GROUNDWORK plus

MEPPEM QUARRY
SURFACE WATER ASSESSMENT

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FIGURES

Figure 1 Surface Water Management Plan *(Drawing No. 2289.DRG.006R1)*

ATTACHMENTS

Attachment 1 Sediment Basin Calculations
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1. Introduction

1.1 Project Overview

Groundwork Plus Pty Ltd ('Groundwork Plus') has been commissioned by John Meppem (the client) to prepare a Surface Water Assessment (SWA) for the proposed Meppem Quarry (the site) as part of the Environmental Impact Statement (EIS) for the development application.

1.2 Scope of Assessment

This SWA includes the following scope in order to adequately address the requirements of the EIS for the proposed quarry development:

- a detailed site water balance and an assessment of any volumetric water licensing requirements, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply infrastructure and water storage structures;
- identification of any licensing requirements or other approvals required under the Water Act 1912 and/or Water Management Act 2000;
- demonstration that water for the construction and operation of the development can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of any relevant Water Sharing Plan (WSP);
- a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant Water Sharing Plan or water source embargo;
- an assessment of activities that could cause erosion or sedimentation issues, and the proposed measures to prevent or control these impacts;
- an assessment of any likely flooding impacts of the development;
- an assessment of potential impacts on the quality and quantity of existing surface and ground water resources, including a detailed assessment of proposed water discharge quantities and quality against receiving water quality and flow objectives; and
- a detailed description of the proposed water management system, water monitoring program and other measures to mitigate surface and groundwater impacts;

1.3 Site Location

The proposed Meppem Quarry will supply material to a section of the Inland Rail Project which is situated in proximity to the site. The site is located on Manamoi Road, Bellata, approximately 50 kilometres North of Narrabri, 44 kilometres south of Moree and 9 kilometres north-east of Bellata, in north-east New South Wales. The site is presently used for agricultural purposes.

2. Erosion and Sediment Control Management

2.1 Site Topography

The proposed quarry is situated on the southern ridgeline as shown on **Figure 1 – Surface Water Management Plan**. The upper northern reaches of the quarry are situated at RL 360m AHD, with the extraction proposed to reach RL 330m AHD. A lower bench for ancillary operations is proposed at RL 319m AHD.

2.2 Proposed Erosion and Sediment Controls

It is proposed to manage the disturbed quarry area by diverting all surface water to a sediment basin in the lower ancillary operations area (RL 319m AHD). Clean water upstream is proposed to be diverted around the quarry area and return to natural pre-developed drainage lines as shown on **Figure 1 – Surface Water Management Plan**.

2.2.1 Sediment Basin Sizing Calculations

In order to meet the requirements of the EIS, the sediment basin is proposed to be designed, constructed and operated to retain the disturbed area runoff at the site in accordance with DECC (2008) *Managing Urban Stormwater - Soils and Construction (Volume 2E).*

As outlined in DECC (2008), the total upper settling storage requirements for sediment basins are calculated based on the following formula:

$Vs = 10 * R_{Y\%, 5\text{-day}} * Cv * A$, where:
A = Catchment Area (m^2)
C_v = Coefficient of Discharge
$R_{Y\%, 5\text{-day}}$ = 5 day rainfall depth (m) not exceeded for Y percent of rainfall events

In addition to the upper settling volume, a sediment storage zone is required to be accommodated based on a 2 month soil volume loss using the Revised Universal Soil Loss Equation (RUSLE):

$V_{SED} = [0.17 \times A (R . K . LS \times 1.3 \times 1.0)] / 1.3$
A = Disturbed Catchment Area (m^2)
R, LS and K = RUSLE factors as per DECC

Table 1 – Sediment Basin Storage Requirements details the upper settling, sediment storage and subsequent total sediment basin storage requirements for the site, for capture of a 50.1 mm rainfall event, deemed the 5-day 90th percentile as per DECC 2008. Detailed calculations are included in **Attachment 1 – Sediment Basin Calculations.**

Table 1 – Sediment Basin Storage Requirements

Basin ID	Catchment area (ha)	Upper Settling Req'd Volume (ML)	Sediment Storage Req'd Volume (ML)	Total Required Volume (ML)	Proposed Volume (ML)
SB1	5.403	3.34	0.34	3.68	4.00

Based on the above, the total required sediment basin volumes are considered appropriate for erosion and sediment control management.

3. Water Balance Assessment

3.1 Water Supply and Storage Infrastructure

The quarry proposes to harvest surface water for reuse in operations through construction of two dam structures as shown in on **Figure 1 – Surface Water Management Plan.** The sediment basin is proposed to be used for the treatment of surface water as discussed in **Section 2 - Erosion and Sediment Control Management**, and also for reuse into quarry operations. The total volume for the sediment basin is proposed to be 4.0ML.

An existing surface water harvesting system exists onsite, and a portion of this system is proposed to be used for the collection of additional surface water for reuse into quarry operations. A clean water dam is proposed to be constructed with a minimum volume of 2.0ML.

3.2 Rainfall Data

Rainfall data was sourced from the Bureau of Meteorology (BoM) for Bellata Post Office (53003) for the water balance, which is 15km from the site. To inform the calculations of the water balance daily rainfall records were downloaded and used for the for a higher degree of accuracy.

3.2.1 Scenario 1 – Above Average Rainfall

The year 2016 was selected as the baseline as it has 100% data available for the year and received an annual rainfall depth of 689.6mm which is above average (602mm).

3.2.2 Scenario 2 – Below Average Rainfall

A second water balance scenario was selected against the 2018 rainfall data, as it was a much drier year at around 324mm (below the average 602mm). Data for April was sourced from 2019 (also much lower than average) due to no data available in April 2018. Overall monthly mean rainfall is shown below against the 2017 data in **Diagram 1 – Bellata Mean Monthly Rainfall.**

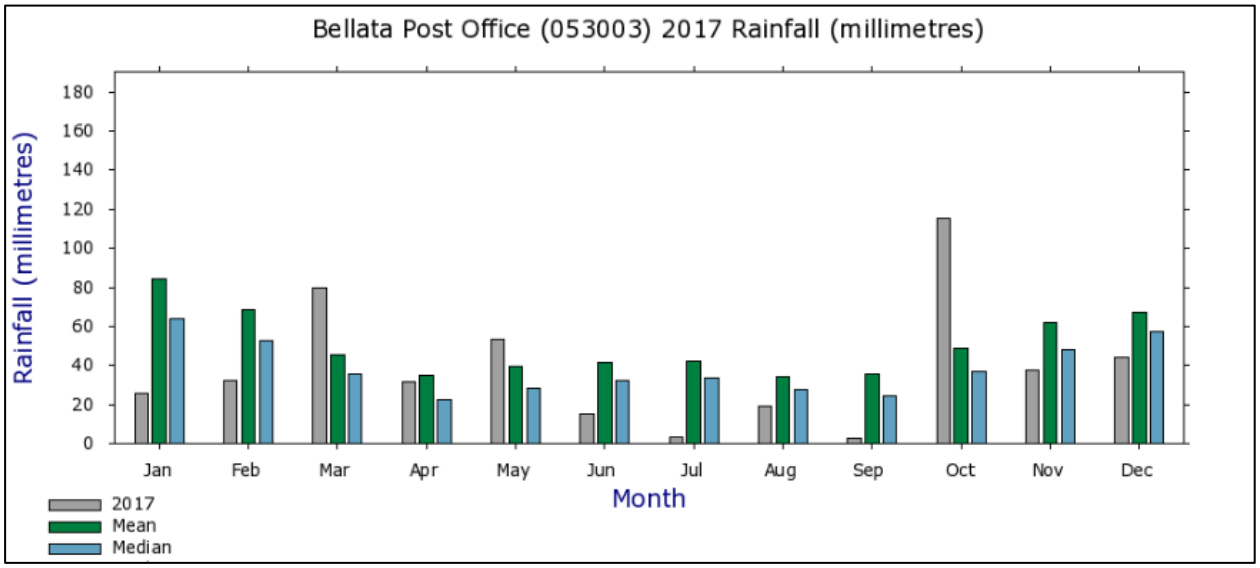


Diagram 1 – Bellata Mean Monthly Rainfall

3.3 Mean Daily Evaporation

Mean Daily Evaporation data was sourced from BoM for Moree Aero Station (053115) as it was the closest available (48km away), and is shown below in **Table 2 – Moree Mean Daily Evaporation.**

Table 2 – Moree Mean Daily Evaporation

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
mm	10.1	9.1	7.7	5.7	3.7	2.6	2.7	3.9	5.6	7.7	9.2	9.8

3.4 Daily Groundwater Inflow

As discussed in the EIS, there is no anticipated interception with the groundwater table, therefore groundwater flows are not considered in the water balance assessment.

3.5 Catchment Hydrology

The water balance assessment was estimated based on the hydrological parameters shown below in **Table 3 – Hydrological Parameters**. The surface water parameters were based on the supplied LiDAR survey.

Table 3 – Hydrological Parameters

Parameter	Value	Unit
Catchment Area (Sediment Basin SB1)	83,410	m²
Clean water catchment (Clean Water Dam)	122,520	m²
Starting Pond Volume	0.00	m³
Sediment Basin capacity	4,000	m³
Clean Water Dam capacity	2,000	m³
Runoff Coefficient (quarry)	0.80	n/a
Runoff Coefficient (clean water catchment)	0.50	n/a
Assumed Daily Usage in Quarry^	155	kL

^ Daily Usage assumes proprietary product called 'Haulage DC, by Polo Citrus Australia Pty Ltd' or equivalent will be implemented to minimise water use.

3.6 Water Balance Assessment

3.6.1 Water Balance Assessment Assumptions

The operations are proposed to occur 5.5 days per week (Monday to Saturday morning) for a maximum of 50 weeks per year. Based on these expected operating days, the daily usage figures were revised from the earlier estimated usage (reducing by approximately 25%) when compared to the projections for operating 365 days per year. This clarification revised the annual expected usage down to 68.7ML, compared to 91.2ML as originally stated for operating 365 days per year.

In addition to the above consideration, the applicant has identified a proprietary product that can reduce water usage for the purposes of dust mitigation, with an average reduction of 30% (Haulage DC, by Polo Citrus Australia Pty Ltd). This product would further reduce water usage by around 45kL/day (105kL/day for dust mitigation, down from 150kL/day).

Based on the above clarifications and proposed strategy, the annual water usage is therefore estimated to be 60.6ML per year, with a supply of 88.2ML and 41.5 ML for above and below average rainfall years respectively.

3.6.2 Water Balance Assessment Results

Refer to **Attachment 2 – Water Balance Assessment** for a comprehensive daily breakdown of the water balance assessment. A summary of the results are shown for each scenario in the tables below.

Table 4 – Water Balance Assessment Results (Above Average Rainfall)

Inputs	Overland Flow into Sediment Basin	46.0	Values are in ML/year
	Overland Flow into Clean Water Dam	42.2	
Total water inputs		**88.2**	
Outputs	Evaporation from Dams	4.1	
	Total water required for processing *(includes dust suppression and operations)*	56.5	
Total water outputs		**60.6**	
Estimated Water Surplus		**27.6**	

Table 5 – Water Balance Assessment Results (Below Average Rainfall)

Inputs	Overland Flow into Sediment Basin	21.6	Values are in ML/year
	Overland Flow into Clean Water Dam	19.9	
Total water inputs		**41.5**	
Outputs	Evaporation from Dams	4.1	
	Total water required for processing *(includes dust suppression and operations)*	56.4	
Total water outputs		**60.5**	
Estimated Water Shortfall		**19.0**	

3.7 Volumetric Water Licensing Requirements

It is expected that water will be required to be sourced from external licensed water suppliers to meet the anticipated shortfalls for quarry operations. As outlined in the water balance assessment results, up to around 19.0ML per annum is expected in a drier than average year. The available rainfall records indicate the 10th percentile annual rainfall is 376.9mm, and the analysis was based on an annual rainfall of 324mm. Therefore overall it is expected that the quarry will be moderately self-sufficient in water supply.

In the driest scenario, the water balance indicates water will need to be imported 137 days per year. In the above average rainfall scenario, the water balance indicates water will need to be imported 32 days per year. It is noted that these scenarios assume a total dam volume of 6ML. To further reduce reliance on external supplies, additional surfacewater could be harvested by increasing the sediment basin and cleanwater dams.

Construction and operation of the development can be undertaken with any additional water requirements being reasonably obtained from an appropriately authorised and reliable licensed water supplier. The quarry will be responsible to ensure that any licensing requirements and other approvals required under the Water Act 1912 and/or Water Management Act 2000 are obtained.

During the days in the year where water could not be sourced from the quarry dam, the quarry would need to import up to 155m^3 (155,000L) of water for dust suppression (per day). In these events if the sediment basin is dry, water would be sourced from an appropriately authorised and licenced water supplier such as Moree Plains Shire Council.

3.8 Water Disposal Methods

As demonstrated in **Attachment 2 – Water Balance Assessment**, there are 34 days per annum expected where water will be discharged due to the sediment basin and/or clean water dam exceeding capacity in the above average rainfall scenario, and 8 days per annum expected in the below average rainfall scenario.

3.8.1 Water Quality Assessment

The sediment basin will capture and treat stormwater prior to discharge in all cases, and the quarry will operate in accordance with the proposed operational management measures as outlined in **Section 4 – Operational Management Plan.**

Site specific water quality information is not currently available therefore the default discharge criteria has been adopted which is an approach consistent with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ, 2000).

4. Operational Management Plan

Provided below is the proposed Stormwater Operational Management Plan for implementation across the site.

4.1 Stormwater Management Plan

Purpose

Extraction and associated quarry operations that have the potential to impact on surface water runoff include:

- Vegetation clearing
- Topsoil stripping
- Overburden removals
- Excavation pit development
- Construction and maintenance of internal roads and hardstands
- Stockpiling of topsoil, raw feed and product
- Spillage during handling of materials
- Use and storage of oils, greases, fuels and other chemicals
- Accidental spillage of fuels, lubricants, or chemicals.

Performance Targets

It is proposed the quarry adhere to the extractive industry targets shown below for water quality release limits.

Proposed Water Quality Parameters

Parameter	100 percentile concentration limit
pH	6.5 – 8.5
Total Suspended Soils (TSS)	50 mg/L

Responsibilities

The Quarry Manager, or delegate, will be primarily responsible for the implementation of this plan.

Strategies/mitigation measures:

Strategies/mitigation measures for the management of surface water runoff and erosion and sediment transport from the site will be implemented in accordance the relevant approval conditions. Erosion and Sediment Control (ESC) measures for the site have been provided below for each main consideration when discussing ESC / Stormwater Management.

Erosion and Sediment Control

Site Management

Land-disturbing activities must be undertaken in such a manner that allows all reasonable and practicable measures to be undertaken to:

- Allow stormwater to pass through the Site in a controlled manner and at non-erosive flow velocities up to the specified design storm discharge.
- Minimise soil erosion resulting from rain, water flow and/or wind.
- Minimise adverse effects of sediment runoff, including safety issues.
- Prevent, or at least minimise, environmental harm resulting from work-related soil erosion and sediment runoff.
- Ensure that the use of land/properties adjacent to the development (including roads) are not diminished as a result of the adopted ESC measures.

4.1 Stormwater Management Plan

Land Clearing

- Land clearing must be delayed as long as practicable and must be undertaken in conjunction with development of each stage of the quarry.
- Bulk tree clearing must occur in a manner that minimises disturbance to existing ground cover (organic or inorganic).
- Disturbance to natural watercourses (including bed and banks) and their associated riparian zones must be limited to the minimum practicable extent and be accompanied by the relevant approval.
- No land clearing shall be undertaken unless preceded by the installation of adequate drainage and sediment control measures, unless such clearing is required for the purpose of installing such measures, in which case, only the minimum clearing required to install such measures shall occur.
- Prior to land clearing, areas of protected vegetation, and significant areas of retained vegetation must be clearly identified (e.g. with high-visibility tape, or light fencing) for the purposes of minimising the risk of unnecessary land clearing.
- All reasonable and practicable measures must be taken to minimise the removal of, or disturbance to, those trees, shrubs and ground covers (organic or inorganic) that are intended to be retained.
- All land clearing must be undertaken in accordance with the Federal, State and Local Government Vegetation Protection/Preservation requirements and/or policies.
- Land clearing is limited to the minimum practicable extent during those periods when soil erosion due to wind, rain or surface water is possible.

Clean Water Diversion Drain

- Clean water diversion drains are to have greater than 90% vegetation coverage in those areas where rock armouring has not been designated. This coverage is required to be in-place prior to the designated wet season.
- Should the drain not naturally regenerate before the wet season, gully and sheet erosion may occur. Additional measures to promote vegetation growth will be required (as per IECA 2008).
- Seeding of the exposed areas using native grass species. The grass species will be required to have the following characteristics (as per IECA 2008).
  - Plants with a fibrous root system.
  - Plants that primarily grow horizontal rather than upright clumping plants.
  - Leguminous plants.
  - Non-invasive plants.
  - Avoid clumping or tussock forming grasses.
- Heavy rain during establishment period will likely cause erosion and sediment loss off-site. Additional measures may be required such as introduction of additional ground coverage over the area to reduce impact from water movement.

Site Access

- Site exit points must be appropriately managed to minimise the risk of sediment being tracked onto sealed, public roadways.
- Stormwater runoff from access roads and stabilised entry/exit points must drain to an appropriate sediment control device.

4.1 Stormwater Management Plan

Topsoil Management

- All reasonable and practicable measures must be taken to obtain the maximum benefit from existing topsoil.
- The top 100 mm of in-situ soils is to be stripped and stockpiled separately to subsoil materials for use in rehabilitation.

Stockpile Management

Stockpiles of erodible material that has the potential to cause environmental harm if displaced, must be:

- Adequately protected from wind, rain, concentrated surface flow and excessive upslope stormwater surface flows.
- Located at least 5 m from any hazardous area, retained vegetation or concentrated drainage line.
- Located up-slope of an appropriate sediment control system.
- A suitable flow diversion system must be established immediately up-slope of a stockpile.

Drainage Control

- Wherever reasonable and practicable, stormwater runoff entering the Site from external areas, and non-sediment laden (clean) stormwater runoff entering a work area or area of soil disturbance, must be diverted around or through that area in a manner that minimises soil erosion and the contamination of that water for all discharges up to the specified design storm discharge.
- All reasonable and practicable measures must be implemented to control flow velocities in such a manner than prevents soil erosion along drainage paths and at the entrance and exit
- Wherever reasonable and practicable, “clean” surface waters must be diverted away from sediment control devices and any untreated, sediment-laden waters.
- The internal drainage channel shall be constructed with silt traps. Such silt traps shall be cleared at regular intervals.
- Quarry and working benches shall be drained to the central drainage channel via channelling which shall have rubble placed in them to minimise the speed of water flow.

Sediment Control

- Efforts shall be employed to trap sediment within the Site, and as close as practicable to its source.
- Sediment traps must be installed and operated to both collect and retain sediment.
- The potential safety risk of proposed sediment control devices to Site workers, visitors and the public must be given appropriate consideration, especially those devices located within commonly accessible areas.
- All reasonable and practicable measures must be taken to prevent, or at least minimise, the release of sediment from the Site.
- Suitable all-weather maintenance access must be provided to all sediment control devices.
- Sediment control devices must be de-silted and made fully operational as soon as reasonable and practicable after a sediment-producing event, whether natural or artificial.
- Materials, whether liquid or solid, removed from sediment control devices during maintenance or decommissioning, must be disposed of in a manner that does not cause ongoing soil erosion or environmental harm.

4.1 Stormwater Management Plan

Site Maintenance

- All erosion and sediment control measures, including drainage control measures, must be maintained in proper working order at all times during their operational lives.
- Washing/flushing of sealed roadways must only occur where sweeping has failed to remove sufficient sediment and there is a compelling need to remove the remaining sediment (e.g. for safety reasons). In such circumstances, all reasonable and practicable sediment control measures must be used to prevent, or at least minimise, the release of sediment into receiving waters. Only those measures that will not cause safety and property flooding issues shall be employed. Sediment removed from roadways must be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.
- Sediment removed from sediment traps and places of sediment deposition must be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.
- Maintenance mowing must be done in a manner that will not damage the profile of formed, soft edges, such as the crest of earth embankments.

Flooding

The quarry is not located in a defined floodplain and flood risk is assumed low.

Monitoring and Maintenance

A summary schedule of the various inspections, performance criteria and responses that shall be performed on Site is shown below.

Monitoring and Maintenance of Stormwater Control Devices

Inspection	Minimum Frequency	Performance Criteria	Response
Inspect drainage lines including catch drains, contour drains and diversions	Quarterly, and prior to and following rainfall events	• erosion in areas adjacent to water conveyancing structures	• eroded areas shall be rip rapped as soon as practicable
		• overtopping of water conveyancing structures (identified by the scouring of the drain batters perpendicular to the direction of flow)	• the drain shall be cleaned of sediments and rip rap replaced to the original design specifications • rehabilitation with grasses in the catchment of the drain may be required to reduce sediment loadings of runoff
Inspect potential sediment storage capacity of	Quarterly or following major rainfall events	• maintain storage capacity	• sediment/grit shall be removed from the structure and used as filling in rehabilitation works

4.1 Stormwater Management Plan

	grit traps, sediment traps and Water Storage Areas			• recycle excavation pit water to ensure that adequate free storage is maintained for the collection and holding of runoff
	Waste containers	Quarterly	• waste is stored in appropriate containers • waste receptacles labelled	• ensure waste material is stored and disposed of properly
	Spill response stations	Quarterly and following use	• equipment is properly maintained	• maintain equipment • replace used equipment
	Maintenance / refuelling area	Quarterly	• fuel, oil spills	• clean up fuel spills and investigate source
			• contractor maintenance	• maintain contractor maintenance records
			• fuel storage integrity maintained	• investigate and repair potential leaks
Auditing	Stormwater management reviews are required to be carried out on a periodic basis to assess the implementation of the management strategies.			
Identification of Incident or Failure	Non-compliance with agreed performance criteria will be identified by: • Build-up of sediment off the Site • Excessive sediment build-up on the Site • Excessive erosion on the Site • Release of quarry materials from the Site • Poor vegetation establishment • Poorly maintained, damaged or failed ESC devices • Uncontrolled release from site for events less than the design event • Non-compliant water quality being released from Site.			
Corrective Action	After any identification of incident or failure, the source/cause is to be immediately located and the following measures implemented: • Build-up of sediment off the Site – the material must be collected and disposed of in a manner that will not cause ongoing environmental nuisance or harm; then on-site ESC measures amended, where appropriate, to reduce the risk of further sedimentation. • Excessive sediment build-up on the Site – collect and dispose of material, then amend up-slope drainage and/or erosion control measures as appropriate to reduce further occurrence. • Severe or excessive rill erosion – investigate cause, control up-slope water movement, re-profile surface, cover dispersive soils with a minimum 100mm layer of non-			

4.1 Stormwater Management Plan	
	dispersive soil, and stabilise with erosion control measures and vegetation as necessary. • Release of construction material from the Site – collected and disposed of in a manner that will not cause ongoing environmental nuisance or harm; then inspect litter and waste receptors. • Poor vegetation growth or soil coverage – plant new vegetation and/or mulch as required. • Sediment control failure – replace and monitor more frequently. Regular failures may mean that the sediment control location, alignment or installation may need to be amended. • Scour / erosion of Water Storage Area bunds will be required to be stabilised. If the release of excessive sediment and/or other materials off the Site occurs, or water quality monitoring indicates levels are not within the Water Quality Release, clean up deposition, and inspect all control measures. If monitored levels within any sediment basin does not conform to the release criteria for: • Suspended solids – flocculate and retest • pH – treat and retest.
Internal Reporting	A copy of all incidents and complaints will be stored at the Site within the incident and complaint register. All complaints and incidents must be recorded internally.

5. Surface Water Management Implementation

This plan will be reviewed periodically and will be updated as necessary to include revised quarry developmental layout plans, topographic plans and detailed designs and specifications of controls devices.

5.1 Monitoring Investigation Indicators

The following indicators are to be used to identify if the objectives of the plan are being met:

- Visible evidence of deterioration of baseline water quality of downstream watercourses that is directly attributable to the Site.
- Pollutant concentrations that exceed the water quality objectives.
- Visible significant erosion.
- Failure of control measures.

The triggering of an investigation indicator will require the following remedial actions:

- Locate the source of water quality deterioration.
- Prevent continuing deterioration with temporary controls.
- Repair existing controls, construct additional controls or modify procedures to prevent future deterioration in water quality.
- Review management plan and strategies in the event of significant deterioration in water quality.

5.2 Monitoring Management Measures

The following management measures will be implemented during facility operation:

- The **Quarry Manager** or authorised representative is to regularly inspect the stormwater management devices, particularly prior to forecasted wet weather and following major rainfall events to ensure that these devices are in good working order.
- The **Quarry Manager** or authorised representative is to ensure that drains and paved surfaces are kept free of wastes or other material, especially materials which may impact on runoff water quality.
- The **Quarry Manager** shall carry out general surveillance to qualitatively assess stormwater releases from Site during discharge events.

5.3 Auditing and Review

The effectiveness of the plan will be reviewed as necessary (e.g. following a change in Site operations) and at least once every three (3) years. The review shall take into account changes to Site activities, available surface water monitoring results, any complaints, pollution incidents and any corrective actions taken.

5.4 Reporting and Responsibility

- The **Quarry Manager** will be responsible for ensuring that stormwater devices constructed on the Site have adequate free water storage capacity.
- All complaints pertaining to water quality received will be recorded in the complaints register/log maintained on-site.
- The **Quarry Manager** or a suitably qualified consultant will prepare water monitoring records if and when required by the regulatory authority.
- Records, including results of any monitoring program undertaken on-site, complaints or incidents will be kept on-site for a minimum of five (5) years.

5.5 Identification of Incident or Failure

An incident or failure may include, but not be limited to:

- deterioration in surface water quality within waters discharged from Site
- receipt of a stormwater quality release complaint
- not maintaining on-site stormwater controls or treatment devices.

5.6 Corrective Action

If a discharge with significant variation in water quality occurs as a result of on-site operations, an investigation will be conducted and appropriate action taken to resolve the issue to the fullest practicable extent.

6. Conclusion

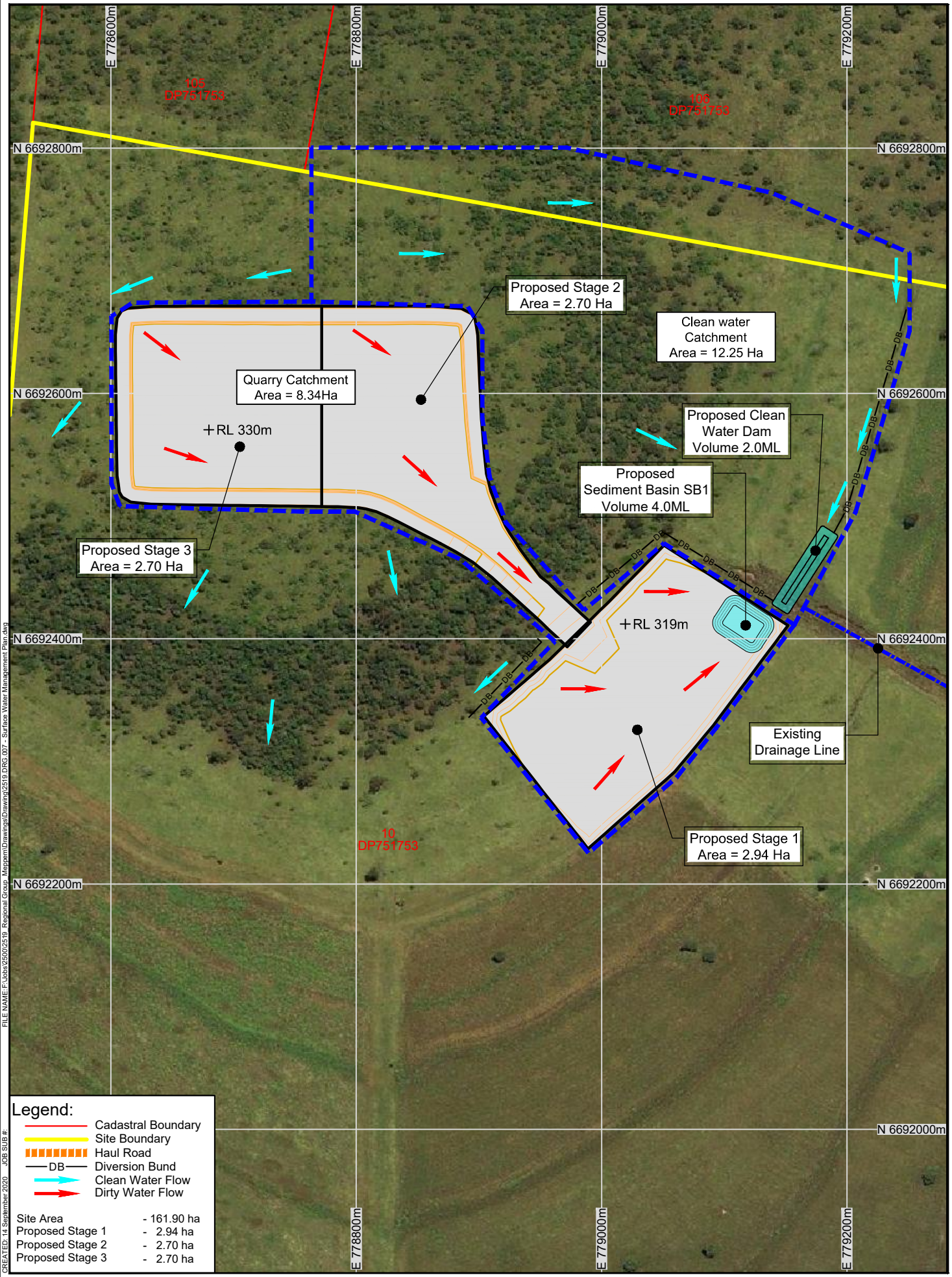
This assessment outlines the appropriate treatment measures and operational procedures to be adopted to integrate adequate stormwater management into daily operations and Site activity. Specifically, this document has prepared to ensure that appropriate measures have been developed to meet the requirements of the EIS for the development.

Operational procedures outlined in this SMP will assist to ensure compliance as a minimum standard.

7. Reference List

1. *International Erosion Control Association, Best Practice Erosion and Sediment Control: Book 2 and Book 4, 2008.*
2. DECC (2008) *Managing Urban Stormwater - Soils and Construction.*

figures



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attachments

Attachment 1

Sediment Basin Calculations

Sediment Basin Storage Volume Estimation
BASIN ID: SB1 (Developed Case)

$V_s = 10 * R_{(Y\%,\ 5\text{-}day)} * Cv * A$

A = 8.340 ha

$$C_{V(composite)} = \frac{C_{V(pervious)} \cdot (A - A_{(imp.)}) + A_{(imp.)}}{A}$$ Equation 4.12 (QUDM)

$C_{v\ (pervious)}$ = 0.80 Source: (Table B7, BPESC, IECA)

$F_{(imp)}$ = Adopted effective fraction impervious

$A_{(imp)}$ = 0 ha

$C_{v\ (composite)}$ = 0.8

$R_{(Y\%,\ 5\text{-}day)}$ = 50.1 mm

V_s = 3,343 m^3

V_s = 3.34 ML

$V_{SED} = 0.5 * V_s$

V_{SED} = 1.67 ML

1671 m^3

R (Y%, 5-day) Estimation (Source: BPESC, IECA, 2009)		
Location:	Meppem Quarry (Grafton Rainfall used)	
R(Y%)	90	
K1		
K2		
$I_{(1yr,\ 120hr)}$		
$R_{(Y\%,\ 5\text{-}day)}$ =		Equation B8
$R_{(Y\%,\ 5\text{-}day)}$ =		EPL
$R_{(Y\%,\ 5\text{-}day)}$ =	50.1	Adopted

RUSLE

V_{SED} = **[0.17 x A (R . K . LS x 1.3 x 1.0)] / 1.3**

A = **5.400** ha

R = $164.74\ (1.1177)^S\ S^{0.6444}$ .... S = 14.1 ... R = 4352.531

K = 0.03

LS = 2.81

C = 1

P = 1.3

A_{RUSLE} = 476.9939 t / ha / yr

A_{RUSLE} = 366.91838 m^3 / ha / yr

V_{SED} = 336.83108 m^3 / 2_{MONTH}

V_{SED} = 0.3368311 ML

Sediment Basin Requires a Upper Settling Volume of	**3.34**	**ML**
Sediment Basin Requires a Sediment Storage Volume of	**0.34**	**ML**
Total Sediment Basin Storage Volume is	**3.68**	**ML**

Attachment 2

Water Balance Assessment

Year	Month	Day	Daily Recorded Rainfall (mm)	Mean Daily Evaporation (mm)	Runoff Coefficient		Catchment Area - Quarry (m²)	Catchment Area - Clean (m²)	Inputs		Outputs		Volume of Water in Basin (m³)	Days Basin is empty	Predicted Frequency of Uncontrolled Discharge
					Quarry	Clean			Overland Flow runoff (m³)	Incidental Rainfall captured within Pond (m³)	Evaporation (m³)	Water Used in Operations (m³)			
2016	1	1	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2016	1	2	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2016	1	3	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2016	1	4	47.2	10.1	0.8	0.5	83410	122520	3149.5616	2891.472	17.675	154.4520548	5868.906545	0	1
2016	1	5	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5696.77949	0	0
2016	1	6	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5524.652436	0	0
2016	1	7	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5352.525381	0	0
2016	1	8	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5180.398326	0	0
2016	1	9	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5008.271271	0	0
2016	1	10	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4836.144216	0	0
2016	1	11	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4664.017162	0	0
2016	1	12	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4491.890107	0	0
2016	1	13	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4319.763052	0	0
2016	1	14	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4147.635997	0	0
2016	1	15	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3975.508942	0	0
2016	1	16	4.6	10.1	0.8	0.5	83410	122520	306.9488	281.796	17.675	154.4520548	4392.126688	0	0
2016	1	17	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4219.999633	0	0
2016	1	18	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4047.872578	0	0
2016	1	19	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3875.745523	0	0
2016	1	20	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3703.618468	0	0
2016	1	21	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3531.491414	0	0
2016	1	22	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3359.364359	0	0
2016	1	23	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3187.237304	0	0
2016	1	24	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3015.110249	0	0
2016	1	25	12.6	10.1	0.8	0.5	83410	122520	840.7728	771.876	17.675	154.4520548	4455.631995	0	1
2016	1	26	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	4283.50494	0	0
2016	1	27	11.6	10.1	0.8	0.5	83410	122520	774.0448	710.616	17.675	154.4520548	5596.038685	0	1
2016	1	28	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5423.91163	0	0
2016	1	29	36.2	10.1	0.8	0.5	83410	122520	2415.5536	2217.612	17.675	154.4520548	6000	0	1
2016	1	30	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	5827.872945	0	0
2016	1	31	15	10.1	0.8	0.5	83410	122520	1000.92	918.9	17.675	154.4520548	6000	0	1
2016	2	1	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5829.622945	0	0
2016	2	2	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5659.24589	0	0
2016	2	3	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5488.868836	0	0
2016	2	4	11	9.1	0.8	0.5	83410	122520	734.008	673.86	15.925	154.4520548	6000	0	1
2016	2	5	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5829.622945	0	0
2016	2	6	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5659.24589	0	0
2016	2	7	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5488.868836	0	0
2016	2	8	1.2	9.1	0.8	0.5	83410	122520	80.0736	73.512	15.925	154.4520548	5472.077381	0	0
2016	2	9	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5301.700326	0	0
2016	2	10	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5131.323271	0	0
2016	2	11	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4960.946216	0	0
2016	2	12	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4790.569162	0	0
2016	2	13	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4620.192107	0	0
2016	2	14	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4449.815052	0	0
2016	2	15	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4279.437997	0	0
2016	2	16	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4109.060942	0	0
2016	2	17	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3938.683888	0	0
2016	2	18	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3768.306833	0	0
2016	2	19	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3597.929778	0	0
2016	2	20	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3427.552723	0	0
2016	2	21	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3257.175668	0	0
2016	2	22	9.2	9.1	0.8	0.5	83410	122520	613.8976	563.592	15.925	154.4520548	4264.288214	0	0
2016	2	23	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4093.911159	0	0
2016	2	24	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3923.534104	0	0
2016	2	25	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3753.157049	0	0
2016	2	26	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3582.779995	0	0
2016	2	27	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3412.40294	0	0
2016	2	28	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3242.025885	0	0
2016	2	29	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3071.64883	0	0
2016	3	1	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2903.721775	0	0
2016	3	2	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2735.794721	0	0
2016	3	3	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2567.867666	0	0
2016	3	4	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2399.940611	0	0
2016	3	5	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2232.013556	0	0
2016	3	6	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2064.086501	0	0
2016	3	7	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1896.159447	0	0
2016	3	8	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1728.232392	0	0
2016	3	9	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1560.305337	0	0
2016	3	10	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1392.378282	0	0
2016	3	11	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1224.451227	0	0
2016	3	12	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1056.524173	0	0
2016	3	13	5.6	7.7	0.8	0.5	83410	122520	373.6768	343.056	13.475	154.4520548	1605.329918	0	0
2016	3	14	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1437.402863	0	0
2016	3	15	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1269.475808	0	0
2016	3	16	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1101.548753	0	0
2016	3	17	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	933.6216986	0	0
2016	3	18	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	765.6946438	0	0
2016	3	19	14.6	7.7	0.8	0.5	83410	122520	974.2288	894.396	13.475	154.4520548	2466.392389	0	0
2016	3	20	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2298.465334	0	0
2016	3	21	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2130.538279	0	0
2016	3	22	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1962.611225	0	0
2016	3	23	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1794.68417	0	0
2016	3	24	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1626.757115	0	0
2016	3	25	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1458.83006	0	0
2016	3	26	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1290.903005	0	0
2016	3	27	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1122.975951	0	0
2016	3	28	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	955.0488959	0	0
2016	3	29	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	787.1218411	0	0
2016	3	30	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	619.1947863	0	0
2016	3	31	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	451.2677315	0	0
2016	4	1	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	286.8406767	0	0
2016	4	2	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	122.4136219	0	0
2016	4	3	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	4	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	5	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	6	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	7	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	8	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	9	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	10	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	11	8.8	5.7	0.8	0.5	83410	122520	587.2064	539.088	9.975	154.4520548	961.8673452	0	0
2016	4	12	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	797.4402904	0	0
2016	4	13	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	633.0132356	0	0
2016	4	14	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	468.5861808	0	0
2016	4	15	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	304.159126	0	0
2016	4	16	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	139.7320712	0	0
2016	4	17	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	18	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	19	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	20	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	21	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	22	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	23	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	24	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	25	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	26	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	27	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	28	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	29	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	4	30	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2016	5	1	6	3.7	0.8	0.5	83410	122520	400.368	367.56	6.475	154.4520548	607.0009452	0	0
2016	5	2	12	3.7	0.8	0.5	83410	122520	800.736	735.12	6.475	154.4520548	1981.92989	0	0
2016	5	3	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1821.002836	0	0
2016	5	4	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1660.075781	0	0
2016	5	5	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1499.148726	0	0
2016	5	6	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1338.221671	0	0
2016	5	7	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1177.294616	0	0
2016	5	8	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1016.367562	0	0
2016	5	9	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	855.4405068	0	0
2016	5	10	3.8	3.7	0.8	0.5	83410	122520	253.5664	232.788	6.475	154.4520548	1180.867852	0	0
2016	5	11	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1019.940797	0	0
2016	5	12	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	859.0137425	0	0
2016	5	13	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	698.0866877	0	0
2016	5	14	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	537.1596329	0	0
2016	5	15	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	376.2325781	0	0
2016	5	16	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	215.3055233	0	0
2016	5	17	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	54.37846849	0	0
2016	5	18	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0

2016	5	19	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	20	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	21	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	22	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	23	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	24	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	25	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	26	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2016	5	27	13.2	3.7	0.8	0.5	83410	122520	880.8096	808.632	6.475	154.4520548	1528.514545	0	0
2016	5	28	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1367.58749	0	0
2016	5	29	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1206.660436	0	0
2016	5	30	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	1045.733381	0	0
2016	5	31	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	884.806326	0	0
2016	6	1	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	725.8042712	0	0
2016	6	2	5.8	2.6	0.8	0.5	83410	122520	387.0224	355.308	4.55	154.4520548	1309.132616	0	0
2016	6	3	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	1150.130562	0	0
2016	6	4	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	991.1285068	0	0
2016	6	5	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	832.1264521	0	0
2016	6	6	28.4	2.6	0.8	0.5	83410	122520	1895.0752	1739.784	4.55	154.4520548	4307.983597	0	1
2016	6	7	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	4148.981542	0	0
2016	6	8	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3989.979488	0	0
2016	6	9	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3830.977433	0	0
2016	6	10	2	2.6	0.8	0.5	83410	122520	133.456	122.52	4.55	154.4520548	3927.951378	0	0
2016	6	11	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3768.949323	0	0
2016	6	12	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3609.947268	0	0
2016	6	13	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3450.945214	0	0
2016	6	14	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3291.943159	0	0
2016	6	15	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	3132.941104	0	0
2016	6	16	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	2973.939049	0	0
2016	6	17	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	2814.936995	0	0
2016	6	18	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	2655.93494	0	0
2016	6	19	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	2496.932885	0	0
2016	6	20	26	2.6	0.8	0.5	83410	122520	1734.928	1592.76	4.55	154.4520548	5665.61883	0	1
2016	6	21	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5506.616775	0	0
2016	6	22	6	2.6	0.8	0.5	83410	122520	400.368	367.56	4.55	154.4520548	6000	0	1
2016	6	23	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5840.997945	0	0
2016	6	24	5.4	2.6	0.8	0.5	83410	122520	360.3312	330.804	4.55	154.4520548	6000	0	1
2016	6	25	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5840.997945	0	0
2016	6	26	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5681.99589	0	0
2016	6	27	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5522.993836	0	0
2016	6	28	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5363.991781	0	0
2016	6	29	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5204.989726	0	0
2016	6	30	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	5045.987671	0	0
2016	7	1	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4886.810616	0	0
2016	7	2	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4727.633562	0	0
2016	7	3	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4568.456507	0	0
2016	7	4	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4409.279452	0	0
2016	7	5	11.4	2.7	0.8	0.5	83410	122520	760.6992	698.364	4.725	154.4520548	5709.165597	0	1
2016	7	6	2	2.7	0.8	0.5	83410	122520	133.456	122.52	4.725	154.4520548	5805.964542	0	1
2016	7	7	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	5646.787488	0	0
2016	7	8	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	5487.610433	0	0
2016	7	9	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	5328.433378	0	0
2016	7	10	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	5169.256323	0	0
2016	7	11	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	5010.079268	0	0
2016	7	12	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4850.902214	0	0
2016	7	13	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4691.725159	0	0
2016	7	14	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4532.548104	0	0
2016	7	15	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4373.371049	0	0
2016	7	16	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4214.193995	0	0
2016	7	17	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4055.01694	0	0
2016	7	18	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3895.839885	0	0
2016	7	19	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3736.66283	0	0
2016	7	20	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3577.485775	0	0
2016	7	21	6.4	2.7	0.8	0.5	83410	122520	427.0592	392.064	4.725	154.4520548	4237.431921	0	0
2016	7	22	2.8	2.7	0.8	0.5	83410	122520	186.8384	171.528	4.725	154.4520548	4436.621266	0	0
2016	7	23	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4277.444211	0	0
2016	7	24	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	4118.267156	0	0
2016	7	25	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3959.090101	0	0
2016	7	26	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3799.913047	0	0
2016	7	27	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3640.735992	0	0
2016	7	28	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3481.558937	0	0
2016	7	29	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3322.381882	0	0
2016	7	30	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3163.204827	0	0
2016	7	31	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	3004.027773	0	0
2016	8	1	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	2842.750718	0	0
2016	8	2	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	2681.473663	0	0
2016	8	3	16.4	3.9	0.8	0.5	83410	122520	1094.3392	1004.664	6.825	154.4520548	4619.199808	0	1
2016	8	4	12	3.9	0.8	0.5	83410	122520	800.736	735.12	6.825	154.4520548	5993.778753	0	1
2016	8	5	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5832.501699	0	0
2016	8	6	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5671.224644	0	0
2016	8	7	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5509.947589	0	0
2016	8	8	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5348.670534	0	0
2016	8	9	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5187.393479	0	0
2016	8	10	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5026.116425	0	0
2016	8	11	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	4864.83937	0	0
2016	8	12	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	4703.562315	0	0
2016	8	13	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	4542.28526	0	0
2016	8	14	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	4381.008205	0	0
2016	8	15	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	4219.731151	0	0
2016	8	16	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	4058.454096	0	0
2016	8	17	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	3897.177041	0	0
2016	8	18	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	3735.899986	0	0
2016	8	19	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	3574.622932	0	0
2016	8	20	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	3413.345877	0	0
2016	8	21	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	3252.068822	0	0
2016	8	22	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	3090.791767	0	0
2016	8	23	45	3.9	0.8	0.5	83410	122520	3002.76	2756.7	6.825	154.4520548	6000	0	1
2016	8	24	18.6	3.9	0.8	0.5	83410	122520	1241.1408	1139.436	6.825	154.4520548	6000	0	1
2016	8	25	13.8	3.9	0.8	0.5	83410	122520	920.8464	845.388	6.825	154.4520548	6000	0	1
2016	8	26	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5838.722945	0	0
2016	8	27	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5677.44589	0	0
2016	8	28	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5516.168836	0	0
2016	8	29	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5354.891781	0	0
2016	8	30	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5193.614726	0	0
2016	8	31	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	5032.337671	0	0
2016	9	1	14	5.6	0.8	0.5	83410	122520	934.192	857.64	9.8	154.4520548	6000	0	1
2016	9	2	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5835.747945	0	0
2016	9	3	20	5.6	0.8	0.5	83410	122520	1334.56	1225.2	9.8	154.4520548	6000	0	1
2016	9	4	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5835.747945	0	0
2016	9	5	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5671.49589	0	0
2016	9	6	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5507.243836	0	0
2016	9	7	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5342.991781	0	0
2016	9	8	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5178.739726	0	0
2016	9	9	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5014.487671	0	0
2016	9	10	14.6	5.6	0.8	0.5	83410	122520	974.2288	894.396	9.8	154.4520548	6000	0	1
2016	9	11	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5835.747945	0	0
2016	9	12	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5671.49589	0	0
2016	9	13	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5507.243836	0	0
2016	9	14	45.2	5.6	0.8	0.5	83410	122520	3016.1056	2768.952	9.8	154.4520548	6000	0	1
2016	9	15	15	5.6	0.8	0.5	83410	122520	1000.92	918.9	9.8	154.4520548	6000	0	1
2016	9	16	7.4	5.6	0.8	0.5	83410	122520	493.7872	453.324	9.8	154.4520548	6000	0	1
2016	9	17	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5835.747945	0	0
2016	9	18	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5671.49589	0	0
2016	9	19	8.2	5.6	0.8	0.5	83410	122520	547.1696	502.332	9.8	154.4520548	6000	0	1
2016	9	20	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5835.747945	0	0
2016	9	21	8	5.6	0.8	0.5	83410	122520	533.824	490.08	9.8	154.4520548	6000	0	1
2016	9	22	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5835.747945	0	0
2016	9	23	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5671.49589	0	0
2016	9	24	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5507.243836	0	0
2016	9	25	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5342.991781	0	0
2016	9	26	5.6	5.6	0.8	0.5	83410	122520	373.6768	343.056	9.8	154.4520548	5895.472526	0	1
2016	9	27	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5731.220471	0	0
2016	9	28	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	5566.968416	0	0
2016	9	29	1.2	5.6	0.8	0.5	83410	122520	80.0736	73.512	9.8	154.4520548	5556.301962	0	0
2016	9	30	4	5.6	0.8	0.5	83410	122520	266.912	245.04	9.8	154.4520548	5904.001907	0	1
2016	10	1	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5736.074852	0	0
2016	10	2	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5568.147797	0	0
2016	10	3	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5400.220742	0	0
2016	10	4	7.4	7.7	0.8	0.5	83410	122520	493.7872	453.324	13.475	154.4520548	6000	0	1
2016	10	5	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5832.072945	0	0
2016	10	6	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5664.14589	0	0
2016	10	7	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5496.218836	0	0
2016	10	8	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5328.291781	0	0
2016	10	9	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5160.364726	0	0
2016	10	10	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4992.437671	0	0

2016	10	11	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4824.510616	0	0
2016	10	12	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4656.583562	0	0
2016	10	13	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4488.656507	0	0
2016	10	14	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4320.729452	0	0
2016	10	15	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4152.802397	0	0
2016	10	16	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3984.875342	0	0
2016	10	17	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3816.948288	0	0
2016	10	18	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3649.021233	0	0
2016	10	19	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3481.094178	0	0
2016	10	20	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3313.167123	0	0
2016	10	21	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3145.240068	0	0
2016	10	22	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2977.313014	0	0
2016	10	23	39.2	7.7	0.8	0.5	83410	122520	2615.7376	2401.392	13.475	154.4520548	6000	0	1
2016	10	24	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5832.072945	0	0
2016	10	25	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5664.14589	0	0
2016	10	26	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5496.218836	0	0
2016	10	27	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5328.291781	0	0
2016	10	28	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	5160.364726	0	0
2016	10	29	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4992.437671	0	0
2016	10	30	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4824.510616	0	0
2016	10	31	14	7.7	0.8	0.5	83410	122520	934.192	857.64	13.475	154.4520548	6000	0	1
2016	11	1	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5829.447945	0	0
2016	11	2	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5658.89589	0	0
2016	11	3	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5488.343836	0	0
2016	11	4	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5317.791781	0	0
2016	11	5	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5147.239726	0	0
2016	11	6	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4976.687671	0	0
2016	11	7	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4806.135616	0	0
2016	11	8	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4635.583562	0	0
2016	11	9	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4465.031507	0	0
2016	11	10	12.2	9.2	0.8	0.5	83410	122520	814.0816	747.372	16.1	154.4520548	5855.933052	0	1
2016	11	11	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5685.380997	0	0
2016	11	12	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5514.828942	0	0
2016	11	13	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5344.276888	0	0
2016	11	14	9.2	9.2	0.8	0.5	83410	122520	613.8976	563.592	16.1	154.4520548	6000	0	1
2016	11	15	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5829.447945	0	0
2016	11	16	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5658.89589	0	0
2016	11	17	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5488.343836	0	0
2016	11	18	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5317.791781	0	0
2016	11	19	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5147.239726	0	0
2016	11	20	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4976.687671	0	0
2016	11	21	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4806.135616	0	0
2016	11	22	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4635.583562	0	0
2016	11	23	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4465.031507	0	0
2016	11	24	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4294.479452	0	0
2016	11	25	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4123.927397	0	0
2016	11	26	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3953.375342	0	0
2016	11	27	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3782.823288	0	0
2016	11	28	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3612.271233	0	0
2016	11	29	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3441.719178	0	0
2016	11	30	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3271.167123	0	0
2016	12	1	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3099.565068	0	0
2016	12	2	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2927.963014	0	0
2016	12	3	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2756.360959	0	0
2016	12	4	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2584.758904	0	0
2016	12	5	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2413.156849	0	0
2016	12	6	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2241.554795	0	0
2016	12	7	4.6	9.8	0.8	0.5	83410	122520	306.9488	281.796	17.15	154.4520548	2658.69754	0	0
2016	12	8	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2487.095485	0	0
2016	12	9	8.8	9.8	0.8	0.5	83410	122520	587.2064	539.088	17.15	154.4520548	3441.78783	0	0
2016	12	10	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3270.185775	0	0
2016	12	11	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3098.583721	0	0
2016	12	12	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2926.981666	0	0
2016	12	13	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2755.379611	0	0
2016	12	14	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2583.777556	0	0
2016	12	15	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2412.175501	0	0
2016	12	16	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2240.573447	0	0
2016	12	17	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2068.971392	0	0
2016	12	18	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	1897.369337	0	0
2016	12	19	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	1725.767282	0	0
2016	12	20	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	1554.165227	0	0
2016	12	21	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	1382.563173	0	0
2016	12	22	18.4	9.8	0.8	0.5	83410	122520	1227.7952	1127.184	17.15	154.4520548	3565.940318	0	0
2016	12	23	10.2	9.8	0.8	0.5	83410	122520	680.6256	624.852	17.15	154.4520548	4699.815863	0	1
2016	12	24	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4528.213808	0	0
2016	12	25	7.8	9.8	0.8	0.5	83410	122520	520.4784	477.828	17.15	154.4520548	5354.918153	0	1
2016	12	26	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	5183.316099	0	0
2016	12	27	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	5011.714044	0	0
2016	12	28	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4840.111989	0	0
2016	12	29	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4668.509934	0	0
2016	12	30	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4496.907879	0	0
2016	12	31	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4325.305825	0	0
									46015.6288	42244.896	4148.375	56529.45205		34	34

Year	Month	Day	Daily Recorded Rainfall (mm)	Mean Daily Evaporation (mm)	Runoff Coefficient		Catchment Area - Quarry (m²)	Catchment Area - Clean (m²)	Inputs		Outputs		Volume of Harvested Water Remaining (m³)	Days Basin is empty	Predicted Frequency of Uncontrolled Discharge
					Quarry	Clean			Overland Flow Quarry (m³)	Overland Flow Clean Dam (m³)	Evaporation (m³)	Water Used in Operations (m³)			
2018	1	1	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	2	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	3000	0	0
2018	1	3	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2827.872945	0	0
2018	1	4	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2655.74589	0	0
2018	1	5	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2483.618836	0	0
2018	1	6	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2311.491781	0	0
2018	1	7	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2139.364726	0	0
2018	1	8	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	1967.237671	0	0
2018	1	9	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	1795.110616	0	0
2018	1	10	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	1622.983562	0	0
2018	1	11	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	1450.856507	0	0
2018	1	12	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	1278.729452	0	0
2018	1	13	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	1106.602397	0	0
2018	1	14	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	934.4753425	0	0
2018	1	15	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	762.3482877	0	0
2018	1	16	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	590.2212329	0	0
2018	1	17	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	418.0941781	0	0
2018	1	18	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	245.9671233	0	0
2018	1	19	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	73.84006849	0	0
2018	1	20	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	21	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	22	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	23	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	24	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	25	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	26	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	27	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	28	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	0	1	0
2018	1	29	25.4	10.1	0.8	0.5	83410	122520	1694.8912	1556.004	17.675	154.4520548	3078.768145	0	1
2018	1	30	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2906.64109	0	0
2018	1	31	0	10.1	0.8	0.5	83410	122520	0	0	17.675	154.4520548	2734.514036	0	0
2018	2	1	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2564.136981	0	0
2018	2	2	24	9.1	0.8	0.5	83410	122520	1601.472	1470.24	15.925	154.4520548	5465.471926	0	1
2018	2	3	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5295.094871	0	0
2018	2	4	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	5124.717816	0	0
2018	2	5	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4954.340762	0	0
2018	2	6	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4783.963707	0	0
2018	2	7	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4613.586652	0	0
2018	2	8	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4443.209597	0	0
2018	2	9	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4272.832542	0	0
2018	2	10	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4102.455488	0	0
2018	2	11	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3932.078433	0	0
2018	2	12	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3761.701378	0	0
2018	2	13	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3591.324323	0	0
2018	2	14	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3420.947268	0	0
2018	2	15	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3250.570214	0	0
2018	2	16	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3080.193159	0	0
2018	2	17	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2909.816104	0	0
2018	2	18	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2739.439049	0	0
2018	2	19	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2569.061995	0	0
2018	2	20	6.2	9.1	0.8	0.5	83410	122520	413.7136	379.812	15.925	154.4520548	3192.21054	0	0
2018	2	21	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	3021.833485	0	0
2018	2	22	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2851.45643	0	0
2018	2	23	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2681.079375	0	0
2018	2	24	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2510.702321	0	0
2018	2	25	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	2340.325266	0	0
2018	2	26	22	9.1	0.8	0.5	83410	122520	1468.016	1347.72	15.925	154.4520548	4985.684211	0	1
2018	2	27	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4815.307156	0	0
2018	2	28	0	9.1	0.8	0.5	83410	122520	0	0	15.925	154.4520548	4644.930101	0	0
2018	3	1	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4477.003047	0	0
2018	3	2	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4309.075992	0	0
2018	3	3	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4141.148937	0	0
2018	3	4	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3973.221882	0	0
2018	3	5	1	7.7	0.8	0.5	83410	122520	66.728	61.26	13.475	154.4520548	3933.282827	0	0
2018	3	6	8.6	7.7	0.8	0.5	83410	122520	573.8608	526.836	13.475	154.4520548	4866.052573	0	0
2018	3	7	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4698.125518	0	0
2018	3	8	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4530.198463	0	0
2018	3	9	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4362.271408	0	0
2018	3	10	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4194.344353	0	0
2018	3	11	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4026.417299	0	0
2018	3	12	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3858.490244	0	0
2018	3	13	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3690.563189	0	0
2018	3	14	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3522.636134	0	0
2018	3	15	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3354.709079	0	0
2018	3	16	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3186.782025	0	0
2018	3	17	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3018.85497	0	0
2018	3	18	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2850.927915	0	0
2018	3	19	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2683.00086	0	0
2018	3	20	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2515.073805	0	0
2018	3	21	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2347.146751	0	0
2018	3	22	1.6	7.7	0.8	0.5	83410	122520	106.7648	98.016	13.475	154.4520548	2384.000496	0	0
2018	3	23	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2216.073441	0	0
2018	3	24	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	2048.146386	0	0
2018	3	25	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1880.219332	0	0
2018	3	26	2.2	7.7	0.8	0.5	83410	122520	146.8016	134.772	13.475	154.4520548	1993.865877	0	0
2018	3	27	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1825.938822	0	0
2018	3	28	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1658.011767	0	0
2018	3	29	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1490.084712	0	0
2018	3	30	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1322.157658	0	0
2018	3	31	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1154.230603	0	0
2018	4	1	22.2	5.7	0.8	0.5	83410	122520	1481.3616	1359.972	9.975	154.4520548	3831.137148	0	1
2018	4	2	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	3666.710093	0	0
2018	4	3	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	3502.283038	0	0
2018	4	4	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	3337.855984	0	0
2018	4	5	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	3173.428929	0	0
2018	4	6	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	3009.001874	0	0
2018	4	7	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	2844.574819	0	0
2018	4	8	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	2680.147764	0	0
2018	4	9	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	2515.72071	0	0
2018	4	10	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	2351.293655	0	0
2018	4	11	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	2186.8666	0	0
2018	4	12	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	2022.439545	0	0
2018	4	13	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	1858.01249	0	0
2018	4	14	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	1693.585436	0	0
2018	4	15	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	1529.158381	0	0
2018	4	16	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	1364.731326	0	0
2018	4	17	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	1200.304271	0	0
2018	4	18	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	1035.877216	0	0
2018	4	19	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	871.4501616	0	0
2018	4	20	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	707.0231068	0	0
2018	4	21	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	542.5960521	0	0
2018	4	22	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	378.1689973	0	0
2018	4	23	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	213.7419425	0	0
2018	4	24	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	49.31488767	0	0
2018	4	25	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2018	4	26	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2018	4	27	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2018	4	28	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2018	4	29	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2018	4	30	0	5.7	0.8	0.5	83410	122520	0	0	9.975	154.4520548	0	1	0
2018	5	1	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	2	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	3	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	4	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	5	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	6	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	7	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	8	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	9	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	10	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	11	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	12	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	13	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	14	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	15	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	16	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	17	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	18	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	19	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	20	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0

2018	5	21	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	22	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	23	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	24	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	25	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	26	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	27	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	28	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	29	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	30	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	5	31	0	3.7	0.8	0.5	83410	122520	0	0	6.475	154.4520548	0	1	0
2018	6	1	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	2	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	3	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	4	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	5	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	6	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	7	1.2	2.6	0.8	0.5	83410	122520	80.0736	73.512	4.55	154.4520548	0	1	0
2018	6	8	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	9	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	10	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	11	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	12	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	13	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	14	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	15	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	16	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	17	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	18	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	19	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	20	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	21	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	22	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	23	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	24	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	25	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	26	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	27	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	28	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	29	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	6	30	0	2.6	0.8	0.5	83410	122520	0	0	4.55	154.4520548	0	1	0
2018	7	1	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	2	13.4	2.7	0.8	0.5	83410	122520	894.1552	820.884	4.725	154.4520548	1555.862145	0	0
2018	7	3	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	1396.68509	0	0
2018	7	4	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	1237.508036	0	0
2018	7	5	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	1078.330981	0	0
2018	7	6	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	919.153926	0	0
2018	7	7	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	759.9768712	0	0
2018	7	8	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	600.7998164	0	0
2018	7	9	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	441.6227616	0	0
2018	7	10	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	282.4457068	0	0
2018	7	11	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	123.2686521	0	0
2018	7	12	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	13	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	14	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	15	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	16	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	17	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	18	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	19	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	20	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	21	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	22	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	23	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	24	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	25	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	26	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	27	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	28	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	29	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	30	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	7	31	0	2.7	0.8	0.5	83410	122520	0	0	4.725	154.4520548	0	1	0
2018	8	1	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	2	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	3	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	4	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	5	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	6	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	7	4	3.9	0.8	0.5	83410	122520	266.912	245.04	6.825	154.4520548	350.6749452	0	0
2018	8	8	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	189.3978904	0	0
2018	8	9	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	28.12083562	0	0
2018	8	10	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	11	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	12	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	13	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	14	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	15	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	16	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	17	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	18	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	19	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	20	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	21	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	22	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	23	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	24	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	25	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	26	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	0	1	0
2018	8	27	24.8	3.9	0.8	0.5	83410	122520	1654.8544	1519.248	6.825	154.4520548	3012.825345	0	1
2018	8	28	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	2851.54829	0	0
2018	8	29	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	2690.271236	0	0
2018	8	30	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	2528.994181	0	0
2018	8	31	0	3.9	0.8	0.5	83410	122520	0	0	6.825	154.4520548	2367.717126	0	0
2018	9	1	2	5.6	0.8	0.5	83410	122520	133.456	122.52	9.8	154.4520548	2459.441071	0	0
2018	9	2	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	2295.189016	0	0
2018	9	3	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	2130.936962	0	0
2018	9	4	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1966.684907	0	0
2018	9	5	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1802.432852	0	0
2018	9	6	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1638.180797	0	0
2018	9	7	3.8	5.6	0.8	0.5	83410	122520	253.5664	232.788	9.8	154.4520548	1960.283142	0	0
2018	9	8	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1796.031088	0	0
2018	9	9	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1631.779033	0	0
2018	9	10	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1467.526978	0	0
2018	9	11	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1303.274923	0	0
2018	9	12	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	1139.022868	0	0
2018	9	13	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	974.7708137	0	0
2018	9	14	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	810.5187589	0	0
2018	9	15	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	646.2667041	0	0
2018	9	16	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	482.0146493	0	0
2018	9	17	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	317.7625945	0	0
2018	9	18	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	153.5105397	0	0
2018	9	19	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	20	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	21	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	22	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	23	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	24	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	25	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	26	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	27	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	28	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	29	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	9	30	0	5.6	0.8	0.5	83410	122520	0	0	9.8	154.4520548	0	1	0
2018	10	1	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	0	1	0
2018	10	2	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	0	1	0
2018	10	3	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	0	1	0
2018	10	4	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	0	1	0
2018	10	5	7.2	7.7	0.8	0.5	83410	122520	480.4416	441.072	13.475	154.4520548	753.5865452	0	0
2018	10	6	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	585.6594904	0	0
2018	10	7	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	417.7324356	0	0
2018	10	8	4.4	7.7	0.8	0.5	83410	122520	293.6032	269.544	13.475	154.4520548	812.9525808	0	0
2018	10	9	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	645.025526	0	0
2018	10	10	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	477.0984712	0	0
2018	10	11	7.8	7.7	0.8	0.5	83410	122520	520.4784	477.828	13.475	154.4520548	1307.477816	0	0
2018	10	12	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1139.550762	0	0

2018	10	13	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	971.6237068	0	0
2018	10	14	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	803.6966521	0	0
2018	10	15	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	635.7695973	0	0
2018	10	16	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	467.8425425	0	0
2018	10	17	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	299.9154877	0	0
2018	10	18	9.8	7.7	0.8	0.5	83410	122520	653.9344	600.348	13.475	154.4520548	1386.270833	0	0
2018	10	19	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1218.343778	0	0
2018	10	20	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	1050.416723	0	0
2018	10	21	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	882.4896685	0	0
2018	10	22	29.8	7.7	0.8	0.5	83410	122520	1988.4944	1825.548	13.475	154.4520548	4528.605014	0	1
2018	10	23	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4360.677959	0	0
2018	10	24	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4192.750904	0	0
2018	10	25	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	4024.823849	0	0
2018	10	26	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3856.896795	0	0
2018	10	27	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3688.96974	0	0
2018	10	28	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3521.042685	0	0
2018	10	29	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3353.11563	0	0
2018	10	30	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3185.188575	0	0
2018	10	31	0	7.7	0.8	0.5	83410	122520	0	0	13.475	154.4520548	3017.261521	0	0
2018	11	1	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2846.709466	0	0
2018	11	2	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2676.157411	0	0
2018	11	3	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2505.605356	0	0
2018	11	4	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2335.053301	0	0
2018	11	5	3	9.2	0.8	0.5	83410	122520	200.184	183.78	16.1	154.4520548	2548.465247	0	0
2018	11	6	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2377.913192	0	0
2018	11	7	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2207.361137	0	0
2018	11	8	18.6	9.2	0.8	0.5	83410	122520	1241.1408	1139.436	16.1	154.4520548	4417.385882	0	1
2018	11	9	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4246.833827	0	0
2018	11	10	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4076.281773	0	0
2018	11	11	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3905.729718	0	0
2018	11	12	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3735.177663	0	0
2018	11	13	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3564.625608	0	0
2018	11	14	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3394.073553	0	0
2018	11	15	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3223.521499	0	0
2018	11	16	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	3052.969444	0	0
2018	11	17	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2882.417389	0	0
2018	11	18	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2711.865334	0	0
2018	11	19	3.4	9.2	0.8	0.5	83410	122520	226.8752	208.284	16.1	154.4520548	2976.472479	0	0
2018	11	20	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	2805.920425	0	0
2018	11	21	10.4	9.2	0.8	0.5	83410	122520	693.9712	637.104	16.1	154.4520548	3966.44357	0	0
2018	11	22	43.4	9.2	0.8	0.5	83410	122520	2895.9952	2658.684	16.1	154.4520548	6000	0	1
2018	11	23	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5829.447945	0	0
2018	11	24	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5658.89589	0	0
2018	11	25	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5488.343836	0	0
2018	11	26	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5317.791781	0	0
2018	11	27	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	5147.239726	0	0
2018	11	28	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4976.687671	0	0
2018	11	29	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4806.135616	0	0
2018	11	30	0	9.2	0.8	0.5	83410	122520	0	0	16.1	154.4520548	4635.583562	0	0
2018	12	1	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4463.981507	0	0
2018	12	2	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4292.379452	0	0
2018	12	3	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4120.777397	0	0
2018	12	4	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3949.175342	0	0
2018	12	5	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3777.573288	0	0
2018	12	6	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3605.971233	0	0
2018	12	7	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3434.369178	0	0
2018	12	8	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3262.767123	0	0
2018	12	9	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3091.165068	0	0
2018	12	10	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2919.563014	0	0
2018	12	11	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2747.960959	0	0
2018	12	12	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2576.358904	0	0
2018	12	13	7.6	9.8	0.8	0.5	83410	122520	507.1328	465.576	17.15	154.4520548	3377.465649	0	0
2018	12	14	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3205.863595	0	0
2018	12	15	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3034.26154	0	0
2018	12	16	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2862.659485	0	0
2018	12	17	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2691.05743	0	0
2018	12	18	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2519.455375	0	0
2018	12	19	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2347.853321	0	0
2018	12	20	12.4	9.8	0.8	0.5	83410	122520	827.4272	759.624	17.15	154.4520548	3763.302466	0	0
2018	12	21	4.6	9.8	0.8	0.5	83410	122520	306.9488	281.796	17.15	154.4520548	4180.445211	0	0
2018	12	22	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	4008.843156	0	0
2018	12	23	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3837.241101	0	0
2018	12	24	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3665.639047	0	0
2018	12	25	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3494.036992	0	0
2018	12	26	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3322.434937	0	0
2018	12	27	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	3150.832882	0	0
2018	12	28	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2979.230827	0	0
2018	12	29	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2807.628773	0	0
2018	12	30	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2636.026718	0	0
2018	12	31	0	9.8	0.8	0.5	83410	122520	0	0	17.15	154.4520548	2464.424663	0	0
									21673.2544	19897.248	4132.45	56375		137	8