


Staff Report

for the Maintenance and Resources Committee Meeting of February 25, 2020

TO: Maintenance and Resources Committee
FROM: Jacqueline Longshore 
DATE: February 19, 2020
SUBJECT: Standing Item – Vegetation Management Update

MAINTENANCE

RECOMMENDATION:

Receive an informational update on the status of the Integrated Vegetation Management (IVM) Program Phase 3 Study.

BACKGROUND:

In the District's continued efforts to research and investigate new and innovative vegetation control tools and techniques, the District has implemented the Phase 3 Study that expands trials of alternative herbicides identified during the Phase 2 Study.

BUDGETARY IMPACT:

No budgetary impact

JSL

Attachment (1):

- NID IVM Phase 3 Update Presentation

NEVADA IRRIGATION DISTRICT
INTEGRATED VEGETATION MANAGEMENT PROGRAM

PHASE 3 STUDY



Maintenance and Resource Committee Meeting
February 25, 2020

BACKGROUND

- ❑ In 2017, NID initiated the Phase 1 Study
- ❑ Phase 1 Study evaluated alternatives along District canals:
 - Organic herbicides (A.D.I.O.S., Axxe, Avenger, Weed-A-Way, Weed Zap, Finalsan, Suppress, Opportune and Marrone)
 - Goat Grazing
 - Weedwacker
 - Abrasion Weeder
- ❑ Phase 1 Study results informed the focus of the Phase 2 Study
- ❑ In 2018, NID initiated the Phase 2 Study that evaluated:
 - Organic herbicides (Axxe, Avenger, Finalsan, Suppress, Opportune, Marrone, Scythe, Weed Slayer and Phydura)
 - Mechanical Equipment (Steamer, Flamer, Weedwacker and Abrasion Weeder)
 - Native Vegetation Plantings



BACKGROUND

Results of the Phase 2 Study included:

- Opportune and Weed Slayer - top performing alternatives
- Opportune and Weed Slayer along longer canal segments
- Continued monitoring and data collection
- Fabrication of steamer boom device for canals
- Cost study of glyphosate elimination
- Self-propelled flail mower
- Flamer unit at waterline

OPPORTUNE™
Pre and Post-Emergent Herbicide

For the control of late annual grasses, broadleaf and sedge weeds.

Active Ingredients: glyphosate (non-volatile dimethylammonium salt) 17%
triclopyr (4-tert-butyl-3-chlorobenzoic acid) 33%

Total: 50%

* Product contains not less than 4 grams Triclopyr A.

EPA Reg. No. 94088-12 EPA Est. No. 94088-98-01

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

FIRST AID

IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call poison control center or doctor for treatment advice.
IF SWALLOWED:	Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 - 20 minutes. Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.

MADE IN THE USA

NET CONTENTS: _____ LITERS

OPR-13-01

Marrone BioInnovations
2121 Spectrum Dr., Ste. B-100
Davis, CA 95618 USA
info@marronebio.com

weed slayer
herbicide

NON-SELECTIVE HERBICIDE

PROTECTIVE EQUIPMENT (PE): Complete protective clothing (coveralls or a suit, long-sleeved shirt and trousers, socks and shoes, gloves, a respirator or equivalent, and protective eyewear) must be worn when in direct contact with this product. Do not eat, drink, or use tobacco products when handling this product. Wash thoroughly and frequently. Remove contaminated clothing and shoes immediately. Shower after use. Keep work clothes separate from other clothes. Launder as usual. Do not reuse. Do not launder with other laundry. Wash laundry separately before reuse.

HAZARD TO HUMANS AND DOMESTIC ANIMALS: Causes moderate to severe eye irritation. Causes eye irritation. Causes moderate to severe skin irritation. Causes moderate to severe respiratory irritation. Causes moderate to severe respiratory irritation. Causes moderate to severe respiratory irritation. Causes moderate to severe respiratory irritation.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Complete protective clothing (coveralls or a suit, long-sleeved shirt and trousers, socks and shoes, gloves, a respirator or equivalent, and protective eyewear) must be worn when in direct contact with this product. Do not eat, drink, or use tobacco products when handling this product. Wash thoroughly and frequently. Remove contaminated clothing and shoes immediately. Shower after use. Keep work clothes separate from other clothes. Launder as usual. Do not reuse. Do not launder with other laundry. Wash laundry separately before reuse.

NET CONTENTS: _____ GALLONS

Gowan
The Gowan Company

SCYTHE
HERBICIDE

For control of burndown of a broad spectrum of weeds on contact

**KEEP OUT OF REACH OF CHILDREN
WARNING - AVISO**

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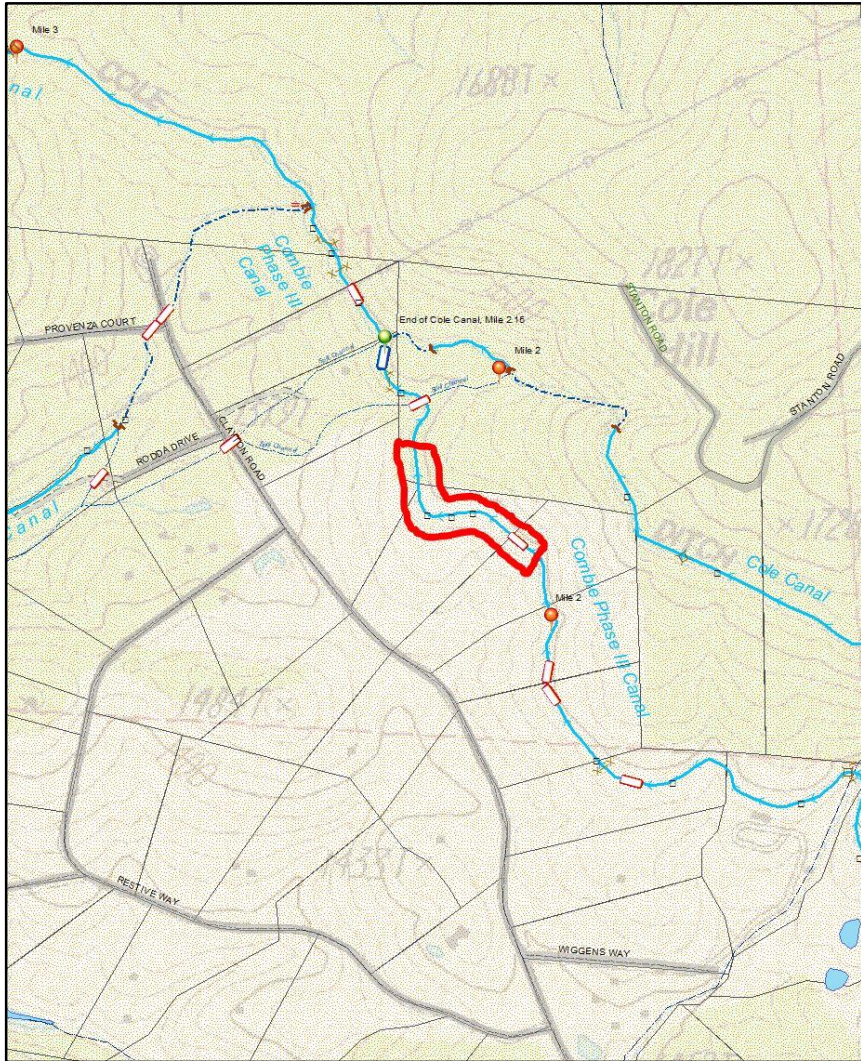
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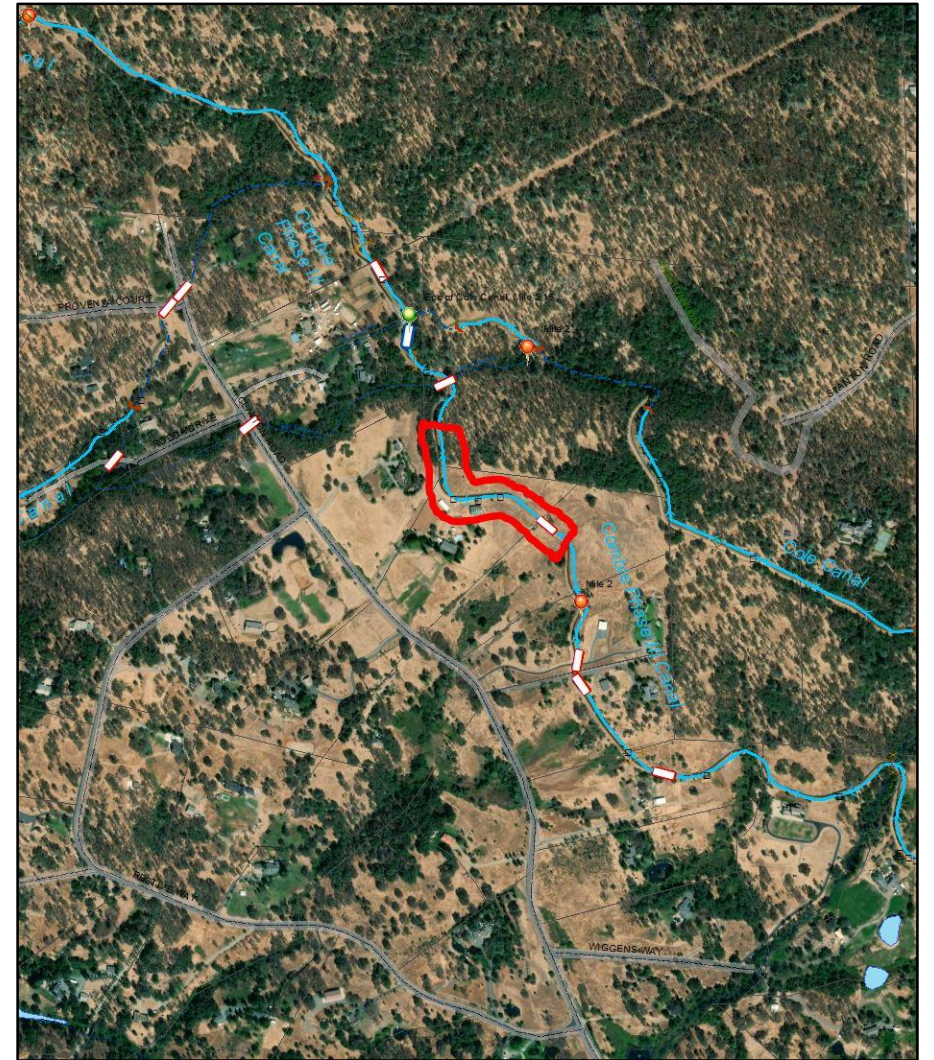
Gowan
The Gowan Company

PHASE 3 STUDY - LOCATION

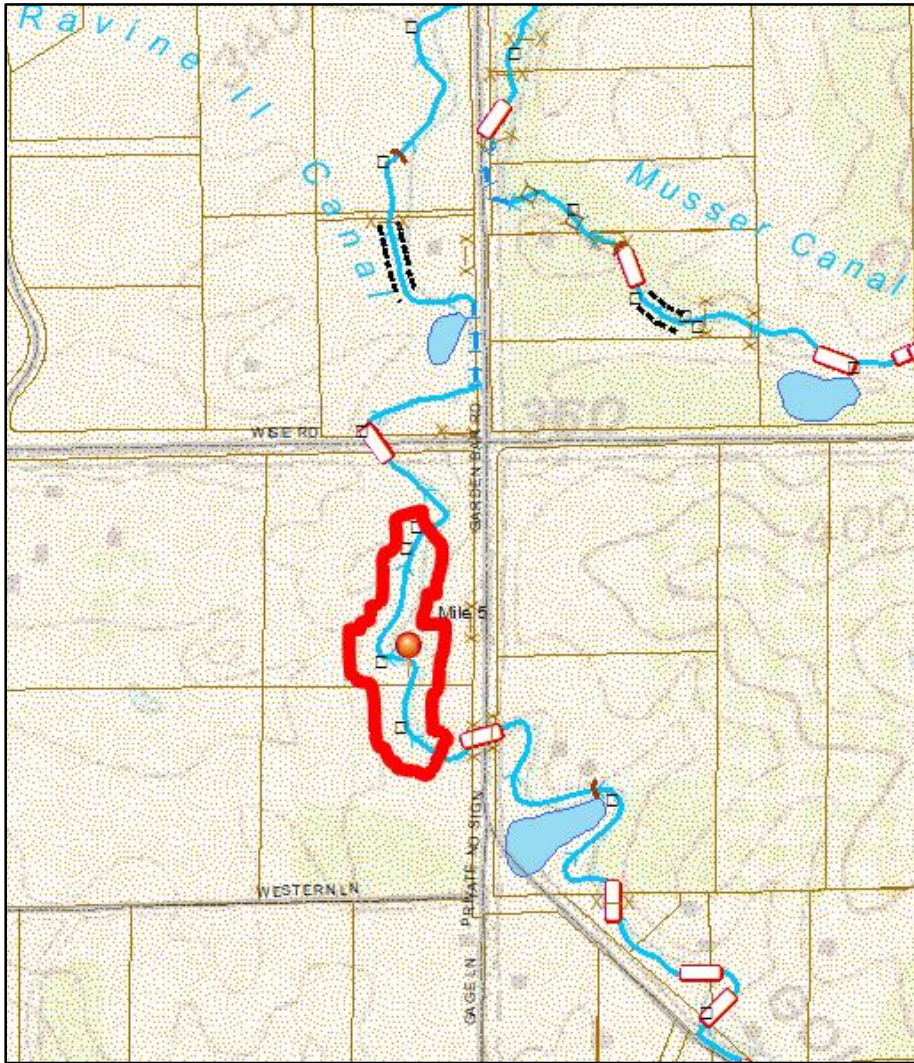


Combie Phase III Canal

Placer County
1,280' Elevation
660'L x 8'W Plot
Grassland



PHASE 3 STUDY - LOCATION



Auburn Ravine II Canal

Placer County
340' Elevation
660'L x 8'W Plot
Grassland



PHASE 3 STUDY – APPLICATIONS & MONITORING

Application Schedule

- Application #1: Pre-Emergent prior to forecasted rain; Opportune + Weedslayer
- Application #2: First post-emergent 4-6 weeks after pre-emergent application; Opportune + Weedslayer
- Application #3: Second post-emergent 8-10 weeks after first post-emergent application; Scythe

Monitoring Schedule

- 7-days, 14-days, 28-days, 45-days, and 60-days after last application

PHASE 3 STUDY – APPLICATIONS & MONITORING

Monitoring Evaluation Criteria

Percent (%) Control	Observed Effect (Symptomology)
0%	No effect.
10%	Minor plant stunting or curling of leaves and stems.
20%	Stunting or curling is more pronounced and plant is still mostly green.
30%	Leaf margin or chlorosis increase to approximately 1/3 of plant surface.
40%	Symptoms have increased with more severe leaf chlorosis but affecting less than 50% of plant surface or population in the treatment area.
50%	Approximately half of the weeds present in the treatment area display stunting, curling, chlorosis and/or necrosis on 50 percent of the plant leaves or stems.
60%	Slightly more than half of the weed population present in the treatment area display severe chlorosis or necrosis.
70%	Chlorosis and/or necrosis symptoms now present on most plants but still about 30% of plant tissue is green.
80%	Symptoms have expanded or increased to a majority of plants present but some still show functioning tissue.
90%	A majority of plants in the treatment zone are displaying complete mortality but remaining is a few that have not been completely killed.
100%	All plants in the treatment area are completely effected by the treatment and are dead.

Categories for range of control:

E = Excellent control (generally >95%)

G = Good control (80 – 95%)

F = Fair control (50 – 80%)

P = Poor control (below 50%)

PHASE 3 STUDY – APPLICATIONS & MONITORING

AUBURN RAVINE II CANAL

APPLICATION & MONITORING EVENTS

<u>DATE</u>	<u>ACTIVITY</u>
12/5/2019	Application #1: Opportune + Weed Slayer
12/11/2019	Monitoring Event #1
12/19/2019	Monitoring Event #2
1/6/2020	Monitoring Event #3
1/10/2020	Application #2: Opportune + Weed Slayer
1/21/2020	Monitoring Event #4
TBD (3/6-3/20)	Application #3: Scythe



COMBIE PHASE III CANAL

APPLICATION & MONITORING EVENTS

<u>DATE</u>	<u>ACTIVITY</u>
12/5/2019	Application #1: Opportune + Weed Slayer
12/11/2019	Monitoring Event #1
12/19/2019	Monitoring Event #2
1/6/2020	Monitoring Event #3
1/10/2020	Application #2: Opportune + Weed Slayer
1/21/2020	Monitoring Event #4A (plots 1-4)
1/22/2020	Monitoring Event #4B (plots 5-15)
TBD (3/6-3/20)	Application #3: Scythe



NEXT STEPS

- Phase 3 Final Application (3/6-3/20/2020)
- Phase 3 Final Monitoring Events
- Phase 3 Reporting
 - NID Maintenance and Resources Committee Meetings
 - NID Website → <https://nidwater.com/water-service/irrigation-water/vegetation-control/>
- California Department of Pesticide Regulations – Alliance Grant Application
 - Mobile Weed Steamer and Fabrication of Boom for Application inside Canal Prism
- Native Vegetation Plantings Continued Monitoring
- Continuous Search and Investigation of New Tools and Methods

Questions?

