



Permitting &
Developing the
Garnet USA
Mine and Plant
& the
Butte Highlands
Mine



Garnet USA

Mine
Conference

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Modification to Operating Permit

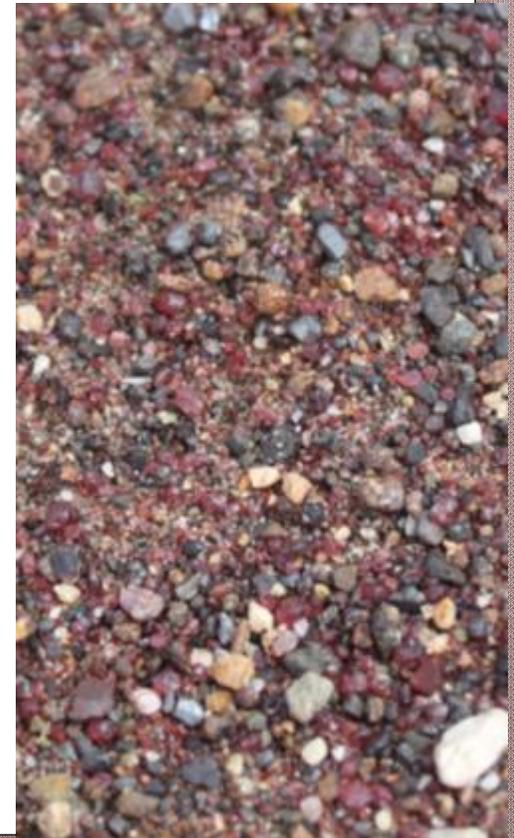
New Ownership – Long Term Perspective

- The Environmental Impact Statement EIS process focused on impacts from the new Red Wash Hard Rock Mine Site and the changes in land use at the Plant Site.
- Draft Permit February 2013.
- Original Schedule was for November completion of EIS.
- FEIS and Record of Decision March 2014

Amendment to Operations Plan
New Mine Pit: Red Wash Hard Rock
-Site adjacent to Current Red Wash Site-

Same Roads Same Plant Same Product

- Existing *Operating Plan #157 Approved* last revision in 2006.
- *Alder Gulch Plant Site Approved* for continued operations and mining.
- *Red Wash Alluvial Site Approved* for continued mining operations.
- *Haul Road Approved* for continued operations as used during past decade.
- EIS includes only the changes to the approved operation:
 - Red Wash Hard Rock Mine Site
 - Changes to Land Usage at Plant



Summary of Previous Approved Permit Activities:

- Mining activities at Red Wash and Alder Gulch sites, drilling, trenching, and processing 10,000 tons of exploration ore at Red Wash Hard Rock site.
- Hauling of ore and waste rock to and from plant and mine sites.
- Plant ore handling operations including screening and sorting; washing ore silts and fines, crushing ore material.
- Plant processing operations, drying, packaging, shipping.
- Shipping final product out and trucking waste tailings back to mine site.

Hard Rock Ore Sample



**Final Garnet Product
for: abrasive blast
media & water jet
cutting, water filtration,
and other applications.**



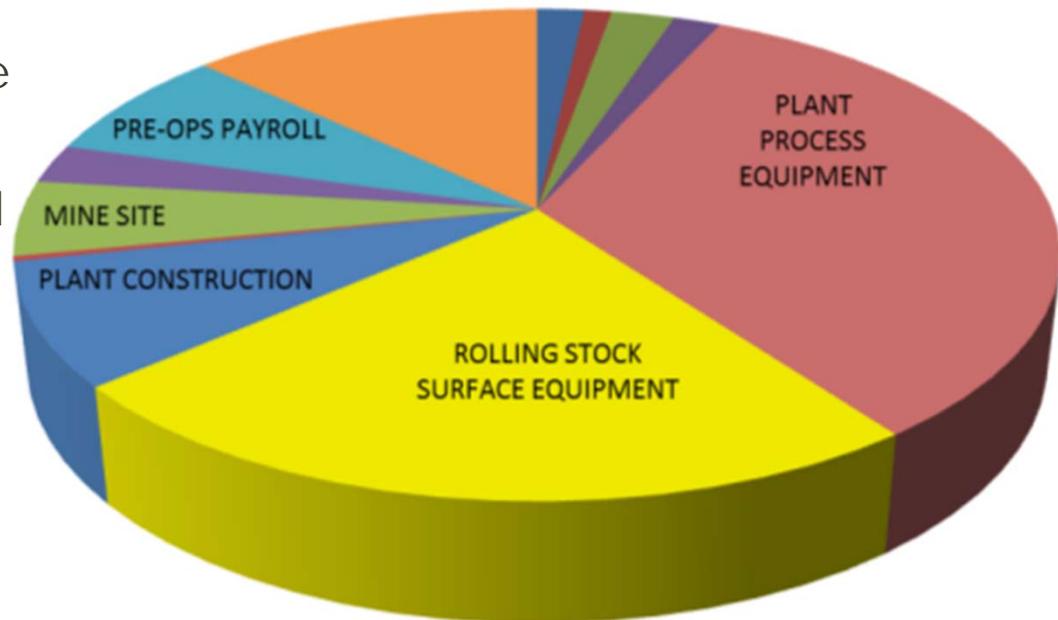
Summary of Amendment Changes to Existing Permit:

- Alder Gulch Mine Permit Area:
 - Changing usage of previously disturbed lands at plant.
(Increase area from 70.6 to 75.0 acres)
 - Adding Ponds,
 - Increasing Boneyard,
 - Adding Road
- Red Wash Hard Rock Mine Permit Area:
 - Developing Open Pit Mine Site including Mine Pit, Waste Rock Pile, Soil Stockpiles, Crushing Circuit Area, Ore Stockpiles, Fleet Area



World Class Facilities and Equipment – Major Investments for Steady Production

- Garnet USA invested millions of dollars in construction, new processing and operating equipment. This is the most advanced garnet facility in the nation. All outdated, unsafe, inefficient, and inappropriate equipment was replaced.
- These changes were implemented into the framework of the existing plant facilities, permits, and previous activities.
- The needed modifications to the land usage at the plant along with the development of the mine site will enable decades of steady production.



Garnet USA 37 Years of Local Economic Impacts



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Employment (Garnet USA and Suppliers)

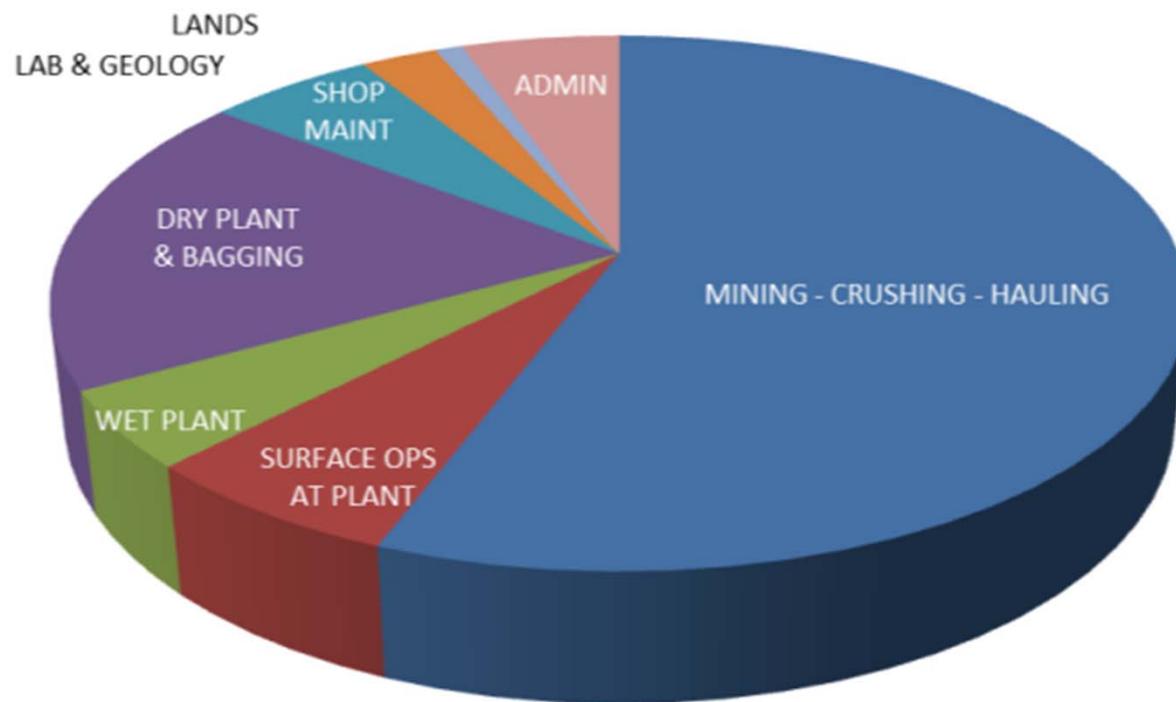
- 50-60 Long Term Quality Jobs as the plant grows. Families, housing, local economic growth impacts are multiplied.
- Over \$2.5M per year in total payroll after first few years with growth and plant increases.
- Millions of dollars in equipment purchases, contracting, parts and supplies, deliveries, maintenance support jobs around the area beyond just Garnet USA.
- Tens of millions of dollars in direct payroll and four decades of operations with ongoing operations beyond.

Property Taxes, Production Taxes, and Montana Income Taxes

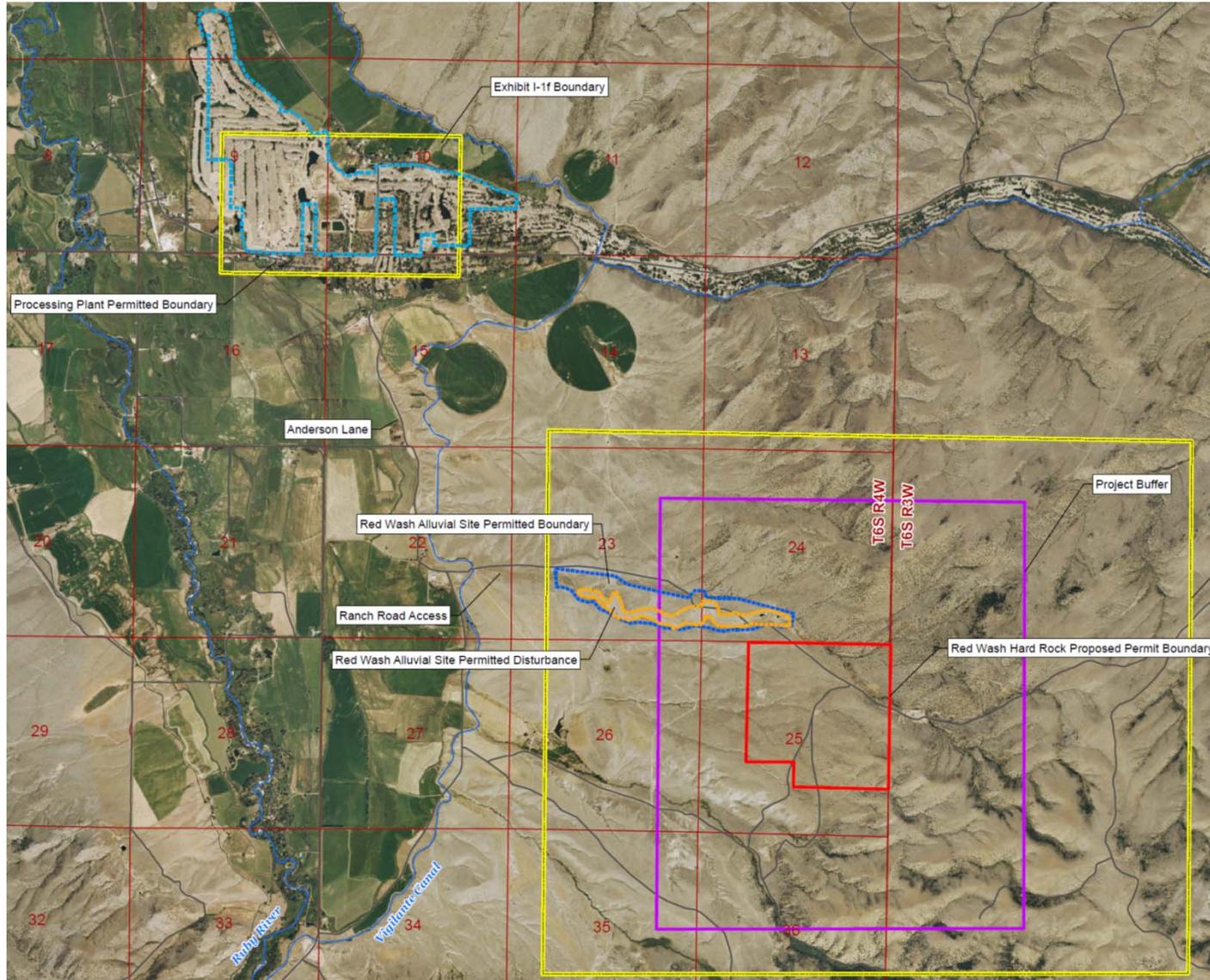
- Over \$2M per year in local taxes and Montana Income taxes...increasing in future years with production increases and project growth.
- Tens of millions of dollars for the county and state for the life of mine.

Annual Operating Cost Allocations and Employment Groups

- Many job types and functions related to administrative, processing, and other activities.
- A little over half traditional mining type jobs.



Project Overview Locations



Existing Plant Area Uses:

- The building structures and existing functions are being restored with three main upgrades to land usage:

1. Increased processing and material storage ponds
2. Increased bone yard area for sorting and rebuilding equipment
3. New access road for safety and flexibility



Existing Areas and Usage		
Disturbance Location		
<u>A. Historic Non-Disturbed Areas</u>		
1	South End of East Side Area	9.3
2	North and middle of East Side Area	8.5
3	West of West Pond Area	0.3
<u>B. Fresh Water Ponds</u>		
4	North Pond	2.9
5	West Pond	2.1
6	East Pond	1.1
<u>C. Post Mining Roads</u>		
7	North Road	1.9
8	South Road	0.6
9	East Road	0.3
<u>D. Facilities Areas</u>		
10	Main Facilities Area	8.2
11	Plant Facilities/Wet Plant Area	1.4
<u>E. Reclaimed Areas</u>		
12	North Reclaimed Area	10.9
13	West Reclaimed Area	0.8
14	East Area	7.6
15	Visibility Berm	0.8
<u>F. Active Mining Areas</u>		
16	NW Mining Area	3.3
17	Middle Mining Area	3.6
18	South F.W. Pond Mining Area	1.4
<u>G. Processing Silt Ponds</u>		
19	Silt Pond 1 & 2 Area	1.8
20	Silt Pond 3 Area	1.5
<u>H. Bone Yard Areas</u>		
21	North Bone Yard Area	0
22	Shop Bone Yard Area	0.3
<u>I. Sand Stockpile & Misc Areas</u>		
23	Sand Stockpile Area	1.9
24	Side Gate, Misc. Area	0.1
Total Acres:		70.6

New Plant Area Uses:



Proposed Areas and Usage		Acres Disturbed
Disturbance Location		
<u>A. Historic Non-Disturbed Areas</u>		
1	South End of East Side Area	9.3
2	North and middle of East Side Area	8.3
3	West of West Pond Area	0.3
<u>B. Fresh Water Ponds</u>		
4	North Pond	2.9
5	West Pond	2.1
6	East Pond	1.1
<u>C. Post Mining Roads</u>		
7	North Road	2.1
8	South Road	0.6
9	East Road	0.3
9a	West Road	1.7
<u>D. Facilities Areas</u>		
10	Main Facilities Area	8.2
10a	Employee Parking Area	1.0
11	Plant Facilities/Wet Plant Area	1.4
11a	Wet Plant Expansion Area (acres incl. in area 11)	NA
<u>E. Reclaimed Areas for Future Use</u>		
12	North Reclaimed Area	8.3
13	West Reclaimed Area	0.6
14	East Area (new Material Storage Pond Areas 20a, 20b, 20c, 10a)	3.0
15	Visibility Berm (New)	0.8
16	NW Reclaimed Area	1.9
<u>F. Ore Storage Stockpiles</u>		
17	Middle Ore Stockpile Area	4.4
18	South Ore Stockpile Area	1.4
18a	Crushing Area	NA
<u>G. Processing, Silt, and Material Storage Pond Areas</u>		
19	Wet Plant Process Pond	1
19a	North Silt Pond	2.7
19b	South Silt Pond	2.0
20a	East Garnet Storage Pond	1.9
20b	South Garnet Storage Pond 1	1.5
20c	South Garnet Storage Pond 2	1.5
<u>H. Bone Yard Areas</u>		
21	North Bone Yard Area	2.4
22	Shop Bone Yard Area	0.3
<u>I. Sand Stockpile & Misc Areas</u>		
23	Sand Stockpile Area	1.9
24	Side Gate, Misc. Area	0.1
Total Acres:		75.0

GARNET USA PROCESSING PLANT

- Dry plant and
ore storage bins



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GARNET USA
PROCESSING
PLANT – Sand
Stockpile

ALDER GULCH
MINE SITE – North
fresh water
supply pond and
wet plant in
background
(previous dredge
mining pond)



PROCESS POND:
Northwest corner at plant modification includes two new lined process water ponds (19a, 19b) which will allow direct recycling of process water. These are being constructed in dredge tailings and converted active mining lands.



ALDER GULCH MINE SITE –
West fresh water supply pond (previous dredge pond) next to active mining area converted to ore staging with wet plant in background

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GARNET USA PROCESSING PLANT – Wet plant, equipment, and ore stockpile areas





GARNET USA – Office, Laboratory, Maintenance Shop and Final Product Bagging Plant



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Natural Area:

Area 1 in southeast corner with 9.3 acres (10% of total land) undisturbed by modern mining and left natural.



Functional Changes at Plant:

Changes to:

- A. Areas Undisturbed from Modern Operations
(Blue: 1, 2, 3) -0.2 acres
- B. Fresh Water Supply Ponds
(Dark Blue: 4,5,6) no change
- C. Plant Roadways
(Dark Green: 7, 8, 9, 9a) +1.9 acres
- D. Plant Processing and Facility Areas
(Light Magenta: 10, 10a, 11) +1.0 acres

Proposed Changes:



Existing Approved Use:



Employee Parking Facility Change, 10a

Additional Road Change, 9a

Land Use Changes at Plant:

Changes to:

- E. Reclaimed for Future Use
(Green: 12, 13, 14, 15) -5.5 acres
- F. Active Mining to Ore Stockpiles
(Orange: 16, 17, 18) -2.5 acres
- G. Processing and Material Ponds
(Indigo: 19, 19a, 19b, 20a, 20b, 20c) +7.3 acres
- H. Bone Yard Areas:
(Purple: 21, 22) +2.4 acres
- I. Sand Stockpile & Misc
(Magenta 23, 24) no change

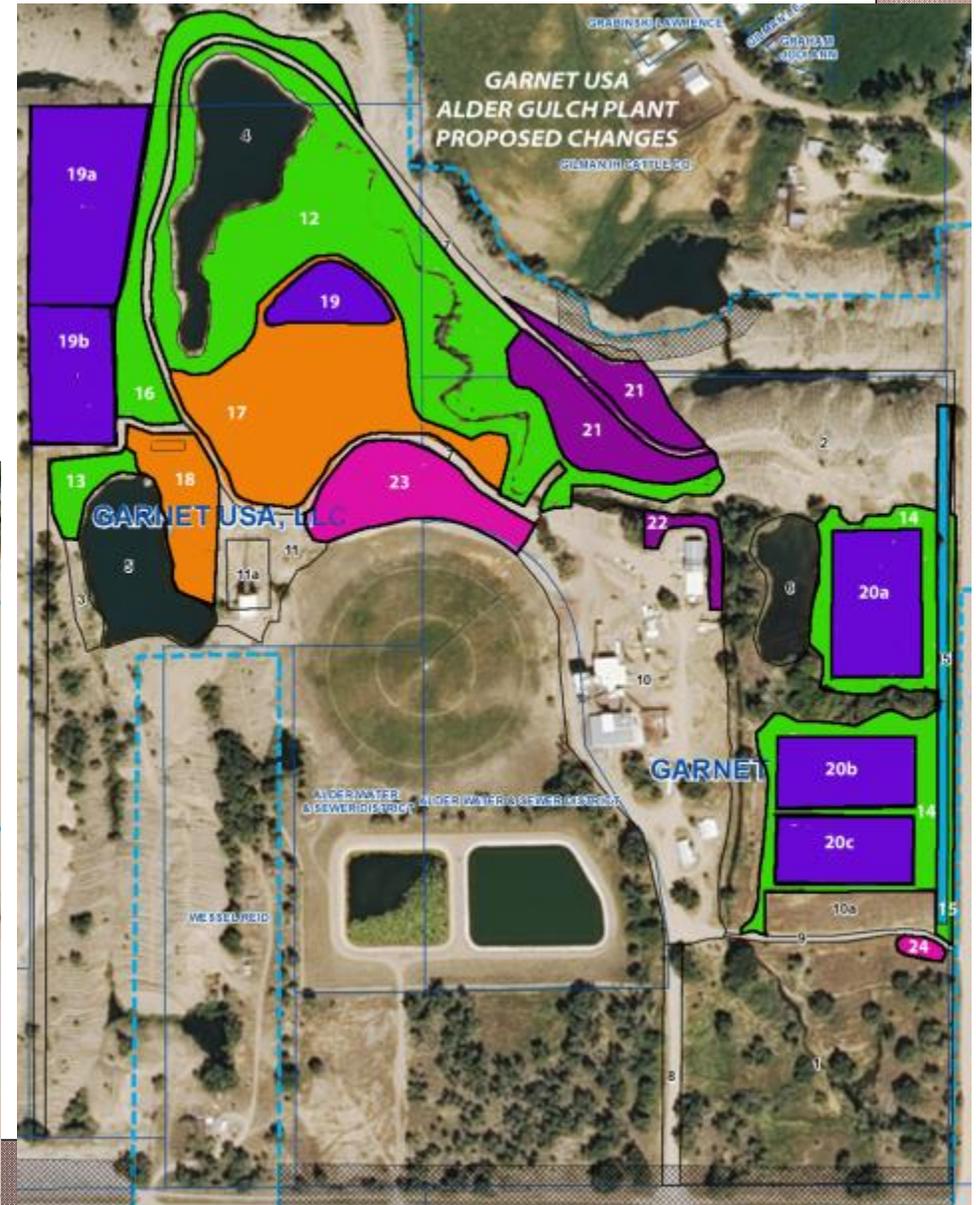
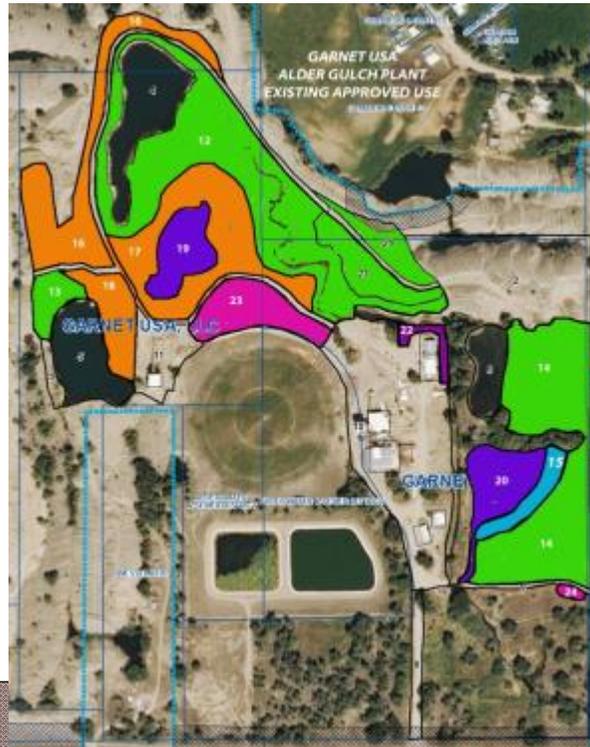
Proposed Changes:

Existing Approved Use:

Key Changes:

Processing and Material Storage Pond Additions, Relocations, 19a, 19b, 20a, 20b, 20c

Bone Yard Equipment Area, 21



Summary of Changes at Plant Site

Garnet USA Alder Gulch Plant Site Areas:	Category Subtotal Acres		
	Previous Approved Usage - No Action Alternative	Proposed Action Changes	Acres in Changes
Plant Area Categories	<i>See Exhibit I-1e</i>	<i>See Exhibit I-1f</i>	
A. Areas Not Disturbed by Modern Processing Operations	18.1	17.9	-0.2
B. Fresh Water Supply Ponds	6.1	6.1	0.0
C. Plant Roadways Between Key Areas	2.8	4.7	1.9
D. Plant Processing and Support Facilities Areas	9.6	10.6	1.0
E. Reclaimed Areas for Future Use	20.1	14.6	-5.5
F. Active Mining to Ore Stockpile Areas	8.3	5.8	-2.5
G. Processing, Silt, and Material Storage Ponds	3.3	10.6	7.3
H. Bone Yard Areas	0.3	2.7	2.4
I. Sand Stockpile/Misc. Areas	2.0	2.0	0.0
Total Net of All Areas and/or Changes:	70.6	75.0	4.4

- The main changes include:
 - Re-disturbing some of the reclaimed areas for re-use and converting active mining areas to ore stockpiles.
 - Additional ponds for water and material management.
 - Addition of one major road for safety and efficiency.
 - Significantly larger boneyard needed particularly during rebuild work.



Plant Final Product: Clean Garnet.

- Washed and Pure
- Sized and Graded
- Shipped all over the nation for water filtration, blast media, water jet cutting.

RED WASH HARD ROCK MINE SITE





RED WASH HARD ROCK MINE SITE



Top photo is panorama view of entire RWHR Pit looking south from East to West from one of the trenching sites.

Test pit excavator work at RWHR zoom in detail from far right of panorama on ridgeline.

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RED WASH HARD ROCK MINE SITE



Test pit trench continuation of panorama looking west from RWHR pit area. View of access road on far right.

Test pit sample trench from 2012 exploration.

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Soil Excavation
and Preparation
for Blasting

RWHR 10,000 Ton Ore Sample Excavation

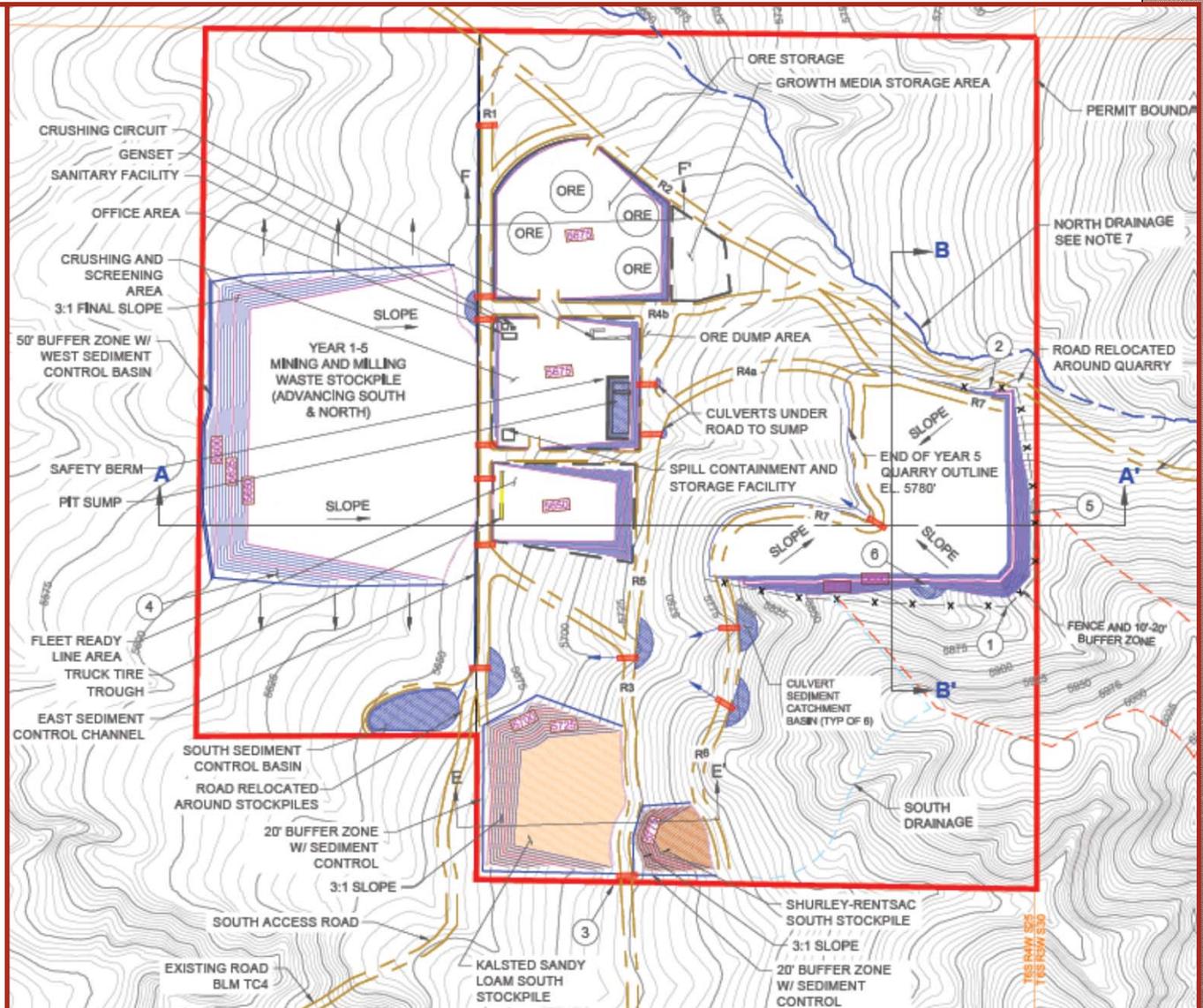
Ore after
Blasting in
RWHR Mine Site



5 Years Mine Operations RWHR

MINE YEARS 1-5:

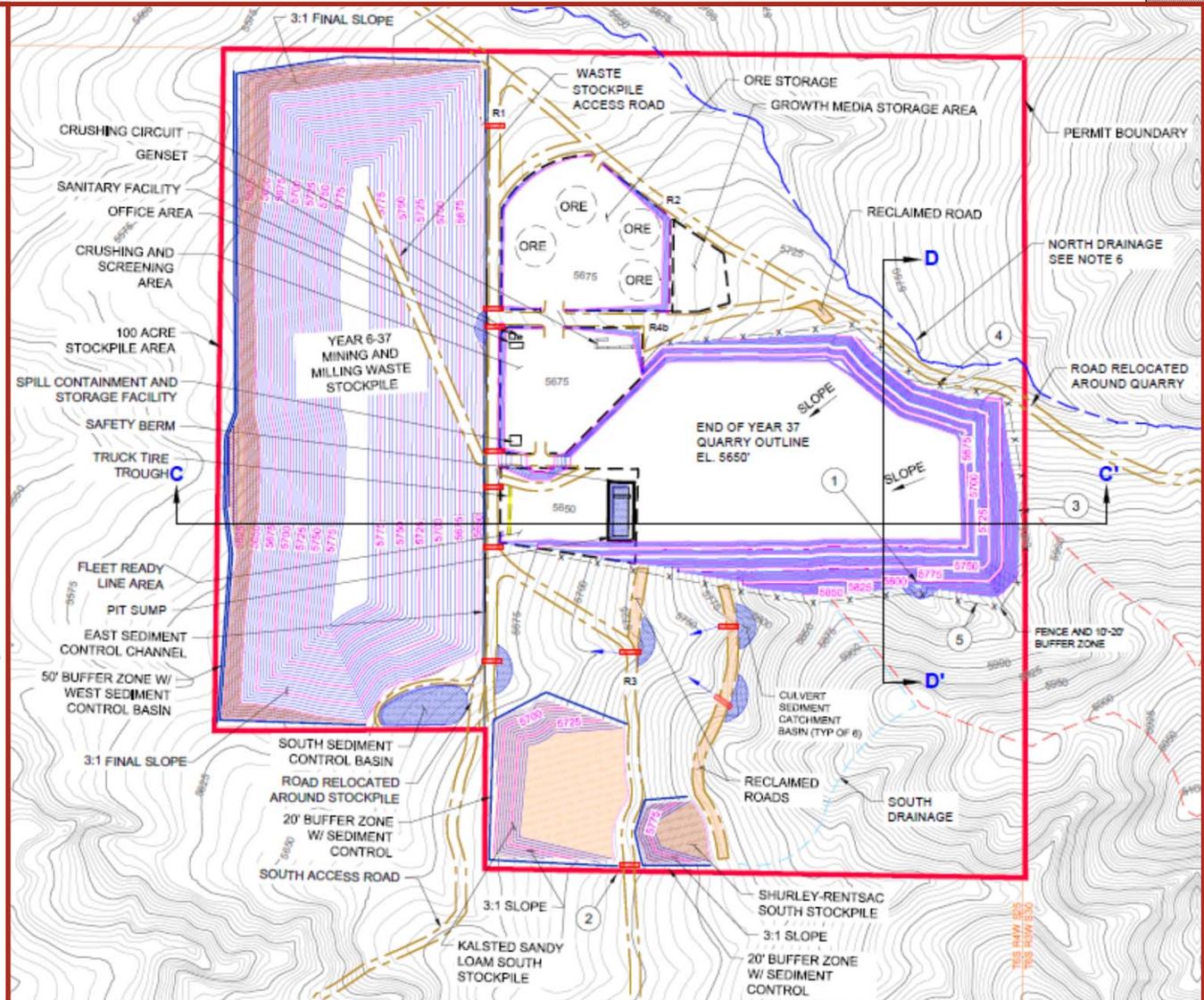
- PERMIT BOUNDARY = 340 ACRES
- TOTAL DISTURBANCE = 132.6 ACRES
- PIT OUTLINE = 24.4 ACRES
- MINING AND MILLING = 41.2 ACRES
- WASTE STOCKPILE
- ORE STORAGE AREA = 12.6 ACRES
- GROWTH MEDIA STORAGE = 2.2 ACRES
- CRUSHING AND SCREENING = 10 ACRES
- AREA
- FLEET READY LINE AREA = 6.4 ACRES
- ROADS (R1-R8) = 18.6 ACRES
- SOUTH STOCKPILE AREA = 12.5 ACRES TOTAL
 - KALSTED SANDY LOAM STOCKPILE AREA = 10.3 ACRES
 - SHURLEY-RENTSAC STOCKPILE AREA = 2.2 ACRES
- SEDIMENT CONTROLS = 4.7 ACRES TOTAL
 - SUMP = 0.4 ACRES
 - SOUTH SEDIMENT CONTROL BASIN = 1.5 ACRES
 - CULVERT SEDIMENT CATCHMENT (6 x 0.3 ea.) = 1.8 ACRES
 - EAST & WEST SEDIMENT CONTROL = 1.0 ACRES



37 Years Mine Operations RWHR

MINE YEARS 6-37:

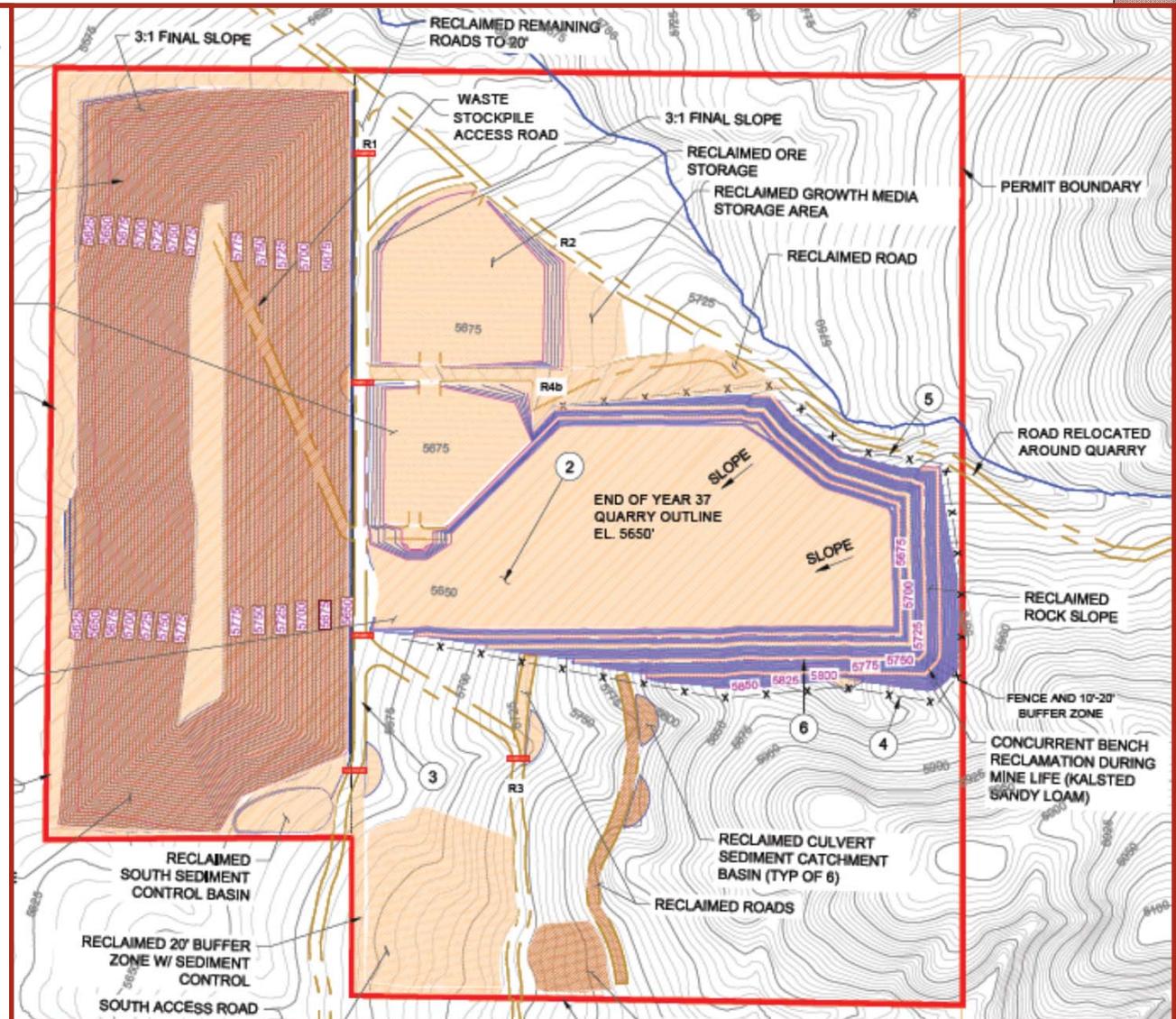
- PERMIT BOUNDARY = 340 ACRES
- TOTAL DISTURBANCE = 212.7 ACRES
- PIT OUTLINE = 54.4 ACRES
- MINING AND MILLING = 95.5 ACRES
- WASTE STOCKPILE
- ORE STORAGE AREA = 12.6 ACRES
- GROWTH MEDIA STORAGE = 2.2 ACRES
- AREA
- CRUSHING AND SCREENING = 8.3 ACRES
- AREA
- FLEET READY LINE AREA = 6.4 ACRES
- ROADS (R1,R2,R3,R4b) = 14.4 ACRES
- SOUTH STOCKPILE AREA = 12.5 ACRES TOTAL
 - KALSTED SANDY LOAM STOCKPILE AREA = 10.3 ACRES
 - SHURLEY-RENTSAC STOCKPILE AREA = 2.2 ACRES
- SEDIMENT CONTROLS = 6.4 ACRES TOTAL
 - SUMP = 0.4 ACRES
 - SOUTH SEDIMENT CONTROL BASIN = 1.5 ACRES
 - CULVERT SEDIMENT CATCHMENT (6 x 0.3 ea.) = 1.8 ACRES
 - EAST & WEST SEDIMENT CONTROL = 2.7 ACRES



Reclamation Plan:

END OF MINE RECLAMATION:

- PERMIT BOUNDARY = 340 ACRES
- RECLAIMED TOTAL = 208.3 ACRES
- PIT OUTLINE = 54.4 ACRES
- MINING AND MILLING = 95.5 ACRES
- WASTE STOCKPILE
- ORE STORAGE AREA = 12.6 ACRES
- GROWTH MEDIA STORAGE = 2.2 ACRES
- CRUSHING AND SCREENING = 8.3 ACRES
- AREA
- FLEET READY LINE AREA = 6.4 ACRES
- ROADS (R4,R5,R6) = 8 ACRES
- SOUTH STOCKPILE AREA = 12.5 ACRES TOTAL
 - KALSTED SANDY LOAM STOCKPILE AREA = 10.3 ACRES
 - SHURLEY-RENTSAC STOCKPILE AREA = 2.2 ACRES
- SEDIMENT CONTROLS = 6.4 ACRES TOTAL
 - SUMP = 0.4 ACRES
 - SOUTH SEDIMENT CONTROL BASIN = 1.5 ACRES
 - CULVERT SEDIMENT CATCHMENT (6 x 0.3 ea.) = 1.8 ACRES
 - EAST & WEST SEDIMENT CONTROL = 2.7 ACRES









Butte Highlands Joint Venture

- The Highland Mine project anticipates mining commencing in 2014. All activities and ownership are conducted under Butte Highlands Joint Venture, LLC (BHJV). The permitting and infrastructure development is nearly complete at the surface to support mining activities.



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BHJV Project Map



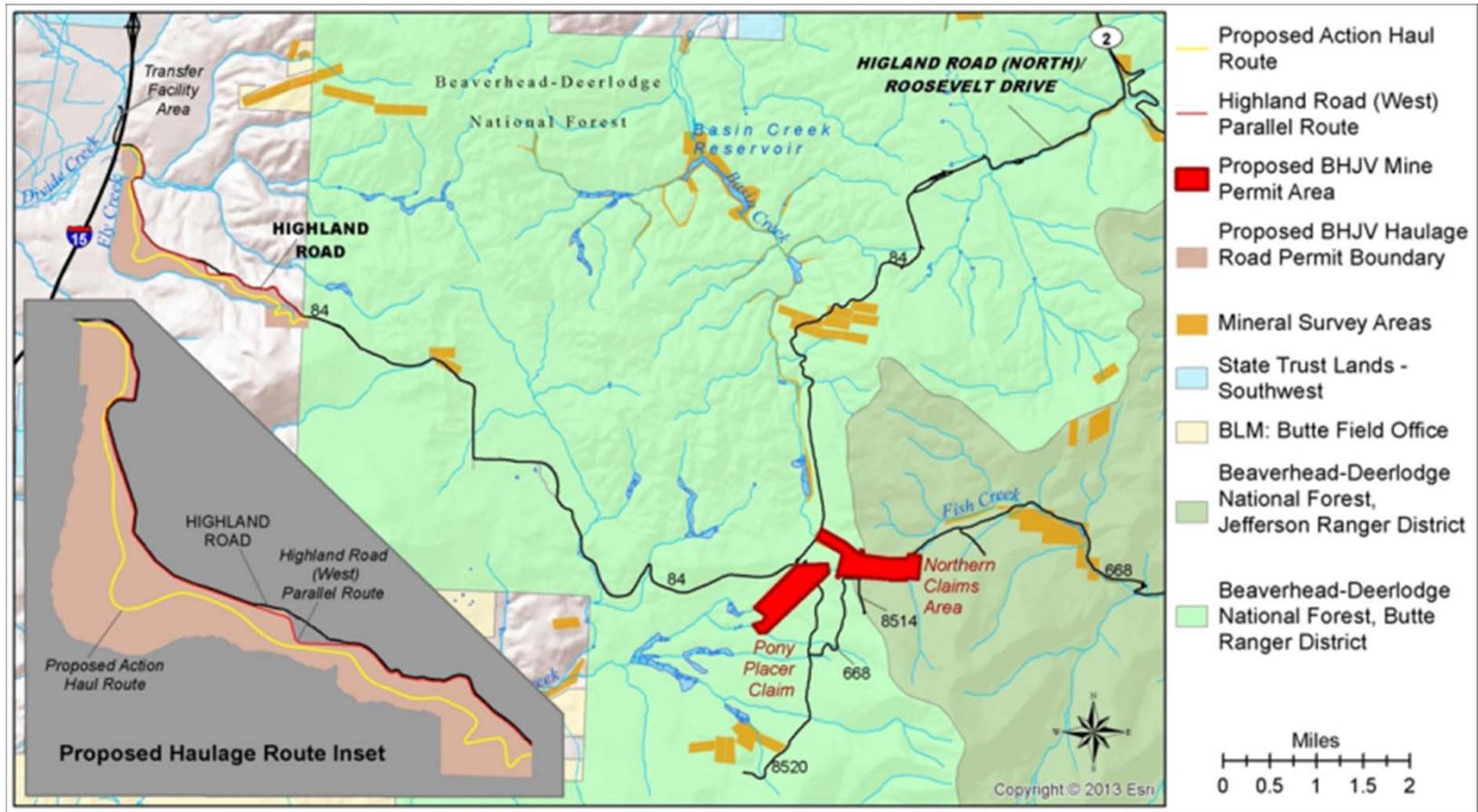
DEQ-EIS and FS-EA

- Montana DEQ issued the draft EIS and collected public comments in November of 2013. MTDEQ is preparing the Final EIS to address comments and mitigating alternatives with anticipated completion in Spring of 2014. (Draft Permit December 2012)
- The Beaverhead Deerlodge National Forest published the Draft Environmental Assessment for BHJV hauling ore on the Highland Road and collected comments in March of 2014. Completion of the Final EA is anticipated for Summer of 2014. (Process initiated 2009)



Proposed Haul Route

- Haul to Transfer Station at I-15 Freeway



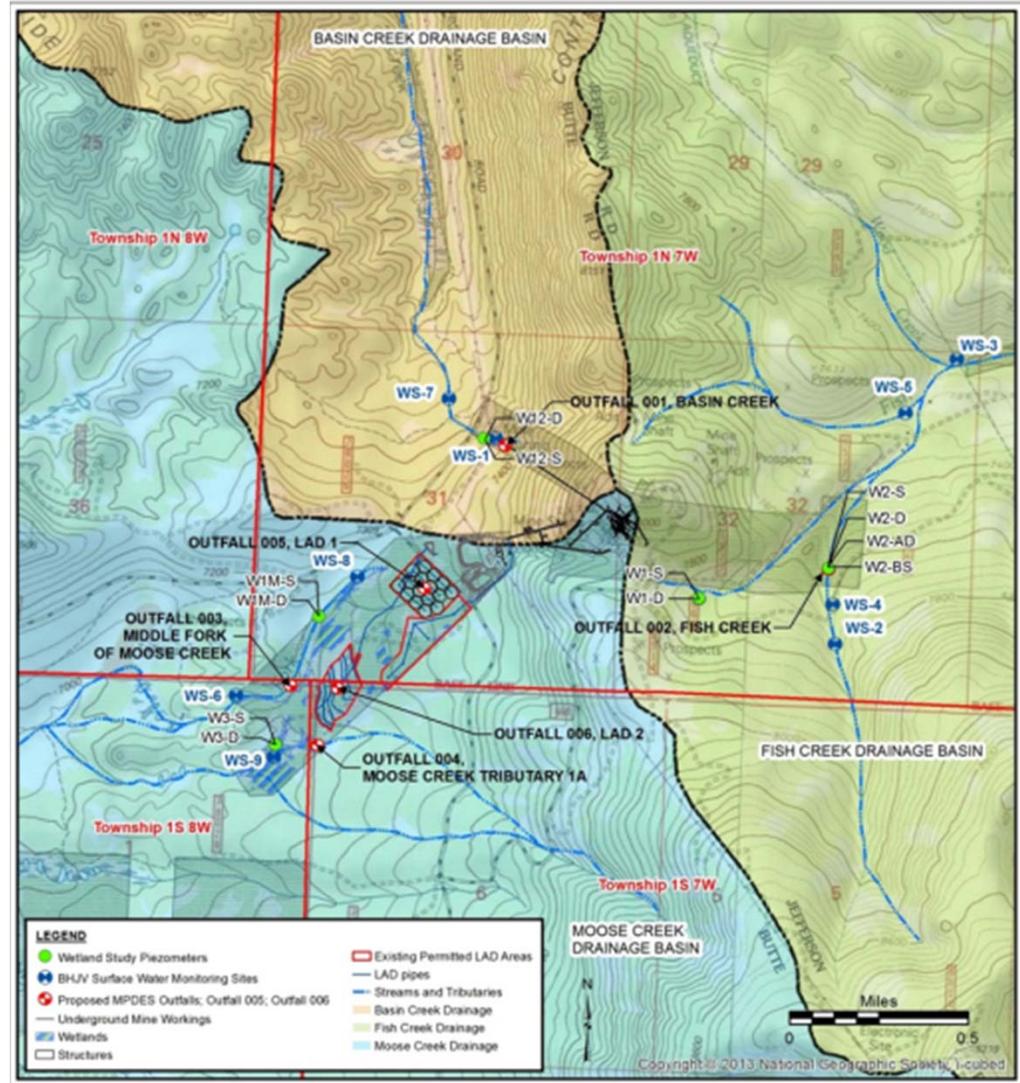
Next Step Approvals

- The final MPDES water discharge permit was issued in June 2013 to allow dewatering in support of mine development to obtain the bulk sample collection, next stage drilling, and full scale mining.
- In September 2013 BHJV received MSHA approval of an updated Evacuation, Ventilation, and Escapeway Plan to allow underground work. Drilling programs in 2013 confirmed the strategy for the collection of the 10,000-ton bulk sample and overall mine plan.



Watershed Boundary Map

- Basin Creek
- Moose Creek
- Fish Creek



Development Progress

- The underground development decline was advanced by approximately 550 feet, six core holes have been drilled for exploration and metallurgical purposes, two groundwater monitoring wells have been completed, and a second dewatering well was drilled.
- The decline was advanced toward the bulk sample area, which is in the upper portion of the mineralized material. Additional underground work bays and drill stations have also been developed, along with infrastructure development leading to the secondary escapeway raise.







Conclusion

- Montana State Gold Company, Garnet USA, Butte Highlands Joint Venture, Mayflower Mine
- Over \$50,000,000 direct investments facilitated into Montana Projects.
- Target employment expected to reach 150 employees in a few years.
- Economic growth and impacts over \$100,000,000 annually to Montana.

