



ENVIRONMENT PROTECTION LICENCE NO: 21029

September 2019 Monthly Report

FOR

**Princes Highway Upgrade
between Berry and Bomaderry**

Document control

File name	DSWJV-EPL21029-September-2019
Report name	Environment Protection Licence 21029 September 2019 Monthly Report – Princes Highway Upgrade between Berry and Bomaderry
Revision number	1

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Revision history

Revision	Date	Description	Approval
0	11/10/2019	Draft	
1	14/10/2019	Final	J.McKenzie / M. Phillips-Ryder

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1 INTRODUCTION

The Downer Seymour Whyte Joint Venture (DSWJV) is contracted by Roads and Maritime Services (Roads and Maritime) to upgrade 10.3 kilometres of the Princes Highway between Mullers Lane (south of Berry) and Cambewarra Road, Bomaderry in New South Wales (NSW) (the Project). The project will provide a four-lane divided highway (two lanes in each direction) with median separation.

The project is one of a series of upgrades to sections of the Princes Highway which aims to provide a four-lane divided highway between Waterfall and Jervis Bay Road, Falls Creek. This would improve road safety and traffic efficiency, including for freight, on the NSW South Coast.

Figure 1 provides an overview of the project location.

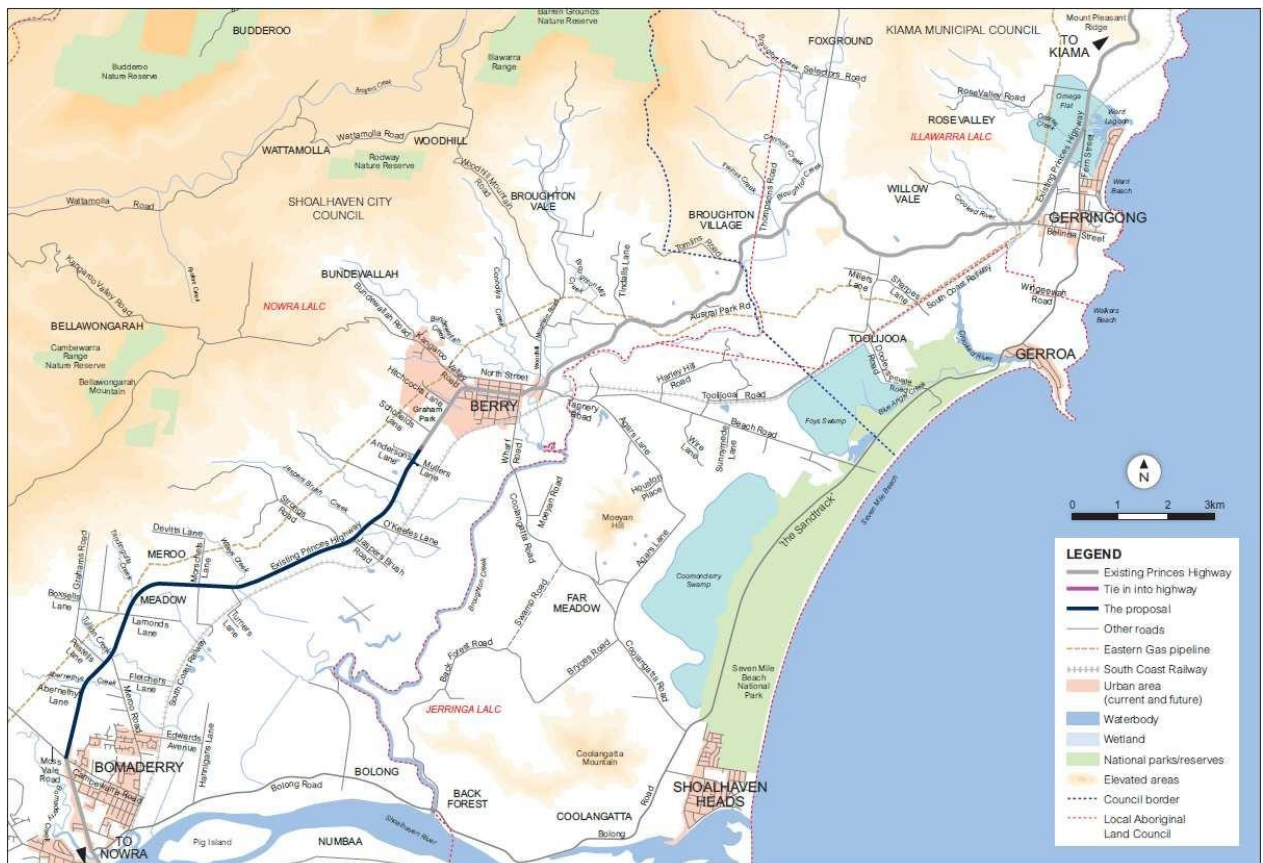


Figure 1-1 Project location

This report provides the results of monitoring undertaken during September 2019 as required by the project’s Environment Protection Licence (EPL 21029) Condition R4.1.

2 NON-COMPLIANCES

Two non-compliances occurred during September:

1. A discharge of dirty water (high turbidity levels) occurred downstream of a work site in Tullian Creek during September. Sediment-laden water pooled and overtopped from the adjacent construction access track into the creek diversion through the rock of the temporary crossing. This occurred after approximately 30mm of rainfall. The non-compliance was identified during post-rainfall inspections, and once identified, additional controls were put in place to prevent any further discharge.
2. A discharge of dirty water (high turbidity) occurred offsite into an adjacent paddock near the newly constructed Lamonds Service Road. An area of new fill south of Lamonds Lane filled with water after approximately 20mm of rainfall overnight. An attempt was made to release the water to the constructed temporary batter chutes. The volume of water scoured out the batter however and sediment-laden water entered the clean water drain and breached the sediment fence at the site boundary, entering the adjacent grassy paddock. No waterways were impacted and no environmental harm occurred as a result of this incident.

3 RAINFALL AND WEATHER

The RMS automatic weather station is situated at Ison Lane, Jaspers Brush, located adjacent to the project's main ancillary compound (Ison Lane Compound) for the project. The results of rainfall monitoring for September 2019 are provided in Table 3-1 and Figure 3-1 below.

Table 3-1 September 2019 Rainfall monitoring results

Location	Monthly rainfall recorded (mm)
Ison Lane, Jaspers Brush (RMS automatic weather station)	101.6

September was wetter than average with 101.6 mm of rainfall recorded at the project specific weather station at Ison Lane, Jaspers Brush (RMS automatic weather station). The long term average expected rainfall is 40 mm for September as taken from the Nowra Boat Shed Bureau of Meteorology Weather Station (Station Number 68213).

Most of the month's rain fell between 17-23 September (100.2 mm) and 97 mm being recorded between 17-19 September.

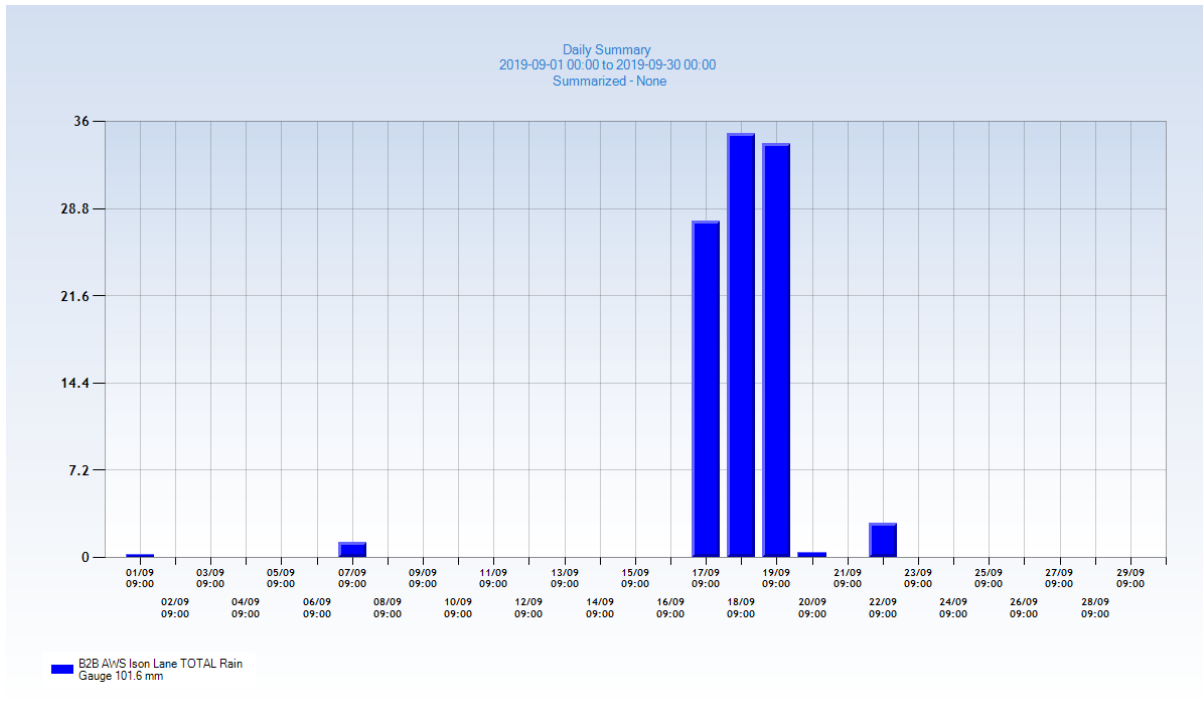


Figure 3-1 September Rainfall Results from Ison Compound Weather Station

September was characterised by a number of windy days along with some milder conditions. The predominant wind direction for September was from the south-southwest. The highest wind gust recorded was 89 km/h and maximum wind speed was 51.8 km/h (refer Figure 3-2). DSJV continue to monitor site activities, implement dust suppressant across site, utilise a fleet of water carts during working hours and limit dust generating activities and even suspend work activities on days of high wind.

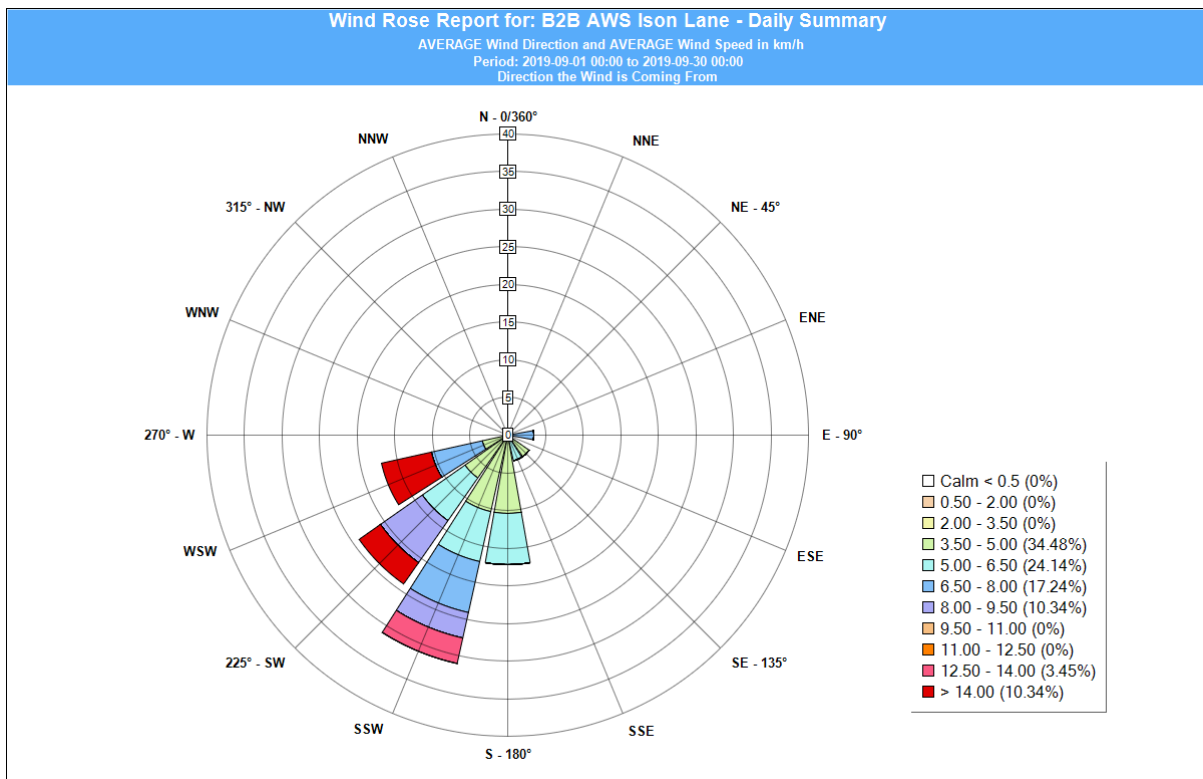


Figure 3-2 September 2019 Wind Rose Results from Isons Compound Weather Station. Average Wind direction and Average Wind Speed shown.

4 SEDIMENT BASIN DISCHARGE

Sixteen sediment basins were licensed under the EPL during September 2019. Notification for the decommissioning of Basins TB26.15 (located near Tandingulla Creek) and TB22.65S has been provided to the EPA. These basins will be decommissioned in the coming weeks once all stabilisation works are completed in each of these catchments.

On the 20th of June in accordance with licence condition L2.6, DSWJV began to use a statistical correlation for the calculation of TSS (mg/L) from Turbidity (NTU). The correlation uses the formula of $TSS (mg/L) = 0.43 * (NTU) + 1.00$. Given that the threshold value for TSS is 50mg/l, samples if less than 114 NTU would be deemed suitable for discharge. For a factor of safety, the acceptable discharge limit was reduced to 90 NTU.

See Table 4.1 below for details on sediment basin discharges.

Table 4-1 September 2019 Sediment basin discharge(s)

EPA Identification No.	Location (adjacent address)	Discharge Date	pH (6.5-8.5)	Nephelometric Turbidity Units (<90NTU)	Oil and Grease (none visible)
PB19.82.S	Mullers Lane	30/09/19	8.33	13	None visible
		23/09/19	7.5	20	None visible
PB24.45.N	B660 Princes Highway	20/09/19	7	30	None visible
TB21.15.N	Opposite O'Keefes Lane	30/09/19	8.12	33	None visible
TB21.50.N	Opposite Jaspers Brush Road	23/09/19	7	30	None visible
TB21.70.S	Intersection at Jaspers Brush Road	23/09/19	6.58	4	None visible
		25/09/19	7.6	3.2	None visible
TB21.90.S	Jaspers Brush Ancillary Site	20/09/19	7.5	15	None visible
		23/09/19	7.51	14.7	None visible
TB22.10.N	Strongs Road	27/09/19	7	30	None visible
TB22.25S	Opposite Strongs Road	25/09/19	7.02	59.3	None visible
TB22.30.N	South of Strongs Road	27/09/19	7	40	None visible
		30/09/19	6.53	32.2	None visible
TB22.65.S	South of Wileys Creek	23/09/19	7.59	20	None visible
		27/09/19	7.5	15	None visible

TB22.80.N	Ison Compound	03/09/19	6.95	22	None visible
		20/09/19	7.5	35	None visible
		23/09/19	7.03	23.7	None visible
TB25.10.N	Devitts Lane		6.86	89.2	None visible
			7.22	63.3	None visible
TB25.70N	South of Devitts Lane		7.5	20	None visible
			8.12	14	None visible
TB25.75.N	South of Devitts Lane		7.5	26.8	None visible
			7	60	None visible
			7.2	22	None visible
TB26.15S	North of Tandingulla Creek		7.57	68.7	None visible
			7.5	40	None visible
TB28.90.N	Abernethy's Lane		7.28	11.9	None visible
			7.28	11.9	None visible
			7.75	20.8	None visible
			7	15	None visible

TSS (mg/L) modelled from Turbidity (NTU) based on approved correlation formula of $TSS = 0.43*(NTU) + 1.00$

5 AIR MONITORING RESULTS

Dust deposition gauges for the project were installed on 27 of August 2019 and changed on 26 September 2019 within the NATA accredited window (30 days +/- 2 days). Air quality has been assessed according to the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016). Results are summarised in Table 5-1 below.

Figure 5-1 provides air quality data from the nearest OEH ambient air quality monitoring stations to the project (Wollongong, Kembla Grange and Albion Park, approximately 25 km north of the project area).

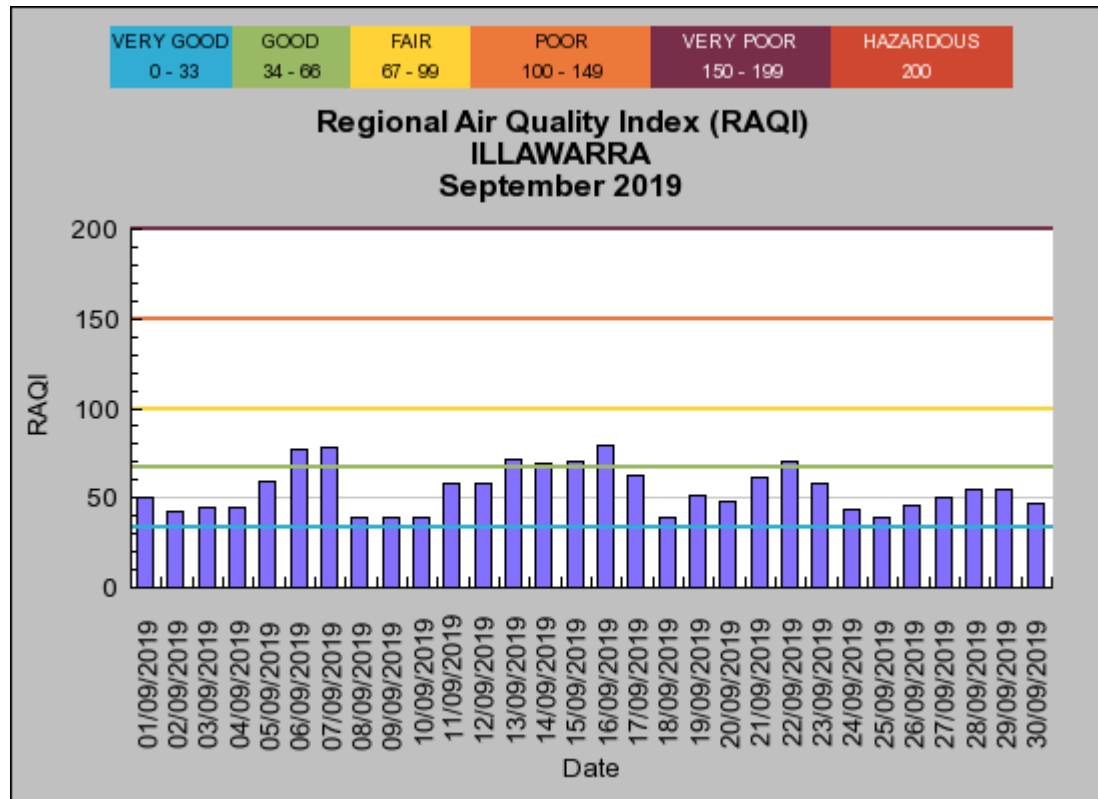


Figure 5-1: Regional Air Quality Index for September from the nearest OEH air quality monitoring stations – Illawarra (NSW OEH).

All dust gauges recorded total insoluble matter within the relevant criteria of 4g/m²/month.

The rolling average for DDG J/K remains above the criteria at 4.6 g/m². This was due to historical dust levels given this month's result was well under the criteria at 1.1 g/m²/month. Refer to Table 5.1 below for detailed results.

Table 5-1 September 2019 Air quality monitoring results

EPA Identification No.	Location (adjacent address)	Ash Content g/m ² ,month	Combustible Matter g/m ² ,month	Total Insoluble Matter g/m ² ,month	Rolling Average (Total Insoluble Matter) g/m ² ,month
1-DDG A	10 Croziers Lane, Jaspers Brush	1.2	1.5	2.7	2.8
2-DDG B	10A Jaspers Brush Road, Jaspers Brush	1.0	0.3	1.3	2.4
3-DDG C	20C Strongs Road, Jaspers Brush	1.0	0.4	1.4	2.5
4-DDG D	10C Jaspers Brush Road, Jaspers Brush	1.0	0.4	1.4	2.6
5-DDG E	30 Ison Lane, Jaspers Brush	0.4	0.2	0.6	1.1
6-DDG F	Lot 209 DP 1210788	0.7	0.2	0.9	2.5
7-DDG H	10 Lamonds Lane, Meroo Meadow	1.1	0.3	1.4	4.0
8-DDG I	19 Boxsells Lane, Meroo Meadow	0.8	0.3	1.1	1.5
9-DDG J/K	265 Princes Highway, Meroo Meadow	0.6	0.5	1.1	4.6
10-DDG L	1028 Meroo Meadow, Meroo Meadow	1.8	0.3	2.1	3.0
11-DDG M	32 Elvin Drive, Bomaderry	0.7	0.1	0.8	2.3
12-DDG N	9 Devitt's Lane, Meroo Meadow	0.8	0.1	0.9	1.8
13-DDG P	24 Abernethys Lane, Meroo Meadow	0.7	<0.1	0.7	2.4

Note: bold type indicates a result above the relevant criteria

6 NOISE MONITORING RESULTS

Noise monitoring was undertaken in accordance with the Construction Noise and Vibration Management Plan (CNVMP) for the project in September 2019. No exceedances above predicted levels for the relevant activity were recorded.

Table 6-1 below summarises the attended noise monitoring undertaken in September 2019.

Table 6-1 September 2019 Noise Monitoring Results

EPA ID No.	Location description	Construction activity	Date	Time	L(A) _{eq} 15min	Comments
15	L1 - B210 Princes Highway, Jaspers	Construction works not audible	30/09/2019	10:47 11:02	65.9	<ul style="list-style-type: none"> No construction noise audible – Princes Highway dominant noise source

EPA ID No.	Location description	Construction activity	Date	Time	L(A) _{eq} 15min	Comments
16	L2 - 20C Strongs Road, Jaspers Brush	Earthworks	30/09/2019	13:50 14:05	62.8	<ul style="list-style-type: none"> Excavator operating to place topsoil Second excavator rock hammering Constant traffic from Princes Highway with light and heavy vehicles dominating
17	L3 - 30 Ison Lane, Jaspers Brush	Compound Operation	30/09/2019	11:33 11:48	54.9	<ul style="list-style-type: none"> No construction noise audible Light vehicles entering and exiting Ison's compound, workers on foot in compound area Constant traffic from Princes Highway
18	L5 - 15 Turner Lane, Jaspers Brush	Earthworks/Piling	30/09/2019	16:12 16:27	56.3	<ul style="list-style-type: none"> Piling rig shaking out auger after boring (several occurrences) Reversing squawker from Piling Rig Constant traffic from Princes Highway with light and heavy vehicles
19	L6 - B710 Princes Highway, Jaspers Brush	Construction works not audible	30/09/2019	13:13 13:28	59.1	<ul style="list-style-type: none"> Constant traffic from Princes Highway with light and heavy vehicles the only noise source
20	L7 - 310C Princes Highway, Jaspers Brush	Earthworks	30/09/2019	15:21 15:36	65.2	<ul style="list-style-type: none"> Front end loader operating to place fine material Reversing squawker from roller (several occurrences) Bogie truck driving past quite close to noise monitor Constant traffic from Princes Highway with light and heavy vehicles
21	BG08 - 19 Boxsells Lane, Meroo Meadow	Construction works not audible	30/09/2019	14:55 15:10	47.6	<ul style="list-style-type: none"> Birds chirping Cars on Boxsells Lane
22	BG09 - 1028 Meroo Road, Meroo Meadow	Earthworks	30/09/2019	15:45 16:00	51.2	<ul style="list-style-type: none"> Several occurrences of trucks entering and exiting work area from Meroo Road Light and heavy vehicles passing by on Meroo Road
23	L8 - 24 Abernethys Lane, Meroo Meadow	Construction works not audible	30/09/2019	14:03 14:18	57.8	<ul style="list-style-type: none"> Traffic from Princes Highway with light and heavy vehicles only noise source

EPA ID No.	Location description	Construction activity	Date	Time	L(A)eq 15min	Comments
24	BG10 - 35 Gardenia Crescent, Bomaderry	Construction works not audible	30/09/2019	12:13 12:28	46.5	<ul style="list-style-type: none"> No construction noise audible
25	BG11 - 38 Elvin Drive, Bomaderry	No construction activities in vicinity	30/09/2019	12:42 12:57	61.2	<ul style="list-style-type: none"> Traffic from Princes Highway with light and heavy vehicles only noise source

7 ENVIRONMENTAL COMPLAINTS

No environmental complaints were received in September 2019