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# SOIL STABILIZER

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Is an environmentally safe: advanced powerful polymer emulsion that produces highly effective dust control,erosion control and soil stabilization.

SOIL STABILIZER provides excellent bonding cohesion, versatility, cost-effectiveness, environmental compliance and superior overallnperformance.

SOIL STABILIZER effectiveness results from the length and strength of its unique polymer molecule formulation and those polymer molecules' ability to bond with the surface materials. Its chemical structure is made of molecules attached in relatively straight-linked chains and then cross-linked among other chains or grids compared to the much smaller molecular structure of oil, calcium, petroleum resin and asphalt emulsion products, which range from 100 to 10,000 molecules. As a result, SOIL STABILIZER can be as strong as steel and storm water compliance or as resilient as rubber.

## Outstanding Features and Benefits of SOIL STABILIZER

- Nearly eliminates particulate matter (PM1 O and PM2.5).
- Does not contain any detectable polycyclic organic matter (POM) which includes polynuclear aromatic hydrocarbons (PAH).
- Is environmentally safe, non-toxic, non-corrosive, non-flammable and does not pollute groundwater.
- Has a cumulative effect and creates a stabilized surface which will resist shifting, breaking up or sink failures. • Offers maximum weather ability to wind, rain, ultraviolet light and other weather conditions.
- Increases load-bearing strength of all types of soils and surfaces.
- Prevents water from seeping into and destabilizing the surfac.
- Dries clear, providing an aesthetically pleasing appearance.
- Meets air, water, groundwater and storm water compliance.

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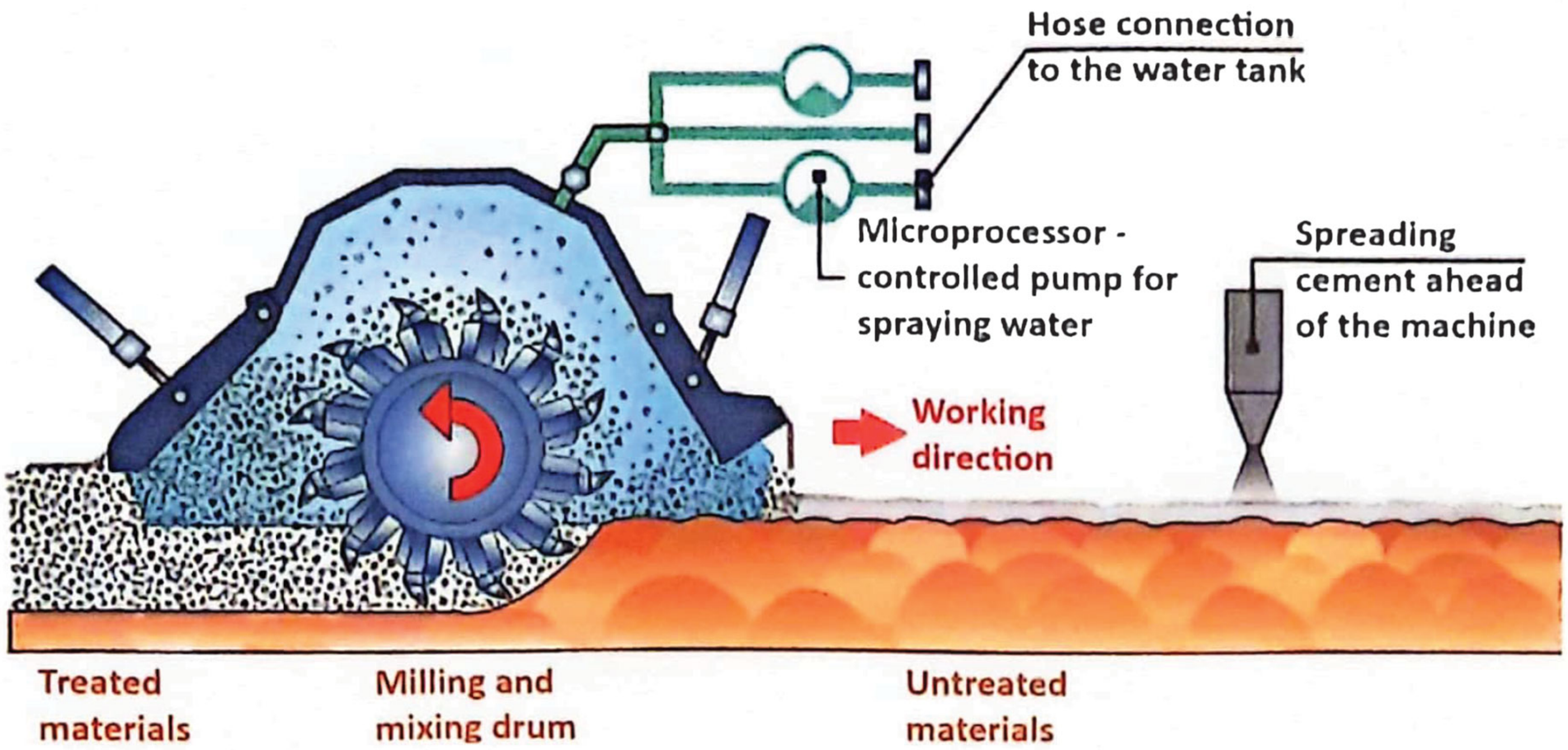
**Spreading cement ahead of the machine and metered injection of water**




## Benefits

1. Provided in the materials used.
2. No spaces left (tattoo)
3. Without roaring materials
4. You do not need to first paint (overland passes) when you start to work paints due to the penetration of Magic plaster between the sand particles and close the pores.
5. Reduce the proportion putty or used where the product is given a good settlement for the internal and external surfaces.
6. Possibility of any kind of paint as they provide the consumption of paints in case a coloring product is required
7. Product in terms of economic cost of the meter flat compared to
8. Normal business by 25%
9. Product per weather resistant in terms of dust and sun and dust where all pores are closed and there is no leakage of water from which
10. Is the initiation of paints after at least 72 hours of end realization
11. For the sake of our businesses, the responsibility. Magic plaster is not , sold individually, but we are doing all the work required for the internal and external conch by an integrated team and special equipment and intensities metal. We are ready to receive your inquiries and questions throughout the day on the following numbers

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## Runoff Characteristics & Sediment Retention Under Simulated Rainfall Conditions

Relative Sediment Weights Comparison for a 10-year Storm Event on a SOIL STABILIZER Application vs. Bare Soil

2lative Runoff Percentage Comparison for a 10-year Storm Event on a SOIL STABILIZER Application vs. Bare Soil

Cumulative Sediment Delivery for SOIL STABILIZER vs. Bare Soil Over Time


## SOIL STABILIZER and YOU Proven Health & Environmental Results

1. Acute toxicity tests yield LC50's for rainbow trout (96-hr.) and Daphnia Magna (48-hr.) of at least 7,000 ppm and 21,000 ppm, respectively.
2. SOIL STABILIZER does not contain chemicals known to cause cancer or reproductive toxicity as designed in California Health and Safety Code Proposition 65.
3. SOIL STABILIZER does not contain any polycyclic organic matter (POM) which includes polynuclear aromatic hydrocarbons (PAH), as defined by the Federal Clean Air Act; nor does SOIL STABILIZER contain fluorinated or brominated compounds that could be expected to contribute to Ozone Depletion or Global warming.
4. The 96-hour LC50 of SOIL STABILIZER undiluted concentrate for fathead minnows, pimephales promelas is greater than 750 mg/L using the aquatic bioassay protocol found in Title 22, Section 66261.24(a)(6) in the California Code of Regulations (CCR).
5. SOIL STABILIZER does not contain concentrations of the metals listed U.S. EPA CFR Title 40, Chapter 1, Sub-chapter 1, Part 261.24 and in Title 22, Sec-

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tion 66261.24(a) (2)(A) of the California Code of Regulations (CCR) greater than their corresponding STLC and TTLC values.

6. SOIL STABILIZER upon curing is insoluble in water and reduces soil erosion and sediment delivery in extreme rain events approximately 53%. SOIL STABILIZER will not contribute, greater than regulatory levels, TCLP organics or heavy metals to storm water runoff.


## SOIL STABILIZER TECHNOLOGY CERTIFICATION REQUIRES THAT:

*PM10 Dust control is the only polymer emufsion certified and refried by in dependent agencies such as cap - cert, US , EPA, TV.*

- *Significant reduction of PM10 emissions is verified.*
- *Environmental claims are verified.*
- *Complete evaluation and review of all test methods and protocols used to assure scientific,*
- *Statistical accuracy of conclusions.*
- Schonex Chem *is to continuously meet requirements for product certification to remain valid.*
- Schonex Chem *can demonstrate having control over the manufacturing of the product to ensure we can consistently and reliably produce product that performs at least as well as the product used in the certification testing. Mabel Polymers quality system is designed to meet the criteria of ISO-9001.*
- Schonex Chem*quality management practices and standards are reviewed and certified.*
- Schonex Chem *user manuals and application documents are reviewed and verified.*
- Schonex Chem *policy and procedure manual for personnel training of application is reviewed and verified*

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## Uses Of Soil Stabilizer

- Airports
- Air Quality Compliance Agencies Construction/Development Companies Erosion Control Industry Hydroseeders
- Industrial Plants
- lntermodal Yards
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## Magic Plaster

We have designed and produced material to be added to white cement and sand to be used in clamshell internal and external with the use of more than one thousand color to color the product and processing surfaces.

### Product Description

Magic plaster are chemicals from the finest raw materials, giving strength and stiffness to any mixture. It is added to a product to effectively resist dust and corrosion and its effectiveness lies in the ability of molecules to interact and cohesion with the material.

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## Physical Specifications

The product consists of a single white compound and can be painted on request of a group of up to a thousand colors.

## Technical Information

1. Solid matter content 50 ± 2
2. Specific weight 1.2

3 Mitigation reduces by 5: 1 in the work of the clamshell

4. Product is identical to the standard specifications.

BC Resolution 181 technical specification of the company Global Trading and Contracting and unauthorized , use of the Ministry of Environment.

## Uses

Magic plaster is used in business clamshell regular internal and external as they provide:

1. Higher per capita rate and speed in the implementation of business
2. Hardness stronger, because the Add Magic to white cement plaster, sand and after evaporating the water level of the resulting mixture Union and stiffness, including stronger than cement solo due to the chemical properties of the product and increase strength and cohesion coefficient and hardness and probability
3. Product Good resistance to salts and alkali located Balihuaut as well as sand and cement
4. Product is good for the growth of resistant bacteria and fungi (mold blocker)

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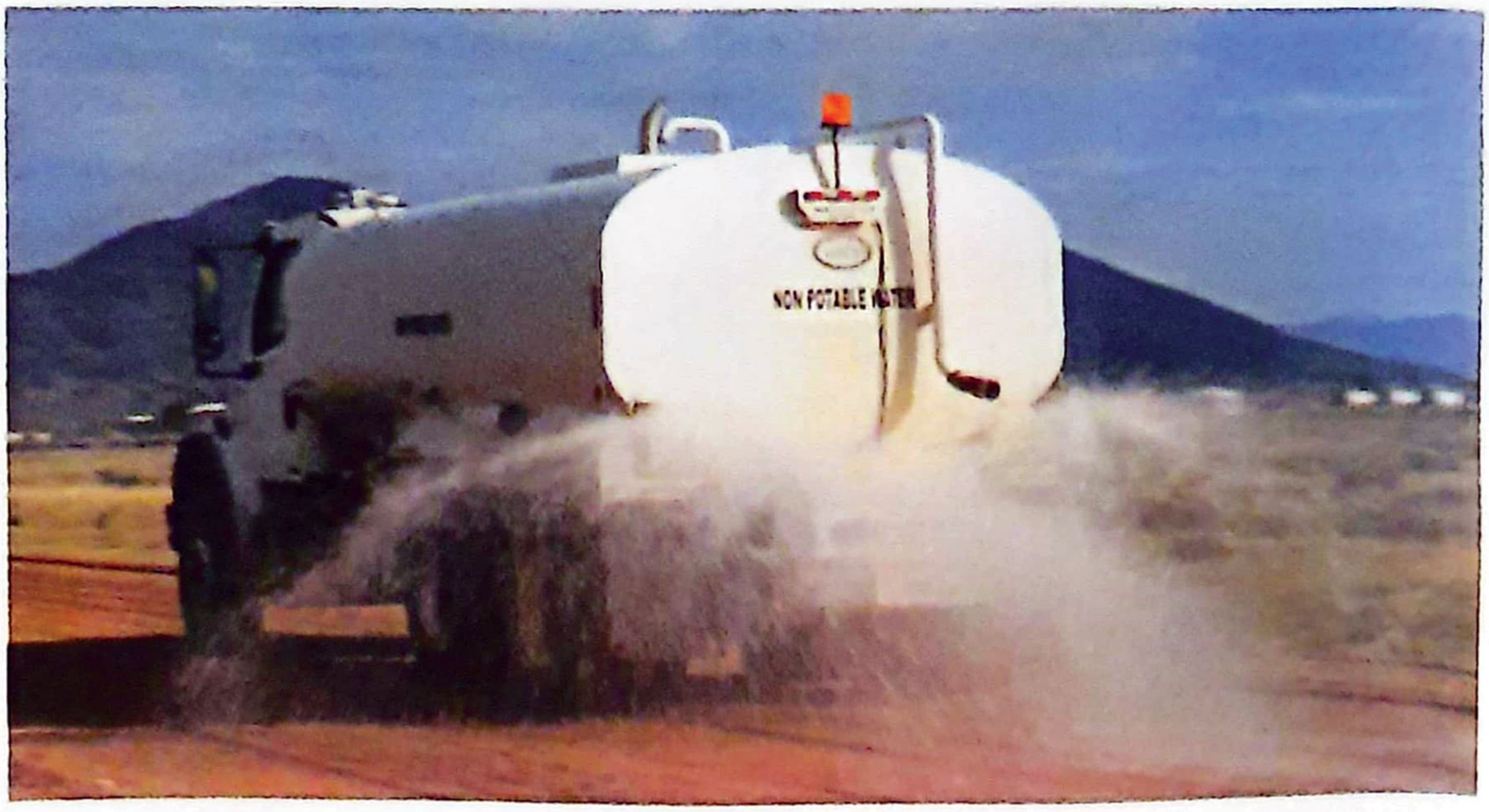


## Dust Control Measures Project

**6 MONTH CO CONCLUSIONS**

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***POST-IMPLEMENTATION EVALUATION***

- *The opacity of the dust plumes generated by the convoys on the SOIL STABILIZER treated areas were lower than 20% as required at the property line.*
- *The SOIL STABILIZER palliative appeared to exhibit a toleranc to the type of vehicular traffic of the MSR (Main Supply Route) (generally heavy vehicles with both rubber tires and tracks). At the time of the evaluation (after 1 year), the SOIL STABILIZE appeared to show some signs of wear but maintained its general integrity at the surface after receiving some heavy, abrasive traffic, particularly from tracked vehicles. The spalling observed appears to be predominantly from the aggregate being crushed or "popped" out of the surface, with only minor flaking of the SOIL STABILIZER treated crossing.*

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# Specifications of SS1 polymer

Soil stabilizing cross-linked styrene acrylic polymer

1. SS1 Material Safety Data Sheet is covering all physical and chemical specs. As well as Safety and Environmental Interrelation. The soil stabilizer being applied properly will comply with the requirements of AASHTO standards for soil stabilization.
2. The soil stabilizer, when cured, has a temperature tolerance range from -57 0C to + 163 0C = (- 70ºF to + 325ºF).
3. The SS1 has unconfined compressive strengths approaching low grade concrete of 1750 psi (123.07 kg/p/cm²) in common silty sandy soil as well as low percentage (<15%) clay based soil.
4. The soil stabilizer performs in high pH and low pH soils; it is 'environmentally friendly'.
5. The stabilizer increases the load bearing capability of on-site subsoils.
6. The soil stabilized base material can be open to traffic within 2 hours of installation and withstand full wheel loads of aircraft, helicopter and heavy equipment depending on depth. (Recommended at last 12 inches (30 cm) for heavy load bearing requirements.)
7. SS1 acts as a water repellent after the curing process which is normally within 2 hours after installation at 16°C. Ambient humidity directly affects curing. Make sure the surface is dry to the touch prior to opening the road.
8. SS1 is applicable for all soils. If desired, you can add aggregate and or fines to optimize the strengthening abilities and reduce polymer concentration.
9. SS1 can be installed with common road building/agricultural machinery (as project applicable).
10. SS1 has good resistance to Ultra Violet damage and has the ability to be blended to contain additional Ultra Violet protection, if required, to increase its unpaved life. (Unpaved means no wearing surface.)
11. The soil stabilizer contains the unique ability to "bond back to itself"; providing a permanent bond, free from any delaminating or

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# THE USE OF DUNE SAND

Use of Dune Sand in Road Construction and the manufacture of Bricks/ Blocks

Basically Dune sand is created from the erosion of rocks .
These rocks are gradually eroded and the rock particles are changed into a format that can be smooth and round.
These factors must be considered when using Dune sand as a structural material.
Round particles can rotate and move if the voids between the particles are not filled to provide the required structural compressive strength.
If the voids between those particles are not filled then a structural layer cannot be achieved.
Dune sand can be a very difficult material to stabilize and should only be used in conjunction with 35% by weight of fine material (passing through a 0.063 sieve) or with angular aggregate.
Basic principle of soil stabilizing is to use interlocking angular aggregates that interlock when compacted with the voids filled with SS1 treated fines.

SS1 coats the surfaces of the angular aggregates and the fines, and the cross-linking polymer binds them together.
The compressive strength is achieved by increasing the layer density with compaction and the tensile strength is increased by the cross-linking of the polymer.
And, why we would Surface Seal.
Surface sealing reduces the ingress of water into the treated layer and significantly reduces the risk of structural damage and failure.

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# ASSESSMENT AND APPLICATION GUIDELINES

## DOSAGE RATE GUIDELINES

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DOSAGE RATE GUIDELINES:
(30-35% fines) 3 to 4 L/m3 subject to gradients.
(40-45% fines) 5 L/m3.

## TOP SEAL FOR UNSURFACED STABILIZED BASE LAYERS:

0.25 TO 0.5 L/m3 of surface area subject to road use and gradients.

DRAINAGE

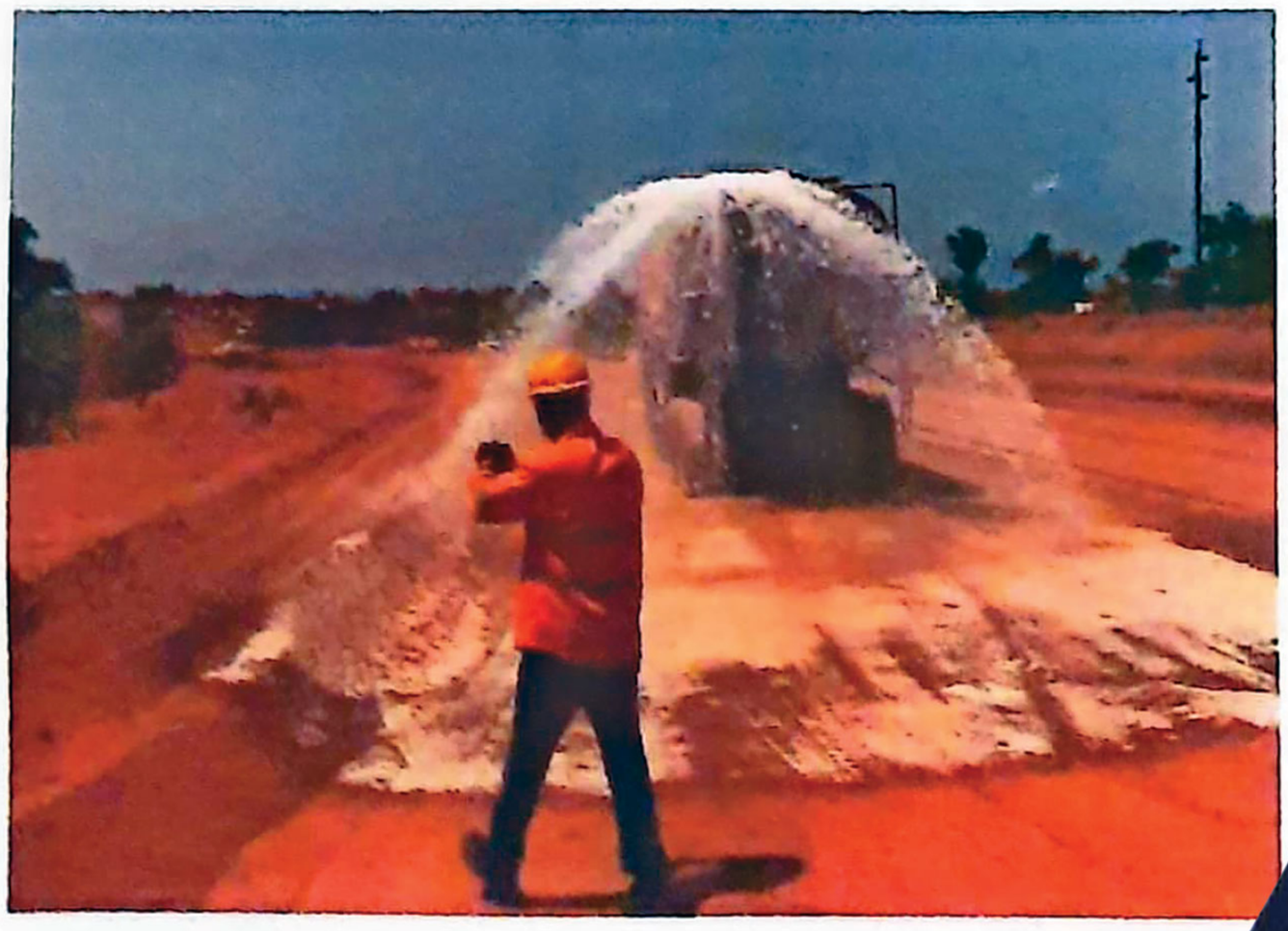
It is important that every road is graded to remove any surplus water. It is also recommended that the surface seal be extended being the edge of the road as this significantly reduces the possibility of damage by water penetrating the base and sub-base layers.

WEARING SURFACES

All wearing surfacing materials will bond to an SS1 stabilized base layer

DECORATIVE SURFACES

SS1 will bond 2 to 4 mm decorative aggregates to virtually any surface.
Dosage rate will be +- 0.5 liters QLIFE SS1 per sq mtr.
SS1 can be colored with water based colorants to produce decorative surfaces. Sharp sand can, if required, be added to the mixture to provide a non-slip surface.
Procedures SS1 Quality and Quantity Evaluation



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## Procedures QLIFE SS1 Quality and Quantity Evaluation

1. A 500 gram sample of the stabilized soil will be supplied by the contractor/client directly to an independent laboratory accepted by all parties. Testing verifies how much polymer has been used in a specific area.
2. This sample will be labeled with the date, time and location where it was extracted before being placed in a waterproof, and preferably, airtight container.
3. The independent laboratory will test the sample in accordance with procedures supplied by Constructive Innovations Ltd.
4. The client will pay for the cost of each test.
5. The soil sample will be weighed and then subjected to a series of tests to evaluate the quantity of SS1 in the sample supplied.
6. The results will be verified and documented by the laboratory and a copy will be forwarded directly to the client and Polymer Contractor.
7. It is important to note that soil stabilizing with a liquid polymer could be subject to many variations. These could include the failure of the spraying equipment, the onset of rain during the installation process and the incorrect dilution of the polymer.
8. Variations in the soil over a large area are also possible.
9. It is strongly recommended that standard monitoring procedures be used to check for moisture content and for compacted layer density during the installation process.

## Procedures QLIFE SS1 Quality and Quantity Evaluation note

To be credible, the tests have to be undertaken by an independent laboratory, who will first test the treated soil sample supplied by the client, and will then test the batch sample of the SS1 supplied by Constructive Innovations to the client.

Use of independent laboratories complying with EU standards is mandatory to ensure the protection of Constructive Innovations proprietary technology of "using tracers".

Testing is typically done when standard road testing procedures reveal a problem.

Testing can also be used as a verification test of work performed; sampling every km of the length of the road.

## Stabilized Soil and pathway designs with SS1

There are so many varied uses for stabilized soil road and pathways using SS1 soil stabilization applications that we compiled some road and pathway design guidelines.

A thorough investigation of the proposed soil stabilized road/ pathway area must include: a soil sieve analysis: climate: topography: seismic activity: below ground services: ingress of tree roots: availability of water.

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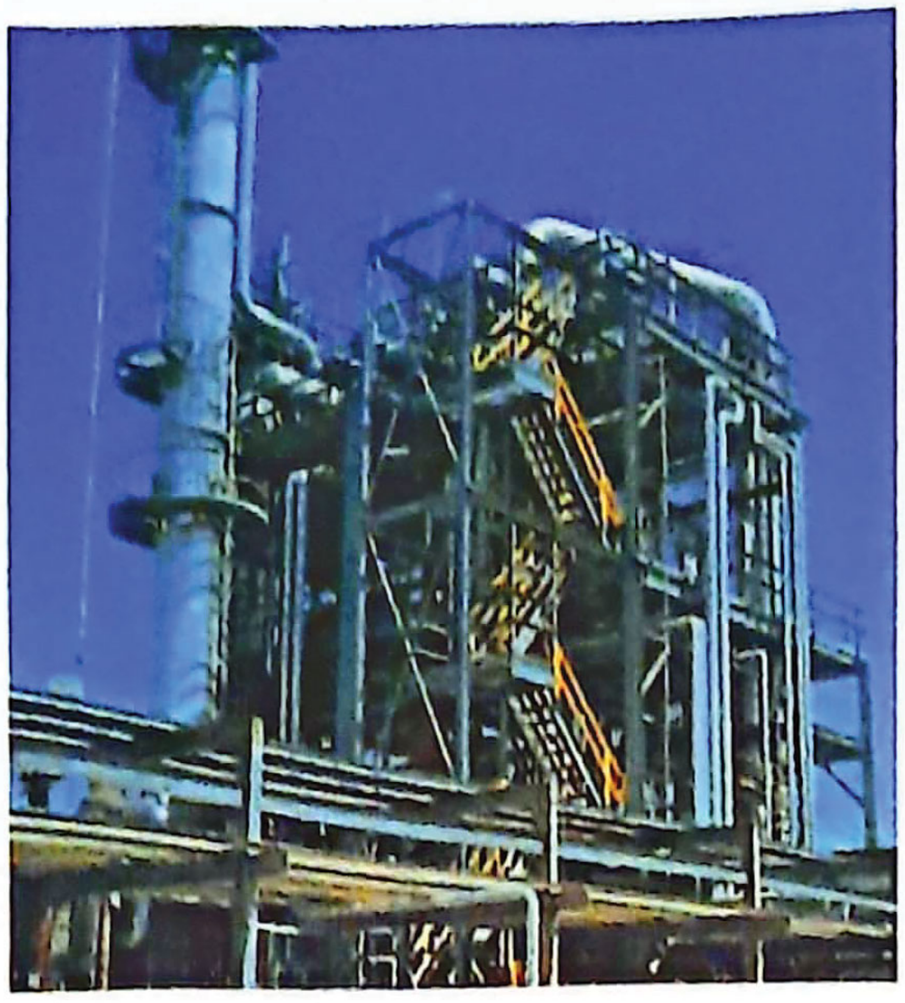
## Basic soil stabilized road design requirement:

)5% fines passing through a 200 sieve and 65% granular material where no stone is larger than 20% of the layer depth being stabilized.
The maximum single load that the stabilized road will be subjected to must also be established.
Subject to the initial report being satisfactory the following layer depths would be recommended for an FIPICO SSI stabilized road.
150mm deep for loads up to 40 tonnes
200mm deep for loads up to 80 tonnes
250mm deep for loads up to 80 tonnes

## Equipment specification would include:

Crusher/Ripper: Spray tanker: Grader:
Smooth drum vibration compactor.
The soil stabilized road surface can be sealed with SSI soil stabilizer or any other standard road surface can be installed. Stabilized Soil Surface Braking Test:

A vehicle traveling at a speed of 40 km per hour completed an emergency stop on the treated area. There was excellent surface grip with virtually no displacement of the SSI stabilized road layer.



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