

Geotechnical solutions

Prime performance below ground

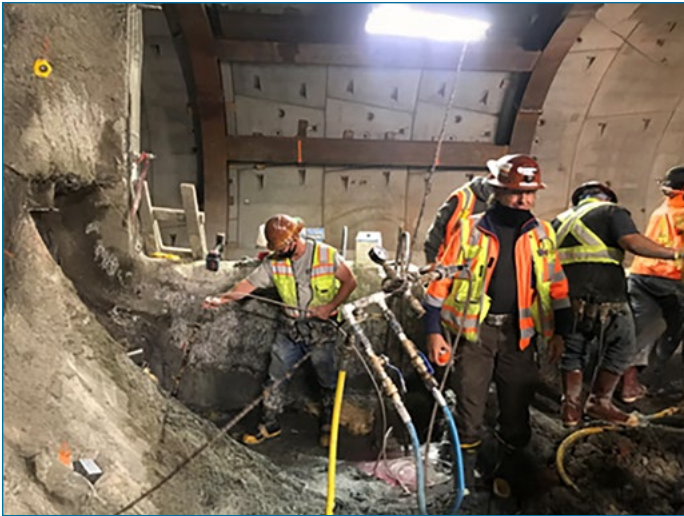


Grouting for stability, safety, and success

Grouting non-cohesive soils and karst areas prior to and during tunnel boring stops water flow and prevents collapses or settlement that would threaten safety or damage equipment.

Grouting provides a stable shell or crown for tunnel boring machines (TBMs) to pass underneath, minimizing the risk of wash-outs or face collapses that would lead to settlement of the ground or structures above.

Grouting is also useful at entrance and exit pits to stop water and prevent soil collapse. Prime Resins' permeation grouting solutions cause less wear and damage to cutterheads compared to slurry- or sodium silicate-based materials.



LA Metro Purple Line Extension - Los Angeles, California

SoiLok permeation grout was used to stabilize loose, poorly compacted soils encountered while crews excavated the cross passages between the twin tunnels comprising the extension. Each tunnel is 22 feet in diameter and 13,680 feet long with 14 cross passages between them.



27th Street tunneling - Denver, Colorado

Nicholson Construction utilized SoiLok permeating grout to stabilize 12,000 cubic feet of soil beneath the city's light rail transit line and above the area where a TBM would cut a 78-inch diameter tunnel. The grouting was necessary to guarantee that no settlement of the railway occurred.



Geotechnical solutions

AR 800 Acrylate is a low-viscosity, hydrophilic acrylate grout that produces an elastomeric gel with variable set times.

Precision Fill is a two-component polyurethane foam used to fill voids and underseal concrete slabs.

Prime Flex 910 is a low-viscosity, hydrophobic, single-component polyurethane grout that reacts with moisture and, when permeated into soil, forms a solid, watertight mass.

Prime Flex 920 is a single-component polyurethane grout used to seal gushing leaks and is often applied as a water stop in tunnels, dams, or other below-grade structures.

SoiLok is an extremely low-viscosity, soil-binding grout designed to permeate fine silts, sands, and topsoil to a desired depth, even reaching down to bedrock.

Non-disruptive underpinning

Grouting solutions provide underpinning support of existing structures adjacent to excavation sites, typically without disrupting the jobsite or the existing structure's operations.

Whether used to stabilize soil under existing buildings or during new construction, underpinning via permeation grouting is an ideal solution to control sloughing and avoiding settlement.

Permeation grouts strengthen and stabilize subgrade soils and significantly increase bearing capacity of the soil without excavating the existing footing.

They also support and strengthen helical piers. If lifting the foundation is required, Prime Resins offers Precision Lift® polyurethane foundation lifting solutions.



Exposed vertical cut helical piers. The soil here was treated with SoiLok.

1028 Market St. - San Francisco, California

SoiLok permeation grout underpins an adjacent building footing for shoring prior to excavation next door.



OLD



NEW



Leak stopping, void sealing, and hazard containment

Chemical grouts can be injected around and underneath water sources or hazardous waste to contain leaching and stop migration.

While subterranean soil remediation is costly, the public health and environmental costs of contamination of ground water is exponentially more difficult and expensive to address. Depending on the requirements in a federal, state, or local corrective action plan, permeation grout can provide a long-term solution where no further corrective action is required. Alternatively, excavating the entire plume may be more ideal than intensive, long-term monitoring and remediation.

These grouting solutions can also be used to contain water by filling voids and binding loose soils to stop leaks in levees, earthen dams, or seepage cut off walls.



Hanford Site - Benton County, Washington

Nicholson Construction proposed to utilize SoiLok to contain hazardous waste and provide excavation support in tandem with micro piles. After thorough testing and validation, the U.S. Department of Energy determined that SoiLok was the ideal grout solution due to its ability to permeate the varying soil types on site.



Pre-excavation soil stabilization

Chemical grouts stabilize soil to support structures adjacent to planned excavations, allowing for a safe excavation without damaging buildings or structures.

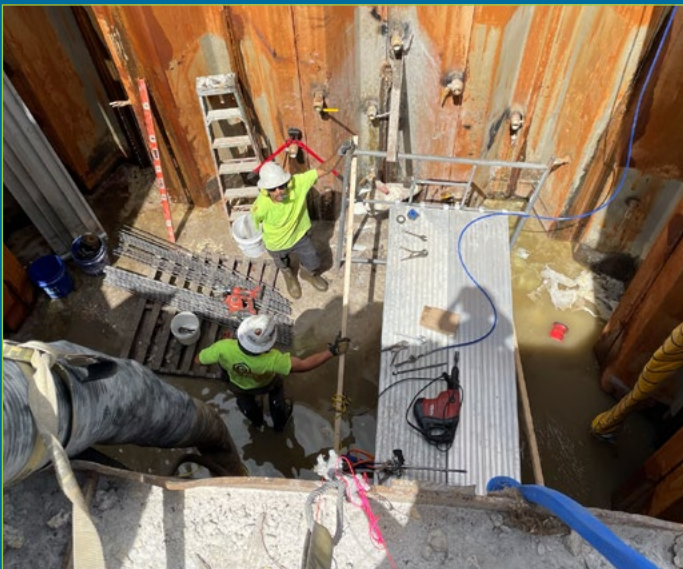
Excavation support is needed for subsurface trenching when working with soft soils and/or soils with high water tables.

Permeation grout is a very low viscosity grout designed to penetrate fine silts, sands, coarse sands, and top soil to a desired depth. This could be below the water surface, below the water bed, or all the way to bedrock.

The grout remains fluid until polymerization, allowing for excellent penetration. It is ideal for geotechnical use in humid environments and sandy soils, preventing wash-outs during trenching that threaten existing structures.



**Call Prime Resins at
800-321-7212 to discuss the
method that is right for you.**



Pre-excavation grouting - Interstate highway, USA

A tunneling machine boring beneath an interstate became stuck under one of the roadways. The state department of transportation drove a sheet pile wall next to the median, four and a half feet from the boring machine. The contractor, CJ Geo, drove grout needles through the wall and grouted the area between the sheet pile and boring machine with AR 800. The entire circumference was grouted in order to prevent wash-out and collapsing. After the area was grouted, the contractor cut the sheet pile open to excavate back towards the machine to safely remove it.

A solid substrate is fundamental to roadways and bridges

Over time, decomposing soils, erosion, freeze-thaw cycles, and groundwater migration break down the foundations beneath roads and bridges. This is a common root cause of sinkholes in roads and settling at bridge approaches and abutments. Injecting chemical grouts into loose soils, voids, pores, and fissures strengthens the earthen substrate and provides watertight encapsulation. Prime Resins products meet or exceed existing state department of transportation specifications for all geotechnical applications.



Highway stabilization - I-40, North Carolina

Near Winston-Salem, a stretch the asphalt highway leading up to a bridge approach slab repeatedly experienced settlement, causing a dip in the road. The North Carolina Department of Transportation kept having to repave that section only to have it sink again. Rebuilding this section of road was not viable because it would have required closing the busy interstate. Instead, NCDOT stabilized the soil beneath the stretch of highway using Prime Flex 910 polyurethane grout. The grout was injected in a grid pattern in the soils underneath the highway to permanently solve the roadway settlement.

Case Pacific uses professional rigs designed and manufactured by Prime Resins



Stabilizing soils and lifting highway slabs - Old Redwood HWY (US 101), California

Motorists felt a noticeable drop and heard the typical thumping associated with uneven sections of highway slabs. The drops were as much as two inches in some places. The California Department of Transportation fixed the uneven slabs and stabilized soils under neighboring ones by injecting Precision Lift 3.0 under both the northbound and southbound sides of the highway. The contractor, Case Pacific, repaired and leveled the slabs and only needed to close one lane at a time while working, leaving the other fully open to traffic.

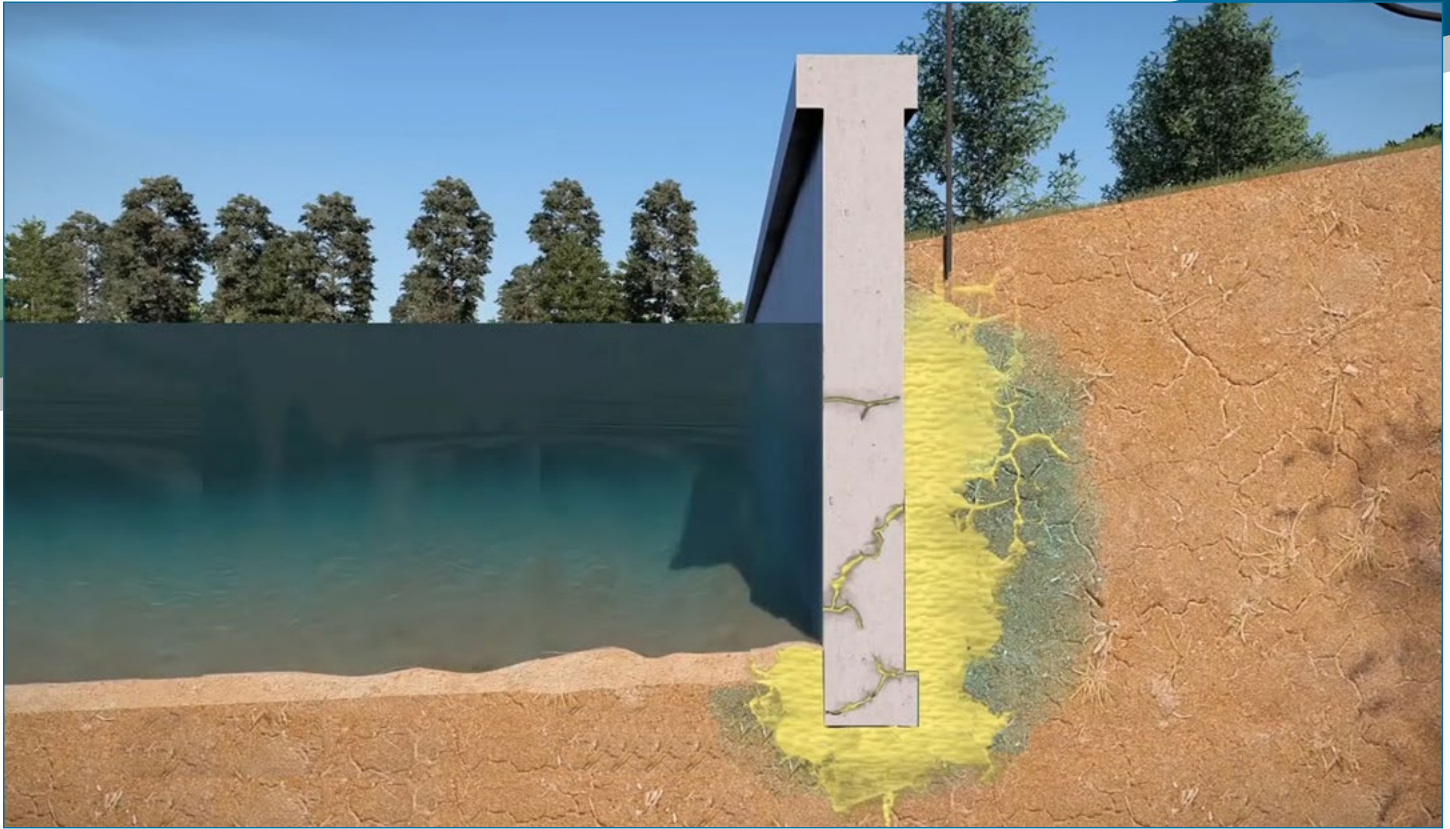


SCHEDULE A DEMO!

Need to see a solution in action before deciding if it's the right fit for your next project? Contact Prime Resins to set up a demonstration today.

Revive bulkheads and seawalls with precision grouting

Seawalls or bulkheads can be repaired with chemical grouts instead of excavation via heavy equipment, with minimal disturbance and often without permitting. Injecting hydrophobic grout behind the seawall will seal off common erosion points at footers, seams, and joints. The grout also fills voids and stabilizes loose soil, ultimately restoring the integrity of the structure at a fraction of the cost of replacement.



Marina project - Panama City Beach, Florida

Stopping subsurface erosion was an important aspect of Panama City's project to rebuild its marina. The contractor injected Prime Flex 920 grout to seal up the joints between existing sheet piles originally built in the 1950s.



GLOBAL COATINGS LEADERS™

RIGHT PEOPLE • RIGHT PRODUCTS • RIGHT LOCATIONS



Prime Resins has been a leading manufacturer of chemical grouts, foams, adhesives, and coatings for infrastructure repair and protection since 1982. Innovative structural repair, leak sealing, soil stabilization, and slab lifting solutions from Prime Resins reduce the maintenance burden and extend the lifespan of critical infrastructure.

PRIME RESINS + CARBOLINE

Founded in 1947, Carboline is a renowned provider of high-performance coatings, linings, and fireproofing products. Now as a Carboline division, Prime Resins' unique asset protection solutions are more widely available and backed by a stronger manufacturing, distribution, and field technical service footprint. Additionally, the partnership creates the industry's only truly comprehensive leak sealing, repair and resurfacing, and protective coating and lining solution under one roof.



CARBOLINE
GLOBAL HEADQUARTERS
2150 SCHUETZ ROAD
ST. LOUIS, MO 63146 USA
PH: 1-314-644-1000
WWW.CARBOLINE.COM

PRIME RESINS
2291 PLUNKETT ROAD
CONYERS, GA 30012
PH: 1-770-388-0626
E: INFO@PRIMERESINS.COM
WWW.PRIMERESINS.COM