



## AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT

**7 SEPTEMBER 2021**

**EDEN INNOVATIONS LTD**

**EDENCRETE® - US INFRASTRUCTURE MARKET 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 631,777,564 fully paid shares in Eden representing 30.33% of the total issued capital of Eden Innovations Ltd.

A handwritten signature in black ink, appearing to read "Greg Solomon", is displayed on a light yellow rectangular background.

Greg Solomon  
Executive Chairman

This announcement was authorised by the above signatory.  
For any queries regarding this announcement please contact Aaron Gates on +618 9282 5889.



Innovations that work.™

ACN 109 200 900

## AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT

7 September 2021

### EdenCrete® - US Infrastructure Market Update

Eden Innovations Ltd (ASX: EDE) (“Eden”) is pleased to report on progress to date for its EdenCrete® product range, and their emerging potential, in the US infrastructure market.

#### US Federal Infrastructure Bill

**US\$ 1 trillion bipartisan infrastructure bill** - After the US Senate passed the \$1 trillion bill, on 24 August 2021 US House of Representatives advanced the bill and committed to vote on it by 27 September 2021. House Speaker Nancy Pelosi, said she is “committing to pass the bipartisan infrastructure bill by September 27” and would “rally” her caucus to pass it.

#### The bill includes the following allocations:

- **Roads and bridges: US\$110 billion**, including \$40 billion for bridge repair and replacement, and \$17.5 billion for unspecified “major projects.” This allocation is in addition to the current annual funding that is already approved, and will enable a significant increase in both the value and number of infrastructure projects that can be undertaken. The bill also includes the reauthorisation of the existing bipartisan surface transportation program for the next five years;
- **Airports, ports and waterways: US\$42 billion**, comprising US\$17 billion is allocated for port infrastructure and US\$25 billion toward airports;
- **Passenger and freight railway infrastructure- US\$66 billion;**
- **Water infrastructure: US\$50 billion**, for investment in weatherisation and protection against climate-change fuelled disasters like droughts and floods.

#### State Departments of Transportation (DOTs) - current approval and use of EdenCrete® and EdenCrete® Pz

- EdenCrete® products already approved for use by 21 state DOTs.
- 6 further state DOTs are currently reviewing EdenCrete®.
- NTPEP and ASTM – testing of both products completed.
- EdenCrete® currently used in concrete on highways, bridges and in shotcrete applications for DOTs.

#### US Federal DOT Funded Projects

- EdenCrete® products used in federally funded projects since 2018 by three State DOTs.
- US Federal DOT currently being briefed on the performance benefits delivered by EdenCrete® products.

# EdenCrete® - Progress Since 2015

## Roads and bridges

- Georgia DOT (GDOT)- Progress to date
- 2017 - EdenCrete® specified by name in full depth highway slab replacement mixes
  - Following a successful trial in August 2015, since 2017 EdenCrete® has been specified by name in all GDOT funded full depth highway slab replacement mixes, and also has been used in several large projects (each worth more than US\$500,000), jointly funded by Federal Highway Authority and GDOT.

January 23, 2017

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
SPECIAL PROVISION**

**Section 504 Twenty-Four Hour Accelerated Strength Concrete**

---

In Section 504.1.03.B2, add a note under “minimum cement cwt/cu yd”:

Note 1: When this Section 504 is used in conjunction with Section 452 (Full Depth Slab Replacement), the Contractor shall utilize EdenCrete Carbon Concrete Additive to reduce the cement factor by 15 % as per the allowances of ASTM type “S” admixtures. There shall be two mix designs prepared; one with a 2 gallon/CY dosage and one with a 4 gallon/CY dosage. Each mix design shall also be submitted to and approved by the Engineer prior to use on the project. The mix designs shall consistently achieve the minimum compressive strength (2,500 psi) at 24 hours.

*The 4 gallon/CY dosage is reserved for use at the Engineer’s discretion.*

**Figure 1. GDOT Twenty-Four Hour Accelerated Strength Concrete Specifications**



**Figure 2. First successful EdenCrete® infrastructure trial - I-20 in Augusta, GA, August 2015**

- **EdenCrete® approved in GDOT new pavement projects after 2017 trial**
  - 12 months after installation, EdenCrete® infused concrete showed very impressive results and continued to gain durability and toughness with material improvements continuing across multiple properties, resulting in approval of EdenCrete® in new concrete pavement.



Figure 3. Section of GDOT trial of EdenCrete® in new concrete pavement trial 2017

- **November 2019 - EdenCrete® trialled in GDOT bridge repair project**
  - Trial scheduled to finish in early 2022, opening possible use in GDOT bridges.



Figure 4. GDOT EdenCrete® bridge trial on bridge over Little River November 2019

- **Activities Presently Underway or Planned with DOTs**
- **Georgia DOT**
  - Eden continues to fill orders for all specified repair projects.
  - Meeting with senior leadership planned in next two weeks to discuss status of November 2019 bridge trial (trial due to be completed in Q1 of CY22).
- **United States Department of Transportation (USDOT)**
  - Initial meeting completed with Assistant Department Secretary to review Eden's products and their impact to sustainability and resiliency for infrastructure.
  - The following round of meetings will include federal laboratory personnel.
  - Primary goal is to educate senior leadership on the benefits that they can achieve and expect from concrete with regards to both sustainability and performance.
- **Southeastern Association of State Highway Transportation Officials (SASHTO) - annual conference and follow-up:**
  - Very successful discussions with senior leaders from SASHTO states during the recent annual SASHTO conference
  - Next level of discussion with division leaders in each state:
    - Have had first round of discussions with:
      - Kentucky Transportation Cabinet
      - North Carolina DOT
    - Next meetings are with:
      - Tennessee DOT
      - Florida DOT
      - Virginia DOT
      - South Carolina DOT
    - Final round of initial meetings is planned with:
      - Arkansas DOT
      - Mississippi DOT
      - Alabama DOT
      - Louisiana DOT
      - Texas DOT.
  - The objective is to encourage DOTs to require greater sustainability in their concrete and lift the required performance standards in specifications, which EdenCrete® could help achieve.
- **Colorado - DOT (CDOT)**
  - **Since November 2018, EdenCrete® in shotcrete project on Central 70 project in Denver.**
  - **Reduced Greenhouse Gas Footprint**
    - In addition to improved performance of the shotcrete, the EdenCrete® enabled the mix design to contain 152 lbs per cubic yard LESS cement than normal, already delivering a reduction of approx. 400 tons of CO2 on the Greenhouse Gas footprint of this project.



Figure 5. Central 70 – CDOT EdenCrete® Shotcrete project

- August 2019 - CDOT uses EdenCrete® in shotcrete for stabilising road-cuts.



Figure 6. EdenCrete® in use in shotcrete stabilising rock face.

- **June 2021 - a major CDOT performance trial of EdenCrete® against two other concrete mixes (a standard mix and a silica-fume mix) at the Vail Pass in the Rocky Mountains**
  - Trial is on a section of Interstate Highway I-70 (altitude approx. 10,000 feet), subject to extreme abrasion and heavy use of de-icing chemicals.
  - This large scale, comparative trial, under extreme conditions is being followed closely by a number of other state DOTs that experience harsh winter conditions, and should open up a far larger market for EdenCrete® in freezing conditions than just in Colorado.



Figure 7. EdenCrete® section of Vail Pass trial being installed

- **Colorado -Denver Office of Transportation (DOTI)**
  - February 2017 – successful trials of EdenCrete® in concrete roads for resistance to abrasion, freeze-thaw damage and de-icing chemicals.



Figure 8. Successful trial in Denver 2017-2020

- **Texas DOT (TXDOT)**

- 2017-2018 - EdenCrete® used in TxDOT pre-stressed bridge beams for 12 months.
- TXDOT assisted trials of EdenCrete® with cement from Texas are currently underway.



Figure 9. Typical prestressed bridge beam being fabricated

## Ports

- **Georgia Port Authority (GPA)**

- February 2020 - Successful EdenCrete® trial at Port of Savannah
- Following performance improvements achieved in 2020 Port of Savannah trial, EdenCrete® was specified by name in a number of smaller follow-on projects.
- Eden is currently involved in discussions with GPA in relation to opportunities for the use of EdenCrete® in larger and more frequent projects at Georgia ports.
- Eden's intends to build upon its success with GPA projects and use it to drive a larger push into the broader and far larger US ports and marine market.



Figure 10. 2020 trial of EdenCrete® at Port of Savannah



## Airports

- **Denver International Airport (DIA)**
  - February 2020 - EdenCrete® successfully trialed in apron at United Airlines maintenance hangar.
  - Subsequently EdenCrete® has been used in a number of similar projects at DIA, with the latest, a replacement of a worn panel joint in the concrete, having been completed during the past week.



Figure 11. 2020 trial of EdenCrete® at Denver International Airport

- **FAA and other Airports**
  - Eden currently is scheduled to meet the south-eastern regional FAA office; and
  - With a local regional airport in Georgia,
  - To promote the success to date at DIA and the benefits delivered by EdenCrete® in concrete at airports, as well as promoting the use of OptiBlend® in power back-up systems, in a very large series of upgrades they are about to undertake.
  - Whilst Eden has started discussions with USDOT (of which the FAA is a sub-agency), it is also speaking directly to the sub-agencies to drive this major marketing initiative.

## Sustainability and Resiliency

With the rapidly increasing emphasis, both in the US and around the world, on the reduction of the Greenhouse Gas footprints of projects and products, particularly for use in infrastructure projects, Eden, in addition to its other programmes, has initiated the following two new initiatives:

## ▪ **Environmental Product Declaration**

- EdenCrete® or EdenCrete Pz® have shown repeated improvements to sustainability and resiliency
- To quantitatively show the environmental impact and delivered reductions in the Greenhouse Gas emissions, Eden is obtaining an Environmental Product Declaration (EPD).
- The contract for the EPD was signed at the end of FY21 , with the results being due by middle of FY22 Q2.
- A suitably US qualified company has been engaged to review all Eden’s data and to deliver an approved value for Eden to use in industry calculations for sustainability, that will be of significant assistance to Eden’s ongoing sales and marketing efforts.
- With the far stronger emphasis in the US for federally funded infrastructure projects to deliver low Greenhouse Gas footprints, the EPD will greatly assist Eden in marketing the significant environmental benefits its products will deliver and how they will assist the US to meet its targets in this important national objective.

## ▪ **New Marketing Collaboration**

- Following the successful response to the recently released EdenCrete® Shotcrete video, Eden has entered into a marketing agreement with the production company to produce more similar videos on other Eden products, to also help generate greater social media support, and generally assist in achieving a wider overall marketing presence.
- The passage of the Infrastructure Bill, combined with the relationships that have been developed across both the US government and commercial sectors, provide an ideal platform from which to strongly promote the wide range of “green benefits” delivered by all Eden’s technologies and products, including the EdenCrete® range of products and the OptiBlend® dual fuel system.

## **Summary**

**After more than six years of EdenCrete® trials, sales and marketing in many parts of the US, that have developed a wide and rapidly expanding network across the US in both the government and private sectors, EdenCrete® products are extremely well placed to be extensively used in the coming years in a wide range of large infrastructure projects in the anticipated forthcoming surge in repairs, expansion and replacement across many sectors of the huge US infrastructure market, driven by the increased funding from the forthcoming Federal US \$1 trillion bipartisan Infrastructure Bill.**

## ***EdenCrete® Background***

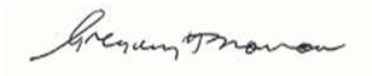
*EdenCrete® products are Eden’s 100% owned, proprietary carbon-strengthened concrete additives that enhance a wide range of performance characteristics of the concrete including compressive strength, flexural strength, tensile strength, abrasion resistance, reduced permeability, increased modulus of elasticity, reduced shrinkage and that collectively deliver stronger, tougher, more durable and longer lasting concrete.*

*EdenCrete® is generally used in concrete that incorporates a high percentage of Ordinary Portland Cement (OPC or Portland cement) whilst EdenCrete® Pz is mostly used in concrete that incorporates a high percentage of pozzolans as an alternative cementitious material (including fly-ash and blast furnace slag which are each waste by-products from coal fired power stations and metal smelting respectively, thereby each being treated, as a waste by-product, as having a zero Greenhouse Gas footprint from its production process).*

*As a result, EdenCrete® Pz in particular has repeatedly shown it is capable of enabling the proportion of the Portland cement in the concrete to be replaced by a percentage of pozzolans with far lower Greenhouse Gas footprints, resulting in a reduction in the Greenhouse Gas footprint generated in the production of the various cementitious components used in the manufacturing of the concrete. Both products have been repeatedly shown to be suitable for use in ready-mix concrete, pre-cast and pre-stressed concrete, shotcrete, pumped concrete and volumetric concrete.*

*One of the primary target markets for EdenCrete® products is improving the performance of concrete used in the construction and maintenance of concrete roads, bridges, ports, airports, and other infrastructure, particularly where it is subject to heavy wear, freeze/thaw weather conditions, heavy snow falls, and/or high levels of added salt or de-icing chemicals.*

*Since 2015, EdenCrete® products have been sold in the USA and more recently also in Australia and a growing number of other countries. They have successfully and repeatedly delivered a wide range of benefits when incorporated into concrete that is used in many different applications, including low-rise, medium-rise and high-rise building construction, roads and bridges, ports/marine/coastal applications, bus stations, carparks, water pipes, hardstand areas, waste transfer stations, warehouses, shotcrete applications, stadiums, and pre-stressed and pre-cast concrete products.*



**Gregory H. Solomon**  
Executive Chairman

This announcement was authorised by the above signatory.  
For any queries regarding this announcement please contact him on +618 9282 5889.