

COMMODITY	I	EXPLANATION	II
Asbestos			
Barite			
Corundum			
Feldspar			
Fluorite			
Marble, onyx			
Mica (muscovite)			
Perlite			
Silica			
Vermiculite			
Zeolites			

● Specific locality (as indicated by dot)

○ General locality

△ Metamorphic deposit

□ Sedimentary deposit

○ Igneous deposit

□ Gangue minerals associated with metalliferous ore deposits

I. Deposit with known production, or prospect; includes deposits that are economically marginal to profitable for development

II. Occurrence presently cannot be economically developed; includes some reported but unverified occurrences



Base from U.S. Geological Survey State base map, 1956

SCALE 1:500,000

CONTOUR INTERVAL 500 FEET

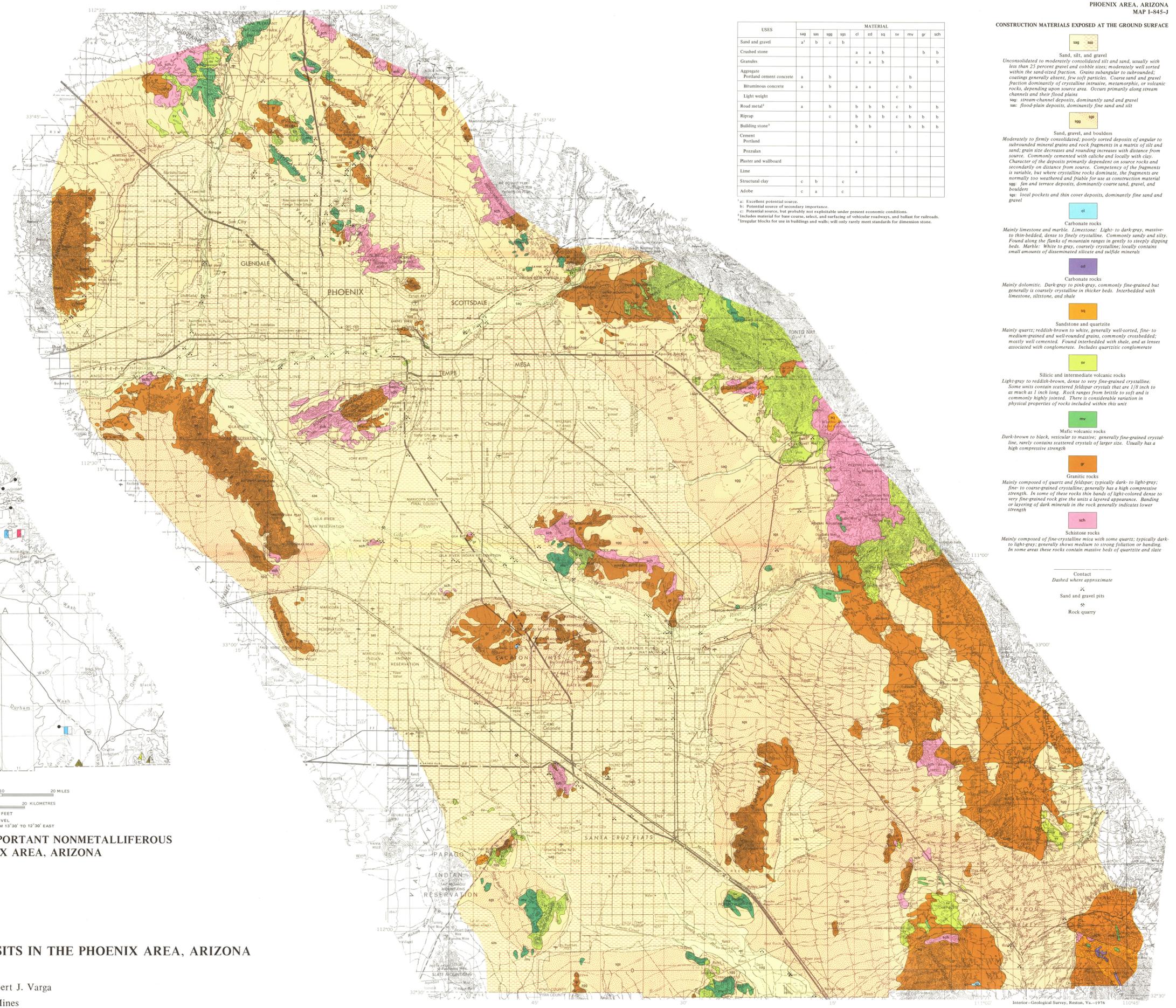
DATUM IS MEAN SEA LEVEL

1974 MAGNETIC DECLINATION VARIES FROM 12°30' TO 12°30' EAST

OCCURRENCES OF COMMERCIALY IMPORTANT NONMETALLIFEROUS MINERALS IN THE PHOENIX AREA, ARIZONA

MAPS SHOWING NONMETALLIC MINERAL DEPOSITS IN THE PHOENIX AREA, ARIZONA

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USES	MATERIAL											
	140	180	190	191	cd	cd	sq	sv	mv	gr	sch	
Sand and gravel	a ¹	b	c	b								
Crushed stone					a	a	b				b	b
Granules					a	a	b					b
Aggregate												
Portland cement concrete	a		b						b			
Bituminous concrete	a		b		a	a	c	b				
Light weight								c				
Road metal ²	a		b		b	b	c	b	b	b		
Riprap					c	b	b	c	b	b	b	
Building stone ³					b	b	c	b	b	b		
Cement												
Portland					a							
Pozzolan								c				
Plaster and wallboard								c				
Lime					a							
Structural clay	c	b	c									
Adobe	c	a	c									

^{a1}: Excellent potential source.
^{b1}: Potential source of secondary importance.
^{c1}: Potential source, but probably not exploitable under present economic conditions.
¹: Includes material for base course, subbase, and surfacing of vehicular roadways, and ballast for railroads.
²: Irregular blocks for use in buildings and walls; will only rarely meet standards for dimension stone.

CONSTRUCTION MATERIALS EXPOSED AT THE GROUND SURFACE

Symbol	Description
	Sand, silt, and gravel Unconsolidated to moderately consolidated silt and sand, usually with less than 25 percent gravel and cobble sizes; moderately well sorted within the sand-sized fraction. Grains subangular to subrounded; coatings generally absent; few soft particles. Coarse sand and gravel fraction dominantly of crystalline intrusive, metamorphic, or volcanic rocks, depending upon source area. Occurs primarily along stream channels and their flood plains. sq: stream-channel deposits, dominantly sand and gravel sa: flood-plain deposits, dominantly fine sand and silt
	Sand, gravel, and boulders Moderately to firmly consolidated, poorly sorted deposits of angular to subrounded mineral grains and rock fragments in a matrix of silt and sand; grain size decreases and rounding increases with distance from source. Commonly cemented with calcite and locally with clay. Character of the deposits primarily dependent on source rocks and secondarily on distance from source. Competency of the fragments is variable, but where crystalline rocks dominate, the fragments are normally too weathered and friable for use as construction material. sq: fan and terrace deposits, dominantly coarse sand, gravel, and boulders. sp: local pockets and thin cover deposits, dominantly fine sand and gravel
	Carbonate rocks Mainly limestone and marble. Limestone: Light- to dark-gray, massive to thin-bedded, dense to finely crystalline. Commonly sandy and silty. Found along the flanks of mountain ranges in gently to steeply dipping beds. Marble: White to gray, coarsely crystalline; locally contains small amounts of disseminated silicate and sulfide minerals
	Carbonate rocks Mainly dolomitic. Dark-gray to pink-gray, commonly fine-grained but generally is coarsely crystalline in thicker beds. Interbedded with limestone, siltstone, and shale
	Sandstone and quartzite Mainly quartz; reddish-brown to white, generally well-sorted, fine- to medium-grained and well-sorted grains; commonly cross-bedded; mostly well cemented. Found interbedded with shale, and as lenses associated with conglomerate. Includes quartzitic conglomerate
	Silicic and intermediate volcanic rocks Light gray to reddish-brown, dense to very fine-grained crystalline. Some units contain scattered feldspar crystals that are 1/8 inch to as much as 1 inch long. Rock ranges from brittle to soft and is commonly highly jointed. There is considerable variation in physical properties of rocks included within this unit
	Mafic volcanic rocks Dark-brown to black, vesicular to massive; generally fine-grained crystalline, rarely contains scattered crystals of larger size. Usually has a high compressive strength
	Granitic rocks Mainly composed of quartz and feldspar; typically dark- to light-gray; fine- to coarse-grained crystalline, generally has a high compressive strength. In some of these rocks thin bands of light-colored dense to very fine-grained rock give the units a layered appearance. Banding or layering of dark minerals in the rock generally indicates lower strength
	Schistose rocks Mainly composed of fine-crystalline mica with some quartz; typically dark- to light-gray; generally shows medium to strong foliation or banding. In some areas these rocks contain massive beds of quartzite and slate

Contact
Dashed where approximate

Sand and gravel pits

Rock quarry

Base from U.S. Geological Survey Phoenix and Mesa 1954-59, Apr 1953-49, Tucson 1956-62

SCALE 1:250,000

CONTOUR INTERVAL 200 FEET

WITH SUPPLEMENTARY CONTOURS AT 100 FOOT INTERVALS

DATUM IS MEAN SEA LEVEL

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MINERAL CONSTRUCTION MATERIALS IN THE PHOENIX AREA, ARIZONA