DIRECTION: road construction sector

CURRENT INTERMEDIATE AND MAJOR ROAD REPAIRS

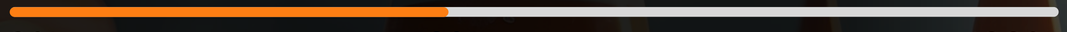
ROAD WEAR AND TYPES OF REPAIRS

As roads are used, their surface endures moving traffic, various weather conditions, and other factors. This leads to wear, deformation, and damage to the pavement. Sinkholes and other deterioration that reduce the road's usability are addressed through repair work

THERE ARE THREE TYPES OF ROAD SURFACE REPAIRS: CURRENT, INTERMEDIATE, AND MAJOR

Current repairs are generally done in warmer weather at temperatures above +5°C (41°F). However, if severe damage arises, repairs are carried out regardless of weather conditions

Intermediate repairs are performed periodically—usually once every few years—to reinforce the pavement by restoring worn layers. These involve larger-scale work and can cover up to 40% of the road's total surface area



MAJOR ROAD REPAIR STAGES

PREPARATORY WORK

Evaluating the road’s condition, designing a project plan, setting up temporary detours, and removing damaged pavement elements

01

REPLACING OR REINFORCING THE BASE

Worn materials are removed, and a new, fortified base is laid in their place

02

LAYING NEW PAVEMENT LAYERS

Several layers of asphalt concrete or cement concrete are applied to ensure the road’s longevity

03

INSTALLING AUXILIARY INFRASTRUCTURE

Final steps include adding curbs, road markings, traffic signs, lighting, and barriers

04

KEY TECHNOLOGIES IN MAJOR ROAD REPAIRS

MILLING THE OLD SURFACE

BENEFITS:

- Improves adhesion between the new layer and the base
- Eco-friendly: Milled material can be recycled and reused

HOW IT WORKS:

Road milling machines remove damaged layers of asphalt or concrete, clearing the way for new pavement

RECYCLING (RECLAIMING) THE PAVEMENT

HOT RECYCLING:

The top layer of the road is heated, processed in place with new materials (bitumen, minerals), and reapplied

COLD RECYCLING:

Damaged material is processed on-site or at a plant, then reused as a base layer

ADVANTAGES:

- Reduces material costs
- Speeds up repair processes
- Environmentally safe

Strengthening the road base with geosynthetics —

DESCRIPTION:

Geotextiles, geogrids, or geomembranes are placed between base layers to enhance load capacity and prevent deformation

BENEFITS:

- Extends the road’s lifespan
- Lowers the risk of cracks and subsidence
- Stabilizes the soil foundation

USING MODIFIED ASPHALT CONCRETES

POLYMER-BITUMEN MIXES (PBV):

Asphalt concrete with added polymers for greater resistance to temperature fluctuations and mechanical stress

STONE MASTIC ASPHALT (SMA):

A strong, durable mix resistant to deformation and cracking

BENEFITS:

- Prolonged pavement life
- Resistance to climate extremes and heavy loads

ROADS: A Modern-Day Challenge

Road infrastructure remains one of the most critical priorities for most countries. Existing highways often fail to meet the demands of rapidly growing traffic. Experience shows that cutting corners on road maintenance frequently leads to far greater repair costs later, once the pavement has deteriorated

The quality and safety of roads largely depend on proper repair work and contractors' adherence to technical standards. As a result, choosing a contracting organization requires thorough consideration

Road longevity is determined by its design life, during which it must withstand intense traffic and a variety of weather conditions, such as temperature fluctuations, moisture, and snow. The main types of pavement damage—cracks and failures—often arise from overloading, material wear, or subpar construction workmanship

The role of companies that maintain and repair roads is crucial. Pavement conditions directly affect people's safety, the protection of vehicles, consistent retail supply, and overall regional development. The quality of roads is a measure of a region's infrastructural progress

Maintaining roads in good shape is not only about comfort and convenience but also provides a foundation for safety and economic stability

USING RECYCLED MATERIALS IN ROAD CONSTRUCTION

Many countries actively use waste materials in road construction, significantly cutting costs and helping solve disposal issues

- For example, in **Brazil**, 6 million tons of construction debris were used to build the foundation of a major highway. This saved $47 million, 3.4 million cubic meters of sand, 32 tons of coal, and 200 hectares of land that might otherwise have been used for waste disposal

- In the **Netherlands**, researchers are developing road surfaces made from recycled plastic waste recovered from the ocean. This approach not only reduces asphalt costs but also addresses environmental challenges tied to pollution and plastic disposal. While this technology has worked well for pedestrian areas, it’s currently less suitable for vehicle traffic because plastic doesn’t provide sufficient traction, especially in rainy conditions

- Del Mar Energy successfully combines proven road repair methods with its own innovative solutions, extending pavement life significantly

- Thanks to a highly skilled team, a strong sense of responsibility, and extensive experience, the company has established itself as a leader among Chinese firms in this field

ROAD SURFACE INSTALLATION PROCESS | Base preparation

The base is crucial, as its quality directly affects pavement durability. preparatory work includes:

01 **Surface Leveling:** Removing uneven areas and stripping the topsoil layer

02 **Drainage Installation:** Water diversion systems prevent damage to the base

03 **Soil Compaction:** Rollers or plate compactors are used to improve load bearing capacity

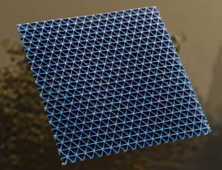
04 **Forming a Sand and Gravel Layer:** This layer ensures even load distribution and prevents pavement deformation

APPLYING A LEVELING LAYER

Once the base is prepared, the first layer—consisting of sand, gravel, or geotextile—is applied

sand

gravel



geotextile

This leveling layer helps eliminate minor irregularities and ensures better adhesion to the main pavement

PREPARING AND DELIVERING THE ASPHALT CONCRETE MIX

Asphalt concrete mix is prepared at a plant, where its composition, temperature, and quality are strictly controlled

It’s then transported to the installation site in special insulated dump trucks to maintain the required temperature

LAYING THE ASPHALT CONCRETE

A paver spreads the mix across the full width of the road surface. It lays the material evenly, maintaining the specified layer thickness

During installation, the temperature of the mix must be at least 120–140°C (248–284°F) to ensure its pliability

COMPACTING THE ROAD SURFACE

Immediately after the pavement is laid, it undergoes compaction

VARIOUS TYPES OF ROLLERS ARE USED:

STATIC ROLLERS
for initial compaction

VIBRATORY ROLLERS
for deeper compaction

PNEUMATIC ROLLERS
to distribute loads evenly

Compaction must take place within a specific temperature range while the asphalt remains plastic

APPLYING PROTECTIVE LAYERS & FINAL STEPS

Joints are cut and sealed to prevent cracking

After laying the road surface, sealing materials are applied to protect against moisture and temperature fluctuations

Curbs, road signs, and markings are installed to complete the process

USING WASTE FOR ROAD CONSTRUCTION: INNOVATIVE APPROACHES

In today's world, where waste management is an increasingly pressing issue, scientists and engineers are finding ways to recycle trash into valuable construction materials. One such method is using waste products for road building and repairs. Below are several technologies that enable the use of waste in road construction:

RECYCLED PLASTIC:

Plastic waste like packaging, bottles, and film is shredded and added to asphalt

TIRES AND RUBBER:

Worn-out car tires are processed and mixed into asphalt

CONSTRUCTION DEBRIS:

Broken concrete, brick, and other building waste is recycled and used as a base layer

INCINERATION ASH:

Ash left after burning household waste can serve as a component for cement production or a filler in road structures

GLASS:

Crushed glass is used as an aggregate in asphalt or as a material for robust road bases

ORGANIC WASTE:

Biological waste such as wood chips and agricultural by-products can be processed into biopolymers

ADVANTAGES OF USING WASTE-BASED MATERIALS

Environmental Benefits: Reduces landfill waste volume and greenhouse gas emissions

Improved Road Quality: Many recycled materials produce more durable, long-lasting pavement

Resource Savings: Using secondary materials lowers the need for natural resources like sand, gravel, and oil

Incorporating waste into road construction is an example of how innovation can address global environmental challenges. These technologies are advancing rapidly and may become the industry standard in the future

THE FUTURE OF ROAD CONSTRUCTION

Road construction is evolving to tackle global issues like infrastructure wear, environmental challenges, and limited natural resources. Key trends include using innovative materials, digital technologies, and sustainable building methods

Innovative Materials: Recycled plastic, shredded tires, and crushed glass not only reduce waste but also enhance road durability. Nanomaterials and biopolymers further improve the surface's strength and resilience

Digital and Sustainable Approaches: Such methods boost overall efficiency and reduce resource consumption, ensuring roads can withstand future demands

ROAD CONSTRUCTION TRENDS IN 2025

INNOVATIVE MATERIALS

Extensive use of recycled plastic, rubber from used tires, and other secondary materials improves pavement strength and longevity while reducing environmental impact

AUTOMATION AND ROBOTICS

Employing robots for labor-intensive, repetitive tasks—like asphalt paving and road marking—enhances efficiency and construction quality

INFORMATION MODELING TECHNOLOGIES (BIM)

Utilizing digital models for precise planning and project management in road construction, minimizing risks and optimizing expenses

MODULAR CONSTRUCTION

Prefabricated road elements produced in factory settings can be quickly assembled onsite, reducing construction time and environmental impact

EXAMPLE INVESTMENT OPPORTUNITY

By opening a deposit with a minimum allowable amount of $2,500

Deposit Term:	**240 days**
ROI:	**238.56%**

after 240 days, your balance will be $5,964

DEL MAR ENERGY INC.

is an american holding company primarily focused on the extraction, processing, and sale of oil

The company also engages in electricity production and distribution; manufacturing, repairing, and leasing electromechanical equipment; designing and constructing wind, solar, and geothermal power plants; extracting coal and gas; and developing oil and gas infrastructure

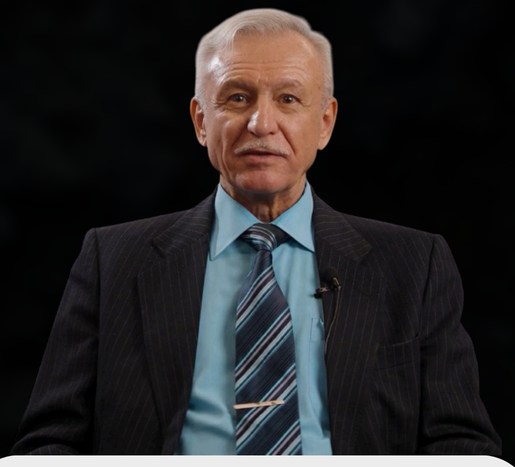
Having started out with just a few oil rigs in 2002, we began developing and manufacturing with our own technologies in 2012

today

91%

of our products are exported to more than 40 countries worldwide

LEADERSHIP TEAM



MICHAEL LATHAM

Founder/CEO

Michael Latham is the founder and CEO of Del Mar Energy. He established the holding company in 2002 in Texas, successfully building and growing industrial sectors

NICK KAUFMAN

COO (Chief Operating Officer)

Nick has served as COO since 2018. A Texas native and graduate of the University of Massachusetts, Nick initially worked in law. He first encountered Del Mar Energy in 2013 and officially became a partner in 2018. Nick introduced many of the modernized technologies now used in production

STEFAN RUSSO

CIO (Chief Information Officer)

Stefan started his internship at Del Mar Energy in 2016. In less than five years, he advanced from intern to company director

THOMAS LIEBERMAN

CMO (Chief Marketing Officer)

Born in 1984 in Nevada, Thomas studied at a local university before moving to New York in 2006 to work in marketing and public relations. He began collaborating with Del Mar Energy in 2011. Prior to joining the company, Thomas worked on promoting brands such as P&G, Gillette, and General Motors