

Weed-Free Aggregate Program

Mojave Desert Region

PROGRAM OVERVIEW

MISSION:

The primary goal of this program is to prevent the movement of weed seeds via imported aggregate.

The secondary goals are to:

- Create a straight-forward method for managing weeds in quarries
- Help quarry operators develop and update their weed management plans
- Create a steady source of weed-free aggregate for regional land managers
- Provide incentive and recognition to quarry operators that implement good weed management practices

APPROACH:

While ultimately weed-free aggregate is a preventative measure to keep invasive plants out of roadsides and construction sites, the program is also conducted as an outreach service to quarries. The program will provide quarry operators botanical skills and access to resources necessary for efficient and effective weed control. Successful participation in this program by quarry managers allows the sale of aggregate to program participants and provides a marketable certificate that can increase the value of aggregate. Similar programs are in place in the Lake Tahoe basin, Glacier National Park, and the greater Yellowstone area.

METHOD:

This program has two primary components. First, each quarry will create a weed management plan based on a provided template and developed with assistance from a qualified botanist. The weed management plan has a set of general conditions that are common to all quarries and a set of specific conditions that are tailored to the individual quarry and the weeds encountered. An initial site assessment is conducted with a botanist to develop specific conditions for certification.

The second component of this program is a semi-annual inspection by a qualified botanist to verify that the weed management plan is implemented and to monitor for new weed populations. These regular inspections ensure that botanists visit quarries when weeds are identifiable. During each site visit the weed management plan is reviewed by the quarry managers and the inspectors. Following the inspection, the specific conditions for certification will be updated in response to changing weed populations. A rating is assigned to the quarry based on the quarry manager's implementation of the weed management plan. The ratings are as follows:

Passing:

Full compliance: The inspector is confident aggregate from the quarry is free of listed weeds

Conditional: The inspector cannot confidently state all aggregate from the quarry is weed-free. Certain restrictions are specified as to where on-site aggregate may be supplied from and what mitigation measures are still necessary

Failing:

Unacceptable: The inspector believes that aggregate from the quarry poses a threat of spreading listed weeds

Quarries receiving a passing rating will receive a weed-free certification valid until the next semi-annual inspection. Certified quarries are approved to sell aggregate to participating agencies. Construction project managers regularly receive a list with the status of local quarries, expediting purchases and ensuring that only weed-free aggregate is used, even during emergency situations.

Further details are found in the following program documents:

1. Weed management plan template
2. Inspection protocols
3. List of weeds requiring control
4. List of weed control groups and agencies
5. Inspection form
6. Inspection certificate
7. Gravel pit information and inspection history form
8. Acronyms and definitions.

This program is in full compliance with the national standards for weed-free gravel as developed by the North American Weed Management Association (NAWMA). Additionally, the program conforms to the California state mandate to control all A-listed noxious weeds as defined by the California Department of Food and Agriculture (CDFA).

Participating Agencies:

Stanislaus National Forest
Sierra/San Joaquin National Forest
Sequoia National Forest
Sequoia/Kings Canyon National Park
Mother Lode Field Office of the Bureau of Land Management

Program Manager:

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WEED MANAGEMENT PLAN

Company Name

Site Name

I am requesting weed-free aggregate certification.

- I understand that this certification will require two inspections a year by an approved botanist.
- I agree to maintain the following required documents and furnish them upon request.
- I agree to adhere to the following general and specific conditions for certification.
- I understand that the specific conditions for certification are developed in response to current weed threats and will be revised as conditions change.

Checklist of required documents:

- This weed management plan, signed by an authorized representative.
- A current copy of the listed weeds
- A current map of the certification site identifying weed populations
- Records of past inspections
- Records of weed treatments

Authorized representative: _____ Title: _____

Authorized representative signature: _____ Phone: _____

Designated contact employee or contracted professional: _____

Phone: _____ Date: _____

General Conditions for Certification:**Aggregate:**

1. Aggregate are maintained free of listed weeds from the time of extraction until the time of delivery.
2. Aggregate exposed to actively flowing surface water (streams and rivers) cannot be certified as weed-free
3. Aggregate piles growing listed weeds cannot be certified as weed-free.

Weeds:

4. Tier 1 listed weeds are not allowed to set seed where likely to contaminate the extraction pit, processing facilities, storage sites, or on-site roads (collectively referred to as the “active area”). Tier 2 listed weeds are not allowed to grow on or immediately adjacent to aggregate for sale
5. Listed weeds are promptly and aggressively controlled. Control is continual and ongoing
6. Reproductive plant parts are disposed of by on-site burning away from the active area. If burning is not feasible, reproductive plant parts must be bagged and taken to a municipal waste facility
7. Herbicide use is in strict accordance with the label and with consultation from a UC cooperative extension, county agricultural commissioner, or licensed pest control advisor

Surrounding Area:

8. The active area and periphery is regularly inspected to monitor identified weed populations
9. When listed weeds are present on adjacent property and threaten to contaminate aggregate: berms, tall vegetation, mesh fences or other mechanical barriers are established to impede the movement of seed
10. To prevent the establishment of weeds: dense native vegetation is established whenever possible to cover berms, roadsides and other open land within the active area

Specific Conditions for Certification:

An initial inspection is performed in conjunction with a qualified botanist to establish a priority weed list and develop the following specific conditions for certification. These conditions are reviewed before and after each inspection. Updates are made as necessary to respond to current weed infestations and maintain aggregate in a weed-free state.

Listed Weed Species Encountered: _____ **Date** _____

The following treatments are required to prevent the spread of listed weeds:

Access roads: _____

Active pit area: _____

Perimeter of property: _____

Vehicle parking & wash areas: _____

Stock Piles: _____

Additional areas: _____

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INSPECTION PROTOCOLS

What is required before inspection?

The aggregate inspectors will provide:

- a list of weeds that require control
- a qualified, knowledgeable botanist
- a template for a weed management plan

The quarry managers will:

- provide a large format map of the site (11"x17" or larger)
- designate a staff member or contractor to be the contact for this program
- complete a basic information form

Together the aggregate inspectors and the quarry managers will:

- identify and map listed weed species on-site
- develop a list of specific conditions required for certification
- discuss methods to treat weeds
- complete and sign a weed management plan

Copies of the weed management plan and site weed map will be maintained by both the inspectors and quarry managers and must be on hand during future inspections.

What is inspected for certification?

After the weed management plan has been implemented:

- The inspectors will review the weed management plan and weed map with the quarry representative
- The inspectors will examine the entire site for listed weeds including:
 - extraction area
 - processing machinery
 - all on-site roads
 - storage areas
 - fence lines
- All listed weeds will be mapped
- The inspectors will certify that:
 - the conditions of certification in the weed management plan have been met
 - all saleable aggregate is free of listed weeds
 - it's unlikely that first tier listed weeds have set seed in the active area

What happens after inspection?

- The findings of the inspection will be discussed with the quarry representative and a certification rating will be assigned to the quarry
- The weed management plan and site weed map will be reviewed and updated with the quarry representative to help plan for future weed treatments
- An official inspection form and a certificate of inspection will be delivered to the quarry managers. These documents must be maintained by both the quarry and the inspectors

What are the certification ratings?

A rating will be assigned to the quarry based on how weedy the site is. Quarries receiving a passing rating are approved to sell aggregate to participants in the program.

The ratings are as follows:

Passing:

Full compliance: The inspector is confident aggregate from the quarry is free of listed weeds

Conditional: The inspector cannot confidently state all aggregate from the quarry is weed free. Certain restrictions will be specified as to where on-site aggregate may be supplied from and what mitigation measures are still necessary

Failing:

Unacceptable: The inspector believes that aggregate from this site poses the threat of spreading listed weeds

How is certification kept current?

Continued certification will require a spring and autumn inspection each year. Following each inspection the “specific conditions for certification” are expected to be updated as weed populations change over time.

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LISTED WEEDS

First Tier Weeds

The following plants are **first tier** listed weeds and require control to receive weed-free certification. These plants are not allowed to grow in the active areas of gravel pits or set seed where likely to contaminate mineral material. These plants are California Department of Food and Agriculture A-rated noxious weeds, North American Weed Management Association designated noxious weeds, or deemed a threat to the region.

Scientific Name	Family	Common Name
<i>Alternanthera philoxeroides</i>	Amaranthaceae	alligatorweed
<i>Vinca major</i>	Apocynaceae	big periwinkle
<i>Arctotheca calendula</i>	Asteraceae	capeweed
<i>Carduus acanthoides</i>	Asteraceae	plumeless thistle
<i>Carduus nutans</i>	Asteraceae	musk thistle
<i>Carduus pycnocephalus</i>	Asteraceae	Italian thistle
<i>Carthamus leucocaulus</i>	Asteraceae	whitestem distaff thistle
<i>Centaurea diffusa</i>	Asteraceae	diffuse knapweed
<i>Centaurea iberica</i>	Asteraceae	Iberian starthistle
<i>Centaurea maculosa</i>	Asteraceae	spotted knapweed
<i>Centaurea melitensis</i>	Asteraceae	Malta starthistle, tocalote
<i>Centaurea pratensis</i>	Asteraceae	meadow knapweed
<i>Centaurea squarrosa</i>	Asteraceae	squarrose knapweed
<i>Chondrilla juncea</i>	Asteraceae	skeletonweed
<i>Cirsium arvense</i>	Asteraceae	Canada thistle
<i>Cirsium ochrocentrum</i>	Asteraceae	yellowspine thistle
<i>Cirsium undulatum</i>	Asteraceae	wavyleaf thistle
<i>Crupina vulgaris</i>	Asteraceae	bearded creeper, common crupina
<i>Helianthus ciliaris</i>	Asteraceae	blueweed
<i>Onopordum acanthium</i>	Asteraceae	Scotch thistle
<i>Onopordum illyricum</i>	Asteraceae	Illyrian thistle
<i>Onopordum tauricum</i>	Asteraceae	Taurian thistle
<i>Scolymus hispanicus</i>	Asteraceae	golden thistle
<i>Sonchus arvensis</i>	Asteraceae	perennial sowthistle
<i>Tagetes minuta</i>	Asteraceae	wild marigold
<i>Brassica tournefortii</i>	Brassicaceae	Saharan mustard, African mustard
<i>Hirschfeldia incana</i>	Brassicaceae	shortpod mustard, summer mustard
<i>Lepidium latifolium</i>	Brassicaceae	perennial pepperweed, tall whitetop
<i>Atriplex semibaccata</i>	Chenopodiaceae	Australian saltbush
<i>Halogeton glomeratus</i>	Chenopodiaceae	halogeton
<i>Kochia scoparia</i>	Chenopodiaceae	kochia
<i>Salsola vermiculata</i>	Chenopodiaceae	wormleaf salsola, wormleaf saltwort

Scientific Name	Family	Common Name
<i>Cucumis melo</i>	Cucurbitaceae	dudaim melon
<i>Cuscuta reflexa</i>	Cuscutaceae	giant dodder
<i>Elaeagnus angustifolia</i>	Elaeagnaceae	Russian-olive
<i>Euphorbia esula</i>	Euphorbiaceae	leafy spurge
<i>Euphorbia serrata</i>	Euphorbiaceae	serrate spurge
<i>Alhagi maurorum</i>	Fabaceae	camelthorn
<i>Halimodendron halodendron</i>	Fabaceae	Russian salt tree
<i>Prosopis strombulifera</i>	Fabaceae	Argentine screwbean, creeping mesquite
<i>Spartium junceum</i>	Fabaceae	Spanish broom
<i>Sphaerophysa salsula</i>	Fabaceae	Austrian peaweed
<i>Hydrilla verticillata</i>	Hydrocharitaceae	hydrilla
<i>Hydrocharis morsus-ranae</i>	Hydrocharitaceae	frogbit
<i>Salvia virgata</i>	Lamiaceae	southern meadow sage
<i>Ludwigia peploides</i>	Onograceae	creeping water-primrose
<i>Orobanche cooperi</i>	Orobanchaceae	Cooper's broomrape
<i>Orobanche ramosa</i>	Orobanchaceae	branched broomrape
<i>Achnatherum brachychaetum</i>	Poaceae	punagrass
<i>Arundo donax</i>	Poaceae	giant reed
<i>Avena barbata</i>	Poaceae	slender wild oat
<i>Avena fatua</i>	Poaceae	wild oat
<i>Bromus diandrus</i>	Poaceae	ripgut brome
<i>Bromus madritensis</i>	Poaceae	red brome
<i>Bromus tectorum</i>	Poaceae	downy brome, cheatgrass
<i>Cortaderia selloana</i>	Poaceae	pampasgrass
<i>Cynodon dactylon</i>	Poaceae	bermudagrass
<i>Heteropogon contortus</i>	Poaceae	tanglehead
<i>Holcus lanatus</i>	Poaceae	common velvet grass
<i>Hordeum marinum</i>	Poaceae	Mediterranean barley, hare barley, wall barley
<i>Hordeum murinum</i>	Poaceae	Mediterranean barley, hare barley, wall barley
<i>Pennisetum setaceum</i>	Poaceae	crimson fountaingrass
<i>Phalaris aquatica</i>	Poaceae	hardinggrass
<i>Vulpia myuros</i>	Poaceae	rattail fescue
<i>Potamogeton crispus</i>	Potamogetonaceae	curlyleaf pondweed
<i>Acaena novae-zelandica</i>	Rosaceae	biddy biddy
<i>Acaena pallida</i>	Rosaceae	pale biddy-biddy
<i>Potentilla recta</i>	Rosaceae	sulphur cinquefoil
<i>Linaria genistifolia</i>	Scrophulariaceae	Dalmatian toadflax
<i>Striga asiatica</i>	Scrophulariaceae	witchweed
<i>Nicotiana glauca</i>	Solanaceae	tree tobacco
<i>Physalis longifolia</i>	Solanaceae	long-leaf groundcherry
<i>Solanum cardiophyllum</i>	Solanaceae	heartleaf nightshade
<i>Solanum dimidiatum</i>	Solanaceae	Torrey's nightshade
<i>Tamarix parviflora</i>	Tamaricaceae	smallflower tamarisk

Scientific Name	Family	Common Name
<i>Tamarix ramosissima</i>	Tamaricaceae	saltcedar, tamarisk
<i>Peganum harmala</i>	Zygophyllaceae	harmel
<i>Zygophyllum fabago</i>	Zygophyllaceae	Syrian beancaper

Second Tier Weeds

The following plants are **second tier** listed weeds and are not allowed to grow on material for sale. While presence on the site is permissible, control on and around stock piled material is required. These plants are California Department of Food and Agriculture A-rated noxious weeds, North American Weed Management Association designated noxious weeds, or deemed a threat to the region.

Scientific Name	Family	Common Name
<i>Salsola paulsenii</i>	Amaranthaceae	barbwire Russian-thistle
<i>Salsola tragus</i>	Amaranthaceae	Russian-thistle
<i>Myosotis latifolia</i>	Boraginaceae	common forget-me-not
<i>Descurainia sophia</i>	Brassicaceae	flixweed, tansy mustard
<i>Bassia hyssopifolia</i>	Cayophyllaceae	fivehook bassia
<i>Ricinus communis</i>	Euphorbiaceae	castorbean
<i>Erodium cicutarium</i>	Geraniaceae	redstem filaree
<i>Marrubium vulgare</i>	Lamiaceae	white horehound
<i>Bromus hordeaceus</i>	Poaceae	soft brome
<i>Bromus japonicus</i>	Poaceae	Japanese brome, Japanese chess
<i>Phragmites australis</i>	Poaceae	common reed
<i>Poa pratensis</i>	Poaceae	Kentucky bluegrass
<i>Polypogon monspeliensis</i>	Poaceae	rabbitfoot polypogon, annual beardgrass
<i>Rumex crispus</i>	Polygonaceae	curly dock

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WEED CONTROL RESOURCES

County Agricultural Commissioners:

A public service to provide weed identification, advice on methods to control weeds and pesticide applicator permits.

County	Commissioner	Phone #	Web Address
Inyo	George L. Milovich	(760) 873-7860	www.inyomonoagriculture.com/index.html
Riverside	John Snyder	(951) 955-3011	www.rivcoag.org/opencms/office_locations/
San Bernardino	John Gardner	(909) 387-2115	www.sbcounty.gov/awm/

UC Cooperative Extension:

County offices can provide advice on weed control methods, literature on specific species and other expertise:

County	Phone #	Web Address
Inyo	(760) 873-7854	ceinyo-mono.ucdavis.edu
Riverside	(951) 683-6491	ceriverside.ucdavis.edu
San Bernardino	(909) 387-2171	cesanbernardino.ucdavis.edu

Web-based Resources:

All the following websites have excellent photos and descriptions of control methods

Organization	Web Address
CA Dept. of Food and Agriculture	www.cdfa.ca.gov/phpps/ipc/weedinfo/winfo_photogal-frameset.htm
Cal-IPC	www.cal-ipc.org/ip/management/ipcw/sciname.php
Center for Invasive Plant Management	www.weedcenter.org/inv_plant_info/images.html
Invasipedia	wiki.bugwood.org/Invasipedia
North American Weed Management Association	www.nawma.org/Ed.html
The Nature Conservancy (Control Handbook)	www.invasive.org/gist/handbook.html
The Nature Conservancy (Photos)	www.invasive.org/gist/photosa-c.html
UC Davis (Control)	ucce.ucdavis.edu/specialsites/weed_sept/
UC Davis (Photos)	www.ipm.ucdavis.edu/PMG/weeds_intro.html

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CERTIFICATION OF INSPECTION

This certifies that the quarry has been inspected according to certification standards.

Operator: _____ Phone No.: _____ - _____ - _____

Address: _____ City: _____ State: _____ ZIP: _____

Site Location: _____

Material Type: Sand Gravel Rock Top soil Other: _____

Level of Certification

A. _____ **Full compliance:** The inspector is confident that aggregate from this site is free of listed weeds

B. _____ **Conditional:** The inspector cannot confidently state that all aggregate from this site is weed-free.
Certain restrictions will be specified as to where on-site aggregate may be supplied from

Restrictions: _____

C. _____ **Unacceptable:** The inspector believes that the aggregate poses the threat of spreading listed weeds

Explanation: _____

Additional Comments: _____

REQUIREMENTS

Aggregate will be maintained free of listed weeds from the time of extraction until the time of delivery. Listed weeds will not be allowed to set seed where likely to contaminate the extraction pit, processing facilities, storage sites, or on-site roads.

Certification shall be based on a reasonable and prudent visual inspection.

This facility was inspected on: Date: _____ / _____ / _____

This certification is issued on: Date: _____ / _____ / _____

This certification terminates on: Date: _____ / _____ / _____

Certified by: _____ Affiliation: _____

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ACRONYMS AND DEFINITIONS

Active area	Anywhere within a quarry where aggregates are processed or stored including: extraction pits, crushing and sifting facilities, storage piles and on-site roads
Aggregate	Sand, gravel, or crushed stone
CDFA	California Department of Food and Agriculture
Conditional	A <i>passing</i> inspection rating signifying that the inspector cannot confidently state that all aggregate from this site is weed free. Certain restrictions are specified as to where on-site aggregate may be supplied from and mitigation measures may be required
First tier listed weed	Highest priority weeds that require control anywhere in the active area. Plants are not allowed to set seed where contamination of the active area is likely
Full compliance	A <i>passing</i> inspection rating signifying that the inspector is confident aggregate from this site is free of listed weeds
General conditions for certification	Actions or measures required of all aggregate suppliers regardless of weed populations
Listed weeds	Plants with the potential to threaten natural resources . A weed list is provided to all participants in the program
Mitigation	Immediate actions required to address on-site weed populations
NAWMA	North American Weed Management Association
Quarry	Gravel pit or equivalent extraction site
Second tier listed weed	Common weeds that are not allowed to grow in material for sale. Control is require in and around stock piled material
Specific conditions for certification	Actions or measures required to mitigate specific weed populations encountered on site. These are developed in consultation with a botanist and are amended in response to changing weed populations
Unacceptable	A <i>failing</i> inspection rating signifying the inspector believes that aggregate from this site poses a threat of spreading listed weeds