

# LITHIFIED TECHNOLOGIES EXECUTIVE SUMMARY

## NEW STABILIZATION CLASS: LITHIFIED SOIL

### 1. KEY ADVANTAGES

#### A. Road Bases Superior to Traditional Designs

- Recycle materials already paid for
- Extend time to work soil with superior results
- Applicable for use under any surface - asphalt, concrete, chip seal

#### B. Unprecedented Combination of Benefits

- Low and slow permeability
- High ductility (stress/strain)
- High strengths
- Passes EPA Method 1312 (no harmful chemicals leach into the environment)
- Low shrink/swell characteristics

#### C. Value Engineered Projects

- High structural credits allowed in designs to reduce materials and lower cost
- Eliminates waste – reduces costs for removal or replacement of failing materials
- Faster production times reduce overall project length and cost
- Performance based specifications that include design criteria for permeability and ductility
- Better product with lower lifecycle costs

### 2. BACKED BY COMPREHENSIVE TEST BANK – FUTURE PERFORMANCE INDICATORS

#### A. Lithified Soil Structural Base Design Projects Uses a Design Bank that Tests:

Soil Test	Protocol	LithTec™ Design Bank Minimum Requirement	LithTec™ Results for Various Designs
California Bearing Ratio (CBR)	ASTM D1883-16 or AASHTO T193-13	100	570
Permeability (K)	ASTM D2434, ASTM D5084 or AASHTO T 215	10 <sup>-7</sup> cm/sec	1.2 x 10 <sup>-8</sup> cm/sec
Resilient Modulus (M <sub>r</sub> )	AASHTO T 307 or AASHTO T 208 Modulus Derivative	100,000 psi	1,000,000 psi
Unconfined Compressive Strength (UCS) Strain at Failure	ASTM D2166M-16 or AASHTO T 208-15	0.90%	2.52% (with >540 psi Stress @ Failure)
Unconfined Compressive Strength (UCS) Stress at Failure	ASTM D2166M-16 or AASHTO T 208-15	300 psi	>700 psi (with 1.43% Strain @ Failure)

- Design bank testing exposes weak spots
- Cement, geo-textiles, lime, polymers may excel at one or another but no other product has demonstrated it meets all 5 minimum requirements