

July 21, 2017

Mr. Peter Hays
Division of Reclamation, Mining, and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: Martin Marietta Materials, Inc.; Duckworth Pit; Permit No. M-2003-091; AM-01
Response to Adequacy Review Letter

Dear Peter:

The purpose of this letter is two-fold. First: to respond to most of the items listed in your April 14, 2017 adequacy review of the recent amendment application submitted on behalf of Martin Marietta Materials, Inc. (Martin Marietta) for the Duckworth Pit (DRMS Permit No. M-2003-091). Second: to request a 30-day extension on the current decision date of July 24, 2017 in order to respond to the remaining items. Please see the response provided below.

1.6 Public Notice

1. No response from Martin Marietta to this comment is required.
2. Please see the attached scans of the return receipts for the evidence you requested.
3. I have reviewed the comment letters from the Colorado Division of Water Resources and History Colorado. Martin Marietta acknowledges that water shall not be impounded in the reservoirs except pursuant to lawful diversions allowed by statute or decree. Martin Marietta further agrees that it will abide by the requirements under C.R.S. §24-80 part 13 should human remains be discovered during ground disturbing activities.

6.4.5 Exhibit E – Reclamation Plan

4. Please see the attached Noxious Weed Management Plan prepared by Martin Marietta for the Duckworth Pit.
5. The pit slopes will be protected from potential flood impacts in two ways. Firstly, Duckworth Pit lies outside of the regulatory floodway (where it has been defined). This means the pit is in the flood fringe portion of the floodplain where velocities are expected to be low and thus the potential for damage to the slopes is also low. Second, Martin Marietta's goal, and the likely goal of any future owners of the reservoir, would be to

keep the reservoir full whenever possible. Should the reservoir be full during a flood event, any floodwater that does overtop into the pit would not run down and erode the slope but would instead flow across the existing water level.

6. Please note that, according to assessor records, the Gerhardt residence is a split level with no basement; therefore the impact of groundwater mounding to this residence is expected to be minimal.

Martin Marietta is currently in the process of developing mitigation measures should mounding from the Duckworth Pit liners result in impacts to surrounding landowners and structure owners. A 30-day extension to the current decision date is requested in order to fully respond to this comment from the DRMS.

7. Martin Marietta has not yet sought agreements with the existing well owners within 600 feet of the site. Martin Marietta is currently in the process of developing mitigation measures should shadowing from the Duckworth Pit liners result in impacts to the surrounding wells. A 30-day extension to the current decision date is requested in order to fully respond to this comment from the DRMS.
8. Martin Marietta agrees to continue collecting data monthly from the three active monitoring wells until the site is fully released from the Division of Reclamation, Mining, and Safety, and will provide the monthly data to the Division with the annual report for the site.
9. Please see the updated version of Exhibit F, which includes the location of the three monitoring wells.
10. Please note that there was a typo in the November 21, 2016 Miller Groundwater Engineering report; references to Indian Creek should instead refer to Idaho Creek.

6.4.12 Exhibit L – Reclamation Costs

11. Martin Marietta acknowledges and accepts the Division's reclamation cost estimate.

6.4.18 Exhibit R – Proof of Filing with County Clerk and Recorder

12. Please see the attached e-mail to the County Clerk and Recorder confirming that this document was sent to Weld County for display with the original amendment materials.

6.5 Geotechnical Stability Exhibit

13. The documents you requested were provided via e-mail from Julie Mikulas (Martin Marietta) on May 8, 2017.

Mr. Peter Hays

RE: Response to Duckworth Pit Incomplete Amendment Application Notice

July 21, 2017

Page 3 of 3

I believe this addresses the majority of the comments contained in your April 14, 2017 adequacy review letter. I request that a 30-day extension be granted to address the two remaining comments. If you have any questions about the content of this letter, feel free to contact me.

Cordially,

Applegate Group, Inc.

A handwritten signature in black ink that reads "Jared Dains". The signature is written in a cursive, slightly slanted style.

Jared Dains, P.E.

Water Resource Engineer

JMD/ta

Attachments

cc: AG File No. 16-124

N:\16124 Duckworth DRMS Amendment\Disciplines\Mine Permitting\Response to Incomplete Notice.docx

16-124
3/21/17

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9777 Weld County Road 7
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Michael Charley

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 KAREN CHARLEY

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Water Resource Advisors for the West

1490 W. 121st Avenue, Suite 100
Denver, Colorado 80234

Handwritten initials: W, C



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Terry W. Barquist
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Longmont, CO 80501

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DUCKWORTH

NOXIOUS WEED MANAGEMENT PLAN

Property will be inspected in the spring, summer and fall and if needed one of the management practices suggested by the Weld County Public Works Weed Division will be implemented as recommended on the following pages for the noxious weeds listed below.

Canadian Thistle
Russian Olive
Tamarisk

05/01/17

Rangeland-Pasture Recommendations

Canada thistle Identification and Management

Canada thistle (*Cirsium arvense*) is a non-native deep-rooted perennial that spreads by seeds and aggressive, creeping horizontal roots (rhizomes). Canada thistle can grow 2 to 5 feet in height. The leaves are oblong, spiny, bright green in color, and are only slightly hairy on the undersurface. Flowers occur in small clusters that form on the ends of branches. They are about 1 cm in diameter, tubular shaped, and vary from white to purple in color with a strong vanilla scent (female flowers).

Canada thistle emerges from its root system from late April through May. It begins to flower in late spring to early summer with increase in day length. Canada thistle only produces about 1,000 to 1,500 seeds per plant. Typically, it reproduces vegetatively through a creeping root system, and can quickly form dense stands. Every piece of root, from ½ to 1 inch in length, is capable of forming new plants. The key to controlling Canada thistle is to eliminate seed production and also to reduce the plant's nutrient reserves in its root system through persistent, long-term management.



Canada thistle is one of the most feared noxious weeds in the U.S. as it can infest many land types, from roadsides, ditch banks, riparian zones, pastures, irrigated cropland, to the most productive dryland cropland. Forage production is severely reduced because cattle will not graze near infestations.

Combining control methods for Canada thistle is imperative. The weed needs to be continually stressed, forcing it to exhaust root nutrient stores and eventually die. Of all control methods, prevention is most important. Maintain healthy pastures and rangeland and continually monitor your property for new infestations.

On the backside of this sheet are Canada thistle management recommendations. If you have any questions, please contact the Weld County Public Works Dept., Weed Division at (970) 304-6496 ext. 3770. Please visit our website at www.weldweeds.org

Recommended management methods:

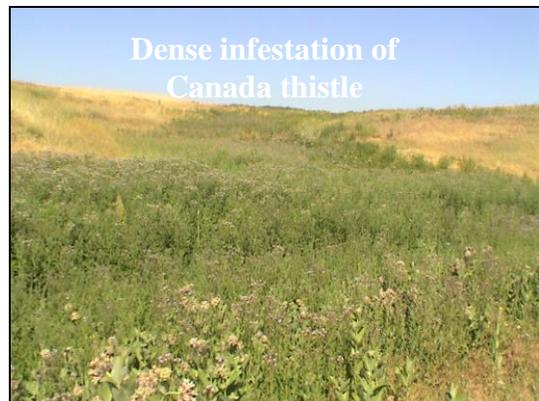
Cultural – Establishment of selected, aggressive grasses can be an effective cultural control of Canada thistle. Contact your local CSU Extension office or Natural Resources Conservation Service office for seed mix recommendations. Good grazing management will stimulate grass growth and keep pastures healthy. Healthy pastures may be more resistant to Canada thistle invasion. Bare spots caused by overgrazing are prime habitat for weed infestations.

Mechanical – Due to the extensive root system, hand-pulling this plant is not a viable option. Mowing can be effective if repeated at about one-month intervals throughout the growing season. Combining mowing with herbicides will further enhance control of this weed. Apply herbicides in spring and/or fall, and then mow during the summer months.

Biological – Canada thistle is typically unpalatable to livestock. Although, cattle have been known to eat the plant when it is in the early growth stages. A gall fly, *Urophora cardui*, is effective on large infestations and when combined with other control methods. Insects can be obtained at no charge from the Colorado Department of Agriculture. Please call 970-464-7916 or go to www.palisadeinsectray.com for more information.

Herbicides – The following are recommendations for herbicides that can be applied to range and pasturelands. Always read, understand, and follow label directions. The herbicide label is the LAW!

Herbicide	Rate	Application Timing/Comments
Milestone	5-7 oz./acre or 2.5 ml/gal water	Spring- up to early bud stage and fall rosette stage. Safe near a number of trees. Check label for more information. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water.
Curtail	2-3qts./acre or 2.0-2.5 oz/gal water	Spring- at 6-10” growth stage to pre-bud and in fall rosette stage. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water.
Telar XP	2 oz/acre	Apply from rosette to flower stage when all plants have emerged. Add non-ionic surfactant @ 0.32oz/gal water or 1 qt/100 gal water.
Clarity + 2,4-D Amine	1 qt./acre for each product or 1 oz/gal water for each product	Spring- early bud stage and fall rosette stage. DO NOT apply when outside temperatures will exceed 85 degrees. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water.



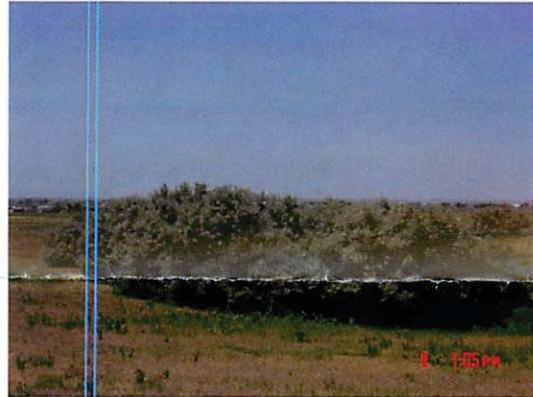
Rangeland-Pasture Recommendations

Russian Olive/*Elaeagnus angustifolia*

Identification and Management

Russian olive is a non-native deciduous shrub or small tree that can reach 10-25 feet tall. The foliage has an overall silvery appearance. The leaves are arranged alternately, 2-3 inches long and narrow with smooth margins. The upper surface is gray-green while the lower surface and leaf stalks are silvery-gray. The bark is dark reddish-brown in color and usually has 1-2 inch thorns. The twigs also have a silver-gray appearance. The flowers appear between May and June, they are yellow, bell shaped and arranged in clusters. The tree starts to produce fruit at 3 year of age. The fruit is shaped like a small olive and contain a single seed. The seeds are viable for up to 3 years. The Russian olive spreads mostly through seeds but can re-grow from injury. The Russian olive is very adaptable. The seedlings are tolerant of shade and drought conditions. It can thrive in a variety of soil types, including bare mineral substrates. They can grow between sea level and 8,000 feet.

The Russian olive originated in southern Europe, central Asia and eastern Asia. They were introduced to the United States in the late nineteenth century as an ornamental shrub or small tree. It has been used extensively in wind breaks and stream bank stabilization. Russian olive will out-compete native vegetation, changes soil characteristics and taxes water reserves. It rapidly takes over lowland fields and often dries up irrigation ditches. Although the fruit is often eaten by birds, studies show there is a greater number of birds in an area dominated by native Cottonwoods. The long thorns the plant produces can make a stand of Russian olive impassable to cows and wildlife. This results in fewer native plants and less animal diversity.



The most effective method of control for Russian olive is to prevent its establishment through proper land management. Monitor susceptible areas for new infestations.

On the backside of this sheet are Russian olive management recommendations. If you have any questions or would like more information, please contact the Weld County Public Works Dept., Weed Division at (970) 304-6496 ext. 3770. Please visit our website www.weldweeds.org.

Recommended management methods:

Cultural – After managing Russian olive infestations, other vegetation must be established to prevent re-invasion. Competitive grasses and planted cottonwood cuttings have proven to be effective at reducing the chances of re-invasion. Contact your local CSU Extension office or Natural Resources Conservation Service office for proper seed mix recommendations.

Mechanical – In areas where woody native plants are present and their continued existence is desired, or for large stands of Russian olive it may be necessary to cut and treat the stumps with a herbicide. This is referred to as the cut-stump treatment. Cuts should be made within 2 inches of the ground surface, immediately followed by a herbicide application to the cut stems. The girdling method involves making shallow, overlapping cuts into the bark around the trunk base. Use a hatchet or chainsaw to make these cuts. Then lightly spray the entire cut surface with herbicide.

Herbicides – For large stands of Russian olive that would essentially be monotypic, foliar applications of herbicides are effective. Late summer/early fall are optimum treatment times using this method. This is recommended for areas that have little to no desirable shrubs and trees.

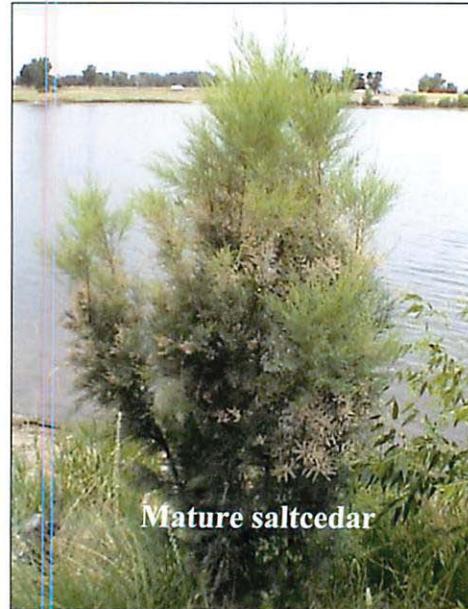
Always read, understand, and follow herbicide label directions. The herbicide label is the LAW!

Herbicide	Rate	Application Timing/Comments
Roundup Pro or Max or Ultra	50-100% concentrate	Cut-Stump treatment. Ensure coverage of the entire cambium. Cut trees and re-sprouts close to the soil surface. Apply immediately to the freshly cut surface. Applications should be made during periods of active growth and full leaf expansion. Non-Selective.
Remedy Ultra	<u>Actively growing rate:</u> 1.5-2% solution in oil Or <u>Dormant rate:</u> 3-6 qts in oil to make 100 gallons total.	Cut-Stump treatment. Do not apply directly to water, or to areas where surface water is present. No grazing restrictions for livestock other than lactating dairy animals. Best time to treat is when actively growing. Established grasses are tolerant. 14 day haying restriction. For root suckering trees, also spray the ground under the plant to control root suckers not yet visible. Selective.
Pathfinder	Ready- to-use	Cut-Stump treatment. Do not apply directly to water, or to areas where surface water is present. Seasonally dry wetland areas ok. No grazing restrictions for livestock other than lactating dairy animals. 14 day haying restriction. No more than 2.7 gallons/acre/year may be applied. Selective.
Arsenal	8-12 oz/gal water (plus 0.25% surfactant)	Cut-Stump treatment. Addition of a surfactant will improve control. Either non-ionic or methylated seed oil may be used. Re-entry interval of 48 hours. Non-Selective.
Habitat	2-4 pints/acre Or 1% solution plus 0.25% non-ionic surfactant	Cut-Stump treatment. After treating, wait at least 2 years to disturb the site. Do not apply more than 6 pints of Habitat/acre/year. Used in treating aquatic vegetation in and around standing water and flowing water. There are no restrictions on livestock consumption of water from the treatment area. Non-Selective.

Riparian Noxious Weeds

Saltcedar/tamarisk Identification and Management

Saltcedar, aka tamarisk (*Tamarix ramosissima*), is a non-native deciduous or evergreen shrub or small tree that grows from 5 to 20 feet tall. The bark on saplings and stems is reddish-brown. The leaves are small and scale-like and the flowers are pink to white and 5-petaled. Saltcedar reproduces by seeds as well as vegetatively. A mature plant can produce up to 600,000 seeds per year. Seeds are viable for up to 45 days under ideal conditions. Saltcedar buds break dormancy in February or March. Flowering occurs anytime between April and August. Ideal conditions for saltcedar seedling survival are saturated soil during the first few weeks of life, a high water table, and open sunny ground with little competition from other plants.



Saltcedar was introduced from Eurasia and is now widespread in the United States. It was introduced as an ornamental and as a streambank stabilizer. Saltcedar crowds out native stands of riparian and wetland vegetation. It increases salinity of surface soil, rendering the soil inhospitable to native plant species. It uses more water than native plant communities, one large saltcedar plant can consume up to 200 gallons of water per day. Saltcedar can be found along floodplains, riverbanks, streambanks, marshes, and irrigation ditches.

The most effective method of control for saltcedar is to prevent its establishment through proper land management. Monitor susceptible areas for new infestations.

On the backside of this sheet are saltcedar management recommendations. If you have any questions or would like more information, please contact the Weld County Public Works Dept., Weed Division at (970) 304-6496 ext. 3770. Please visit our website www.weldweeds.org.

Recommended management methods:

Cultural – After managing saltcedar infestations, other vegetation must be established to prevent re-invasion. Competitive grasses and planted cottonwood cuttings have proven to be effective at reducing the chances of re-invasion. Contact your local CSU Extension office or Natural Resources Conservation Service office for proper seed mix recommendations.

Mechanical – A bulldozer or prescribed fire can be used to open up large stands of saltcedar. These methods must be followed up with a herbicide treatment of the resprouts when they are 1 to 2 meters tall.

Herbicides – For large stands of saltcedar that would essentially be monotypic, foliar applications of the herbicide Arsenal, Habitat or Arsenal plus Roundup are effective. Late summer/early fall are optimum treatment times. This is recommended for areas that have little to no desirable shrubs and trees.

In areas where woody native plants are present and their continued existence is desired, it may be necessary to cut and treat saltcedar stumps with a herbicide. This is referred to as the cut-stump treatment. Cuts should be made within 2 inches of the ground's surface, immediately followed by a herbicide application to the perimeters of the cut stems. The products Arsenal and Garlon are effective but must be applied within one minute after cutting because wound healing occurs very quickly and decreases herbicide penetration.

Always read, understand, and follow herbicide label directions. The herbicide label is the LAW!

Herbicide	Rate	Application Timing/Comments
Roundup Pro or Max or Ultra	50-100% concentrate	Cut-Stump treatment. Ensure coverage of the entire cambium. Cut trees and re-sprouts close to the soil surface. Apply immediately to the freshly cut surface. Applications should be made during periods of active growth and full leaf expansion. Non-Selective.
Remedy Ultra	<u>Actively growing rate:</u> 1.5-2% solution in oil Or <u>Dormant rate:</u> 3-6 qts in oil to make 100 gallons total.	Cut-Stump treatment. Do not apply directly to water, or to areas where surface water is present. No grazing restrictions for livestock other than lactating dairy animals. Best time to treat is when actively growing. Established grasses are tolerant. 14 day haying restriction. For root suckering trees, also spray the ground under the plant to control root suckers not yet visible. Selective.
Pathfinder	Ready- to-use	Cut-Stump treatment. Do not apply directly to water, or to areas where surface water is present. Seasonally dry wetland areas ok. No grazing restrictions for livestock other than lactating dairy animals. 14 day haying restriction. No more than 2.7 gallons/acre/year may be applied. Selective.
Arsenal	8-12 oz/gal water (plus 0.25% surfactant)	Cut-Stump treatment. Addition of a surfactant will improve control. Either non-ionic or methylated seed oil may be used. Re-entry interval of 48 hours. Non-Selective.
Habitat	2-4 pints/acre Or 1% solution plus 0.25% non-ionic surfactant	Cut-Stump treatment. After treating, wait at least 2 years to disturb the site. Do not apply more than 6 pints of Habitat/acre/year. Used in treating aquatic vegetation in and around standing water and flowing water. There are no restrictions on livestock consumption of water from the treatment area. Non-Selective.

Revegetation of the site is ongoing. All seeding will be performed according to National Resource Conservation Service (NRCS) recommended practices. Based on NRCS guidance for other local projects having similar surficial soils, the following revegetation procedures are anticipated:

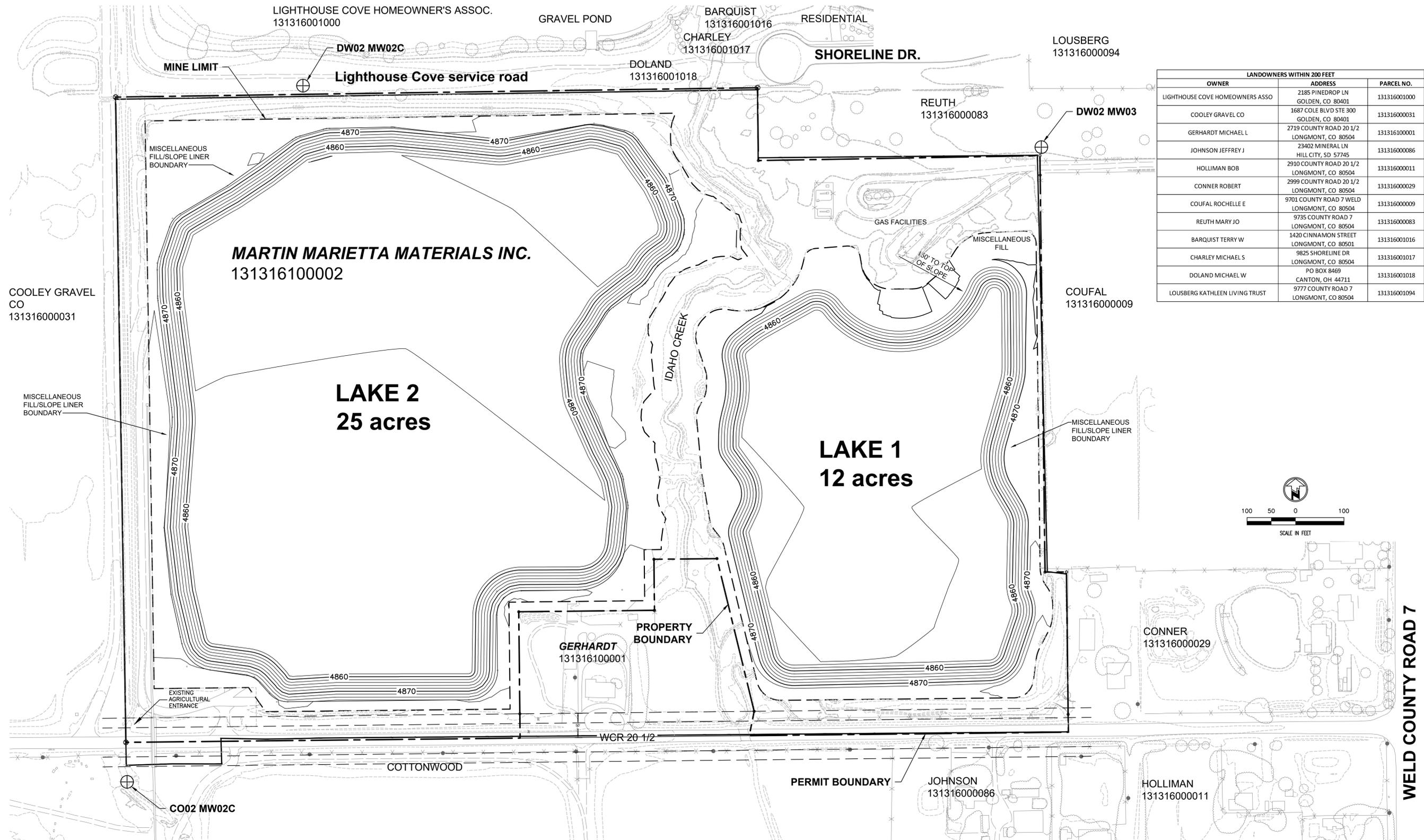
- Grass seed will typically be planted in unfrozen soil between October 1 and April 30.
- Grass seed will be planted with a grass drill or, where necessary, with a broadcast seeder.
- The proposed seed mix and application rates in pounds of pure live seed per acre are described in the following table.
- The area will be mulched, as stated in the reclamation cost estimate and recommended by the NRCS, with 4,000 lbs per acre of grass hay or straw.
- Weed control practices will be implemented as required.

The above procedures may be modified as conditions dictate. If a significant invasion of noxious weeds occurs, the area will be mowed periodically for control. Weeds will be moved before they go to seed during the first growing season. Mechanical control will be used as a first priority. Chemical methods will be used only if no other alternative produces acceptable results.

Martin Marietta will apply the following seed mix to the upland areas and the reservoir slopes. The availability of certain seed varieties may dictate the need for substitution. The rates specified are in pure live seed pounds per acre planned using drill seeding methods; the rates should be doubled if broadcast seeding methods are used.

Duckworth Pit Seed Mix		
Common Name	Seeding Rate	
Blue Grama	3.0 PLS/ac @ 20%	0.6 PLS/ac
Side Oats Grama	9.0 PLS/ac @ 15%	1.4 PLS/ac
Buffalo Grass (bur)	16.0 PLS/ac @ 10%	1.6 PLS/ac
Western Wheatgrass	16.0 PLS/ac @ 20%	3.2 PLS/ac
Slender Wheatgrass	11.0 PLS/ac @ 20%	2.2 PLS/ac
Streambank Wheatgrass	11.0 PLS/ac @ 15%	1.6 PLS/ac

In order to prevent potential damage to the liners from root growth, neither shrubs nor trees will be planted around the periphery of the reservoirs.



LANDOWNERS WITHIN 200 FEET		
OWNER	ADDRESS	PARCEL NO.
LIGHTHOUSE COVE HOMEOWNERS ASSO	2185 PINEDROP LN GOLDEN, CO 80401	131316001000
COOLEY GRAVEL CO	1687 COLE BLVD STE 300 GOLDEN, CO 80401	131316000031
GERHARDT MICHAEL L	2719 COUNTY ROAD 20 1/2 LONGMONT, CO 80504	131316100001
JOHNSON JEFFREY J	23402 MINERAL LN HILL CITY, SD 57745	131316000086
HOLLIMAN BOB	2910 COUNTY ROAD 20 1/2 LONGMONT, CO 80504	131316000011
CONNER ROBERT	2999 COUNTY ROAD 20 1/2 LONGMONT, CO 80504	131316000029
COUFAL ROCHELLE E	9701 COUNTY ROAD 7 WELD LONGMONT, CO 80504	131316000009
REUTH MARY JO	9735 COUNTY ROAD 7 LONGMONT, CO 80504	131316000083
BARQUIST TERRY W	1420 CINNAMON STREET LONGMONT, CO 80501	131316001016
CHARLEY MICHAEL S	9825 SHORELINE DR LONGMONT, CO 80504	131316001017
DOLAND MICHAEL W	PO BOX 8469 CANTON, OH 44711	131316001018
LOUSBERG KATHLEEN LIVING TRUST	9777 COUNTY ROAD 7 LONGMONT, CO 80504	131316001094

Applegate Group, Inc.
Water Resource Advisors for the West
1490 West 121st Ave., Suite 100
Denver, CO 80234
(303) 452-4611
Fax: (303) 452-2759
email: info@applegatgroup.com Website: www.applegatgroup.com

DUCKWORTH PIT M-2003-091
RECLAMATION PLAN MAP

MARTIN MARIETTA MATERIALS INC.

REVISIONS			
NO	DATE	BY	DESCRIPTION

Date:	1-25-17
Job No:	16-124
Drawn:	TH
Design:	JD
Checked:	JD
Scale:	AS SHOWN

Sheet: **F**
Of:

Plot Date: 05/12/17 9:17am. Plotted by: Horn. Drawing Path: \\Appa\Projects\16124 - Duckworth - DWS - Amendment\Drawings\Design\Drawing - Nonrecorplan.dwg

Jared Dains

From: Jared Dains
Sent: Friday, July 21, 2017 3:57 PM
To: 'crstaff'
Subject: Modifications to Duckworth Pit Mining Packet
Attachments: 2017.07.21 Response to Adequacy Review.pdf

Good afternoon. I'm writing to provide an additional document that I would like added to the Duckworth Pit Mining Permit amendment application packet that is currently on file at the Clerk & Recorder's Office (DRMS Permit No. M-2003-091). The amendment process is continuing, so this information needs to be available for anyone to view should they have questions about the amendment.

Please let me know if you have any questions about this request.

Regards,

Jared Dains, P.E.

Applegate Group, Inc.

1490 West 121st Avenue, Suite 100

Denver, CO 80234

Phone: (303) 452-6611

Fax: (303) 452-2759