



ACN 009 253 187

**AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT**

**12 MARCH 2018**

**EDEN INNOVATIONS LTD**

**EDENCRETE® - US SALES and MARKETING UPDATE**

Please see attached an ASX Announcement by Eden Innovations Ltd (ASX: EDE) for further details.

**Background**

Tasman through its wholly owned subsidiary, Noble Energy Pty Ltd, holds 520,698,298 fully paid shares in Eden (representing 37.76% of the total issued capital of Eden) and 73,856,779 EDEO options (representing 50.20% of the issued EDEO options). This equates to 1.26 EDE shares and 0.18 EDEO options held for every Tasman share issued.

Based on the last traded prices on the ASX of EDE (\$0.096) and EDEO (\$0.071) on 9 March 2018, this investment had a market value of \$55 million, which is equivalent to 13.4 cents for every currently issued TAS share.

A handwritten signature in black ink, appearing to read 'Aaron Gates', with a long horizontal stroke extending to the right.

Aaron Gates  
Company Secretary



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## AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT

12 March 2018

### EDENCRETE® - US SALES and MARKETING UPDATE

#### HIGHLIGHTS

##### Georgia

- **GDOT - To date 7 State funded repair projects that require over US\$400,000 of EdenCrete®, are in progress, due to start or awaiting bids.**
- **9 GDOT State Funded repair projects with an estimated value to Eden of approximately US\$440,000 are still to be put out for bid by July 2018.**
- **The GDOT Federal/State funded repair project to replace approx. 11 lane miles of pavement (which could utilise over US\$1.1 million worth of EdenCrete®) is likely to be put out for bid by late April 2018.**

##### Colorado

- **US\$11,000 of EdenCrete® sold and used in a factory floor performed so well a similar contract for a second building was immediately received.**
- **EdenCrete® trialled (at two dosage rates) against a competitive product on an ingress onto CDOT State Highway 287 for compressive strength and abrasion resistance, and outperformed the competitor on lab. trials.**
- **Town of Gypsum trialling EdenCrete® on golf cart/pedestrian bridges to select the concrete mix designs using EdenCrete® for a roundabout repair project and possible use in Gypsum's proposed Master Development Plan.**
- **Town of Vail has contracted to use EdenCrete® in a traffic roundabout repair project in Vail on State Highway 6, that is scheduled to take place in April 2018.**

##### Other Trials

- **A number of trials of EdenCrete®, EdenCrete®HC and EdenCrete®Pz for various commercial applications are currently underway in several**

**States and DOT bridge trials of EdenCrete® in 3 States (including Georgia) planned.**

- **NTPEP trials of EdenCrete®HC and EdenCrete®Pz initiated and will commence soon.**

## **DETAILS**

**Eden Innovations Ltd ('Eden') (ASX: EDE) continues to make important progress in its US EdenCrete® sales and marketing program, some highlights of which are:**

### **Georgia - GDOT**

In Georgia, where EdenCrete® is specified in Georgia Department of Transportation (GDOT) specifications for full depth concrete slab repair projects, GDOT has to date let contracts for, or has issued Invitations to Bid (ITBs) for, 7 State funded highway repair projects that will utilise over US\$400,000 worth of EdenCrete®.

A further 9 GDOT State Funded repair projects that could involve the use of approximately US\$440,000 worth of EdenCrete® are still anticipated will be put out to tender before the end of June 2018.

The ITB for the planned major Federal /State funded repair project on the I-16 in Twiggs County is now scheduled to be issued in April 2018. At present this project is still proposed to involve the replacement of approximately 11 lane miles of concrete pavement, which could utilise over US\$1.1 million worth of EdenCrete®.

### **Colorado progress and impact of climatic conditions**

Significant sales and marketing progress is being made in Colorado on a range of commercial and infrastructure projects, particularly in relation to applications requiring reduced permeability and abrasion resistance that help minimise problems resulting from the multiple freeze/ thaw events in each year, abrasive wear from snow ploughs and chemical breakdown of the concrete from application of de-icing salts and road chemicals to concrete road and bridge surfaces to assist in de-icing.

This results primarily from the weather conditions that exist in Colorado (and indeed in many other parts of the US that experience similar conditions). The US National Climatic Data Centre reports, for example, that Denver, a large and rapidly growing city situated 1,600m above sea level, annually experiences 300 days of sunshine and on average experiences 155 days when the daytime temperature reaches or exceeds 21 °C and 157 days when the temperature falls to 0 °C or lower.

Each year these conditions produce a very high number of freeze/thaw events, each causing water in the fine surficial cracks or held in micro-pores within the concrete, to freeze and expand, progressively propagating cracking through the concrete.

### **New Factory Floor Project in Colorado**

In February, Eden received an order from a new customer for approx. US\$11,000 worth of EdenCrete® for a new concrete factory floor (see Figures 1 and 2 below).



**Figure 1. New factory concrete floor being prepared**



**Figure 2. New factory concrete floor being poured**

The initial project has been completed and the strength, abrasion-resistance and toughness, together with the smoother, less permeable surface delivered by the EdenCrete®, accompanied by positive wet properties and the ease with which the

EdenCrete® concrete was laid and finished, produced an excellent concrete floor. This resulted in Eden immediately securing a further contract from the same customer for use of EdenCrete® in the flooring of a second, adjacent building, which is scheduled to commence in the next two weeks.

### **Lafayette Promenade/ CDOT State Highway 287 Project**

EdenCrete® was purchased in February 2018 Denver trial against a competitive product, for compressive strength and abrasion resistance in the replacement exit lane from Lafayette Promenade and the inlet lane onto Colorado State Highway 287 (see Figure 3 below). EdenCrete® was trialed in dosages of 1 gallon (3.76 litres)/cubic yard (0.76 m<sup>3</sup>) of concrete and 2 gallons/ cubic yard of concrete.

The relative performances of EdenCrete® and the competitive product (which involves application of a surficial coating to the concrete) are both being assessed in laboratory trials (involving measuring the compressive strength and abrasion resistance) and visual monitoring the actual performance in the field of both products over an extended period.



**Figure 3 Lafayette Promenade/ CDOT State Highway 287 Project**

In the laboratory trials that have been conducted to date, at the times specified in the appropriate ASTM testing standards, both EdenCrete® mixes (each with different dosages of EdenCrete®) have in all trials outperformed the reference concrete (i.e. the same concrete mix but without any EdenCrete®) and importantly, significantly outperformed the competitor (see Tables 1 and 2 below).

**Table 1.  
Compressive Strengths (psi\*)**

	2-days	7-days	28-days
Reference	2980	4250	5080
Competitor	3070 (3.02% better)	4160 (2.12% worse)	5290 (4.13% better)
EC @2 gpy**	3690 (23.83% better)	4950 (16.47% better)	6370 (25.39% better)
EC @ 1 gpy**	3470 (13.03% better)	4610 (8.47% better)	5950 (17.13% better)

\* 1psi= 6.895 kpa    \*\* 1gpy = 4.95 litres/m<sup>3</sup>

**Table 2.  
Abrasion Resistance (measured as % mass loss)**

	28 Days
Reference	-7.2%
Competitor	-6.6% (8.44% better)
EC @ 2 gpy**	-4.6% (36.12% better)
EC @ 1 gpy**	-5.8% (19.44% better)

This is a highly encouraging start to an important field trial that gives EdenCrete® its first direct exposure to the Colorado Department of Transportation (CDOT) in a field trial of EdenCrete® in concrete used on a CDOT State Highway.

The concrete will be subject to the climatic conditions that Denver experiences, the repeated freeze/ thaw events and resulting high levels of application of de-icing salts and road chemicals which cause both scaling of the concrete and corrosion of steel re-bar in the concrete when the salt permeates the concrete, as well as the use of highly abrasive snow ploughs that are used after heavy snowfall.

Of relevance is the fact that the competitive product is only a thin surface coating, and will only provide benefits until it wears through this thin layer, after which the standard concrete (i.e. the Reference) will then be exposed and the subsequent rate of wear will then increase unless a further coating of the competitive product is added, an expensive solution that would be disruptive whilst being carried out.

The EdenCrete® is however evenly mixed throughout the concrete and is an integral component that will continue to deliver superior benefits until all the concrete is worn away down to the sub-surface layer, a most unlikely event under normal operating conditions.

Additionally, this field trial provides a very important extension to the earlier, previously announced follow-up field trails of EdenCrete® being undertaken by the Denver Public Works (see ASX: EDE 18 September 2017). These earlier trails are now well underway and it is hoped they will be finally assessed during the forthcoming northern spring/summer. To date the EdenCrete® enriched concrete has performed well in these earlier trails and if this continues, Eden is hopeful that it will result in a significant number of future orders from the Denver Public Works, which has a close relationship with CDOT.

### **Town of Gypsum Project**

Eden has sold to the Town of Gypsum with EdenCrete® for trialling in concrete on the deck surfaces of four small golf cart/pedestrian bridges that span the Eagle River. The work at the golf course was completed on 8 March 2018 (see Figure 5). The purpose of the trials is to assess the performance of EdenCrete® in various concrete mixes in respect to scaling, abrasion resistance, crack reduction, and overall durability (based on visual assessment).



Figure 5. Gypsum Golf Course Bridge Project

Based on these trials, the Town of Gypsum intends to select the concrete mix design, using EdenCrete<sup>®</sup>, to be used on a forthcoming traffic roundabout replacement project within the town of Gypsum on CDOT State Highway 6. Eden has also been advised that subject to satisfactory performance of EdenCrete<sup>®</sup> in this the roundabout replacement project, the Town of Gypsum is also considering using EdenCrete<sup>®</sup> appropriate applications in its Master Development Plan.

EdenCrete<sup>®</sup> was selected as the additive to be trialled to try and achieve a more aesthetic looking and longer lasting concrete, based upon its prior success with scaling, abrasion resistance and crack reduction.

The replacement of these four bridges is only a small portion of, and the beginning of the far larger project that the Town of Gypsum has been preparing for in their Master Development Plan that was finalized in 2017. This includes commercial (Town Centre and Business District redevelopment and new construction), infrastructure (curb and gutter, roadway and roundabout construction) and school construction projects to name a few. The budgeted expenditure to upgrade and expand the school system alone accounts for US\$200 million of the Master Development Plan's total budgeted expenditure.

For more details of the Master Development Plan see:

<https://townofgypsum.com/departments/community-development/planning/town-master-plan>

These projects and trials of EdenCrete<sup>®</sup> being undertaken with the Town of Gypsum represent a very significant potential opportunity for Eden to greatly expand its footprint in the US infrastructure market.

### **Town of Vail- West Vail Roundabout Concrete Repair project**

Eden has been contracted to supply EdenCrete<sup>®</sup> for inclusion in a traffic roundabout repair project that is scheduled to be commenced in April 2018 in the resort town of Vail. Vail, which is located in the Rocky Mountains at an attitude of 2,445 metres, like Denver is subject to difficult climatic conditions but being higher than Denver, receives significantly more snowfall and is subject to a far greater usage of snow ploughs, studded snow tyres and chains along with heavy applications of de-icing salts and road chemicals.

The total US\$350,000 repair project, known as the West Vail Roundabout Concrete Repair project, involves the removal and replacement of the concrete approach slab within the West Vail south roundabout (in which EdenCrete<sup>®</sup> will be added) on State Highway 6, concrete patch repair of the bridge deck, removal and

replacement of the concrete sidewalk under Interstate Highway I-70, and the removal and replacement of stone veneer under I-70.

The concrete in the roundabout that is to be replaced has been subjected to harsh rotational abrasion, exacerbated by studded snow tyres and chains. EdenCrete® was approved and selected for use by The Town of Vail to provide scaling/abrasion resistance and crack reduction, at a dosage rate of 2 gpy of concrete (9.9litres/m<sup>3</sup>).

This Vail project is a further EdenCrete® project that is considered likely to be relevant for future consideration by CDOT and whilst there will only be approximately 170 cubic yards of new concrete in which EdenCrete® is to be added, this project represents further continued penetration by EdenCrete® into the US infrastructure market.

## **Other Trials**

A number of other trials of EdenCrete®, EdenCrete®HC and EdenCrete®Pz for various commercial and infrastructure applications are currently underway or planned in various States. These include truck trials of EdenCrete®Pz in New York with pozzolanic concrete that is widely used in high-rise construction.

DOT bridge trials of EdenCrete® are being planned in 3 States (including Georgia).

## **NTPEP Certification Testing of EdenCrete®HC and EdenCrete®Pz initiated**

The applications to commence the NTPEP Certification Testing of EdenCrete®HC and EdenCrete®Pz have been lodged and, subject to the prior workload of the independent testing laboratories, are anticipated to start in the near future. The applications were not lodged until completion of Eden's internal trials to determine the optimum dosage rates for the NTPEP testing.

The separate ASTM testing of EdenCrete®Pz that has already commenced is progressing well, with positive results having been received to date, and the trials is now approaching the 56 day mark.

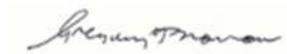
## **Summary**

The interest in and awareness of the EdenCrete® products by the US concrete market, and in particular the infrastructure sector which is slow to penetrate, is growing, and Eden is a making significant efforts to rapidly accelerate its marketing and sales into a wide range of US commercial and infrastructure projects.

**BACKGROUND**

*EdenCrete® is Eden's 100% owned, proprietary carbon-strengthened concrete additive, that enhances a wide range of performance characteristics of the concrete including compressive strength, flexural strength, tensile strength, abrasion resistance, reduced permeability and reduced shrinkage, thereby delivering stronger, tougher, more durable and longer lasting concrete.*

*One of the primary target markets for EdenCrete® is improving the performance of concrete used in the construction and maintenance of concrete roads, bridges and other infrastructure, particularly where it is subject to heavy wear, freeze/thaw weather conditions and/or high levels of added salt. Additionally, it has potential for use in most other concrete applications including high-rise building construction, marine and coastal applications, water storage and pipelines, hardstand areas, and pre-stressed and pre-cast concrete structures and products.*



**Gregory H. Solomon**  
Executive Chairman