716	30	0	3746	3673	3716	
612,600	2,371,100	0.06258	3717	30	0	3747	3674	3717	
615,100	2,369,100	0.06244	3718	30	0	3748	3675	3718	
613,600	2,367,850	0.06122	3719	30	0	3749	3676	3719	
613,600	2,370,850	0.06092	3720	30	0	3750	3677	3720	
612,850	2,369,600	0.06023	3721	30	0	3751	3678	3721	
612,350	2,369,350	0.06003	3722	30	0	3752	3679	3722	
613,600	2,373,100	0.05956	3723	30	0	3753	3680	3723	
611,600	2,371,600	0.05938	3724	30	0	3754	3681	3724	
613,350	2,370,100	0.05937	3725	30	0	3755	3682	3725	
612,600	2,369,600	0.05937	3726	30	0	3756	3683	3726	
613,100	2,368,850	0.05926	3727	30	0	3757	3684	3727	
613,600	2,368,850	0.05922	3728	30	0	3758	3685	3728	
612,850	2,368,850	0.05906	3729	30	0	3759	3686	3729	
612,100	2,373,100	0.05887	3730	30	0	3760	3687	3730	
612,350	2,369,100	0.05884	3731	30	0	3761	3688	3731	
612,850	2,369,850	0.05853	3732	30	0	3762	3689	3732	
613,350	2,369,850	0.05833	3733	30	0	3763	3690	3733	
612,600	2,370,850	0.05806	3734	30	0	3764	3691	3734	
613,350	2,368,850	0.05806	3735	30	0	3765	3692	3735	
613,100	2,369,350	0.05767	3736	30	0	3766	3693	3736	
613,350	2,368,600	0.0576	3737	30	0	3767	3694	3737	
612,350	2,368,850	0.05754	3738	30	0	3768	3695	3738	
613,100	2,368,600	0.05702	3739	30	0	3769	3696	3739	
612,850	2,371,100	0.057	3740	30	0	3770	3697	3740	
612,600	2,369,100	0.05682	3741	30	0	3771	3698	3741	
614,100	2,371,100	0.05664	3742	30	0	3772	3699	3742	
612,100	2,372,600	0.05649	3743	30	0	3773	3700	3743	
613,100	2,373,100	0.05635	3744	30	0	3774	3701	3744	
613,100	2,369,850	0.05627	3745	30	0	3775	3702	3745	
613,350	2,369,100	0.05575	3746	30	0	3776	3703	3746	
612,600	2,370,350	0.05564	3747	30	0	3777	3704	3747	
613,600	2,369,100	0.05528	3748	30	0	3778	3705	3748	
611,350	2,371,350	0.05485	3749	30	0	3779	3706	3749	
612,350	2,370,350	0.05467	3750	30	0	3780	3707	3750	
611,350	2,371,600	0.05436	3751	30	0	3781	3708	3751	
613,100	2,368,350	0.05384	3752	30	0	3782	3709	3752	
615,100	2,367,100	0.0535	3753	30	0	3783	3710	3753	
613,600	2,370,100	0.05347	3754	30	0	3784	3711	3754	
613,350	2,370,350	0.05301	3755	30	0	3785	3712	3755	
613,100	2,369,100	0.05266	3756	30	0	3786	3713	3756	
612,850	2,369,100	0.05238	3757	30	0	3787	3714	3757	
612,850	2,370,850	0.05216	3758	30	0	3788	3715	3758	
612,850	2,369,350	0.05203	3759	30	0	3789	3716	3759	
613,600	2,369,850	0.05194	3760	30	0	3790	3717	3760	
614,600	2,369,100	0.05185	3761	30	0	3791	3718	3761	
614,600	2,368,100	0.05183	3762	30	0	3792	3719	3762	
612,850	2,371,600	0.05182	3763	30	0	3793	3720	3763	
613,100	2,371,100	0.05172	3764	30	0	3794	3721	3764	
613,600	2,369,350	0.0516	3765	30	0	3795	3722	3765	
613,350	2,369,350	0.05152	3766	30	0	3796	3723	3766	
613,100	2,369,600	0.0512	3767	30	0	3797	3724	3767	
613,350	2,371,350	0.05101	3768	30	0	3798	3725	3768	
614,600	2,367,100	0.051	3769	30	0	3799	3726	3769	
612,350	2,371,100	0.05073	3770	30	0	3800	3727	3770	
614,600	2,367,600	0.05062	3771	30	0	3801	3728	3771	
612,850	2,370,600	0.04992	3772	30	0	3802	3729	3772	

614,100	2,369,600	0.04936	3773	30	0	3803	3730	3773	
612,600	2,369,350	0.0487	3774	30	0	3804	3731	3774	
612,600	2,371,350	0.04804	3775	30	0	3805	3732	3775	
614,100	2,369,100	0.04801	3776	30	0	3806	3733	3776	
613,100	2,370,850	0.04793	3777	30	0	3807	3734	3777	
614,100	2,370,600	0.04762	3778	30	0	3808	3735	3778	
613,600	2,371,350	0.04753	3779	30	0	3809	3736	3779	
613,600	2,370,350	0.04733	3780	30	0	3810	3737	3780	
614,600	2,369,600	0.04694	3781	30	0	3811	3738	3781	
613,350	2,370,850	0.04675	3782	30	0	3812	3739	3782	
612,600	2,370,600	0.04661	3783	30	0	3813	3740	3783	
615,100	2,369,600	0.04651	3784	30	0	3814	3741	3784	
613,350	2,369,600	0.04592	3785	30	0	3815	3742	3785	
613,100	2,372,100	0.04578	3786	30	0	3816	3743	3786	
612,600	2,373,100	0.04529	3787	30	0	3817	3744	3787	
613,350	2,371,100	0.04493	3788	30	0	3818	3745	3788	
612,850	2,371,350	0.04477	3789	30	0	3819	3746	3789	
615,100	2,370,100	0.04441	3790	30	0	3820	3747	3790	
613,600	2,369,600	0.04429	3791	30	0	3821	3748	3791	
613,600	2,371,100	0.04426	3792	30	0	3822	3749	3792	
614,100	2,367,600	0.04422	3793	30	0	3823	3750	3793	
615,100	2,367,600	0.04388	3794	30	0	3824	3751	3794	
614,600	2,371,100	0.04324	3795	30	0	3825	3752	3795	
613,100	2,371,350	0.04309	3796	30	0	3826	3753	3796	
613,100	2,371,600	0.04298	3797	30	0	3827	3754	3797	
614,100	2,371,600	0.04236	3798	30	0	3828	3755	3798	
613,600	2,372,600	0.04216	3799	30	0	3829	3756	3799	
613,600	2,371,600	0.04205	3800	30	0	3830	3757	3800	
614,100	2,370,100	0.042	3801	30	0	3831	3758	3801	
614,600	2,370,100	0.04054	3802	30	0	3832	3759	3802	
614,100	2,368,100	0.04054	3803	30	0	3833	3760	3803	
613,350	2,371,600	0.04033	3804	30	0	3834	3761	3804	
614,100	2,373,100	0.03966	3805	30	0	3835	3762	3805	
614,600	2,370,600	0.03875	3806	30	0	3836	3763	3806	
613,600	2,372,100	0.03853	3807	30	0	3837	3764	3807	
615,100	2,368,600	0.03592	3808	30	0	3838	3765	3808	
614,600	2,372,600	0.03576	3809	30	0	3839	3766	3809	
614,100	2,372,600	0.03573	3810	30	0	3840	3767	3810	
615,100	2,371,100	0.03436	3811	30	0	3841	3768	3811	
614,600	2,372,100	0.03432	3812	30	0	3842	3769	3812	
615,100	2,373,100	0.03422	3813	30	0	3843	3770	3813	
614,600	2,371,600	0.03417	3814	30	0	3844	3771	3814	
615,100	2,371,600	0.03362	3815	30	0	3845	3772	3815	
615,100	2,370,600	0.03293	3816	30	0	3846	3773	3816	
615,100	2,372,100	0.03222	3817	30	0	3847	3774	3817	
614,100	2,372,100	0.0321	3818	30	0	3848	3775	3818	
614,600	2,373,100	0.03027	3819	30	0	3849	3776	3819	
615,100	2,368,100	0.0298	3820	30	0	3850	3777	3820	
615,100	2,372,600	0.02651	3821	30	0	3851	3778	3821	