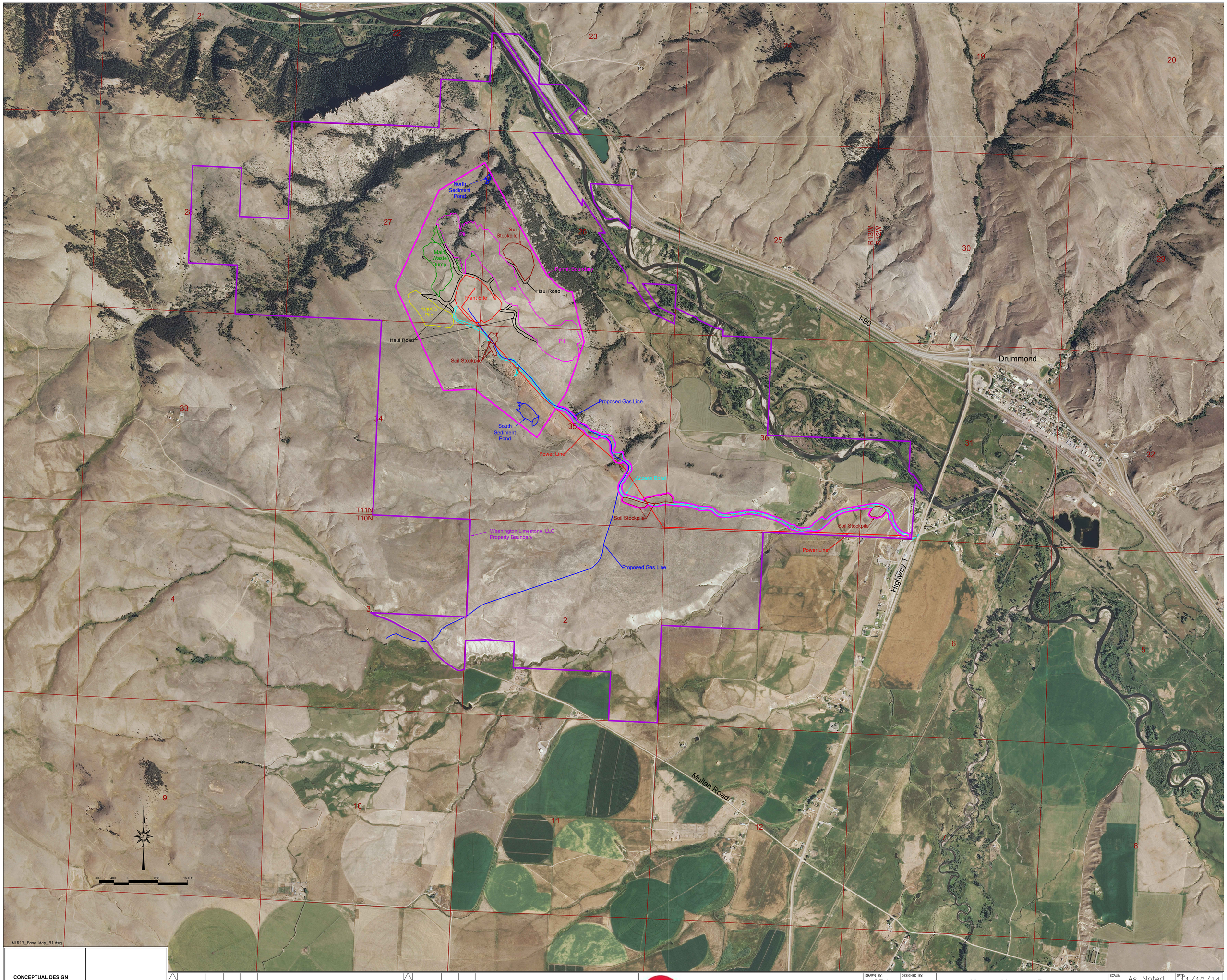


CONCEPTUAL DESIGN
NOT FOR CONSTRUCTION

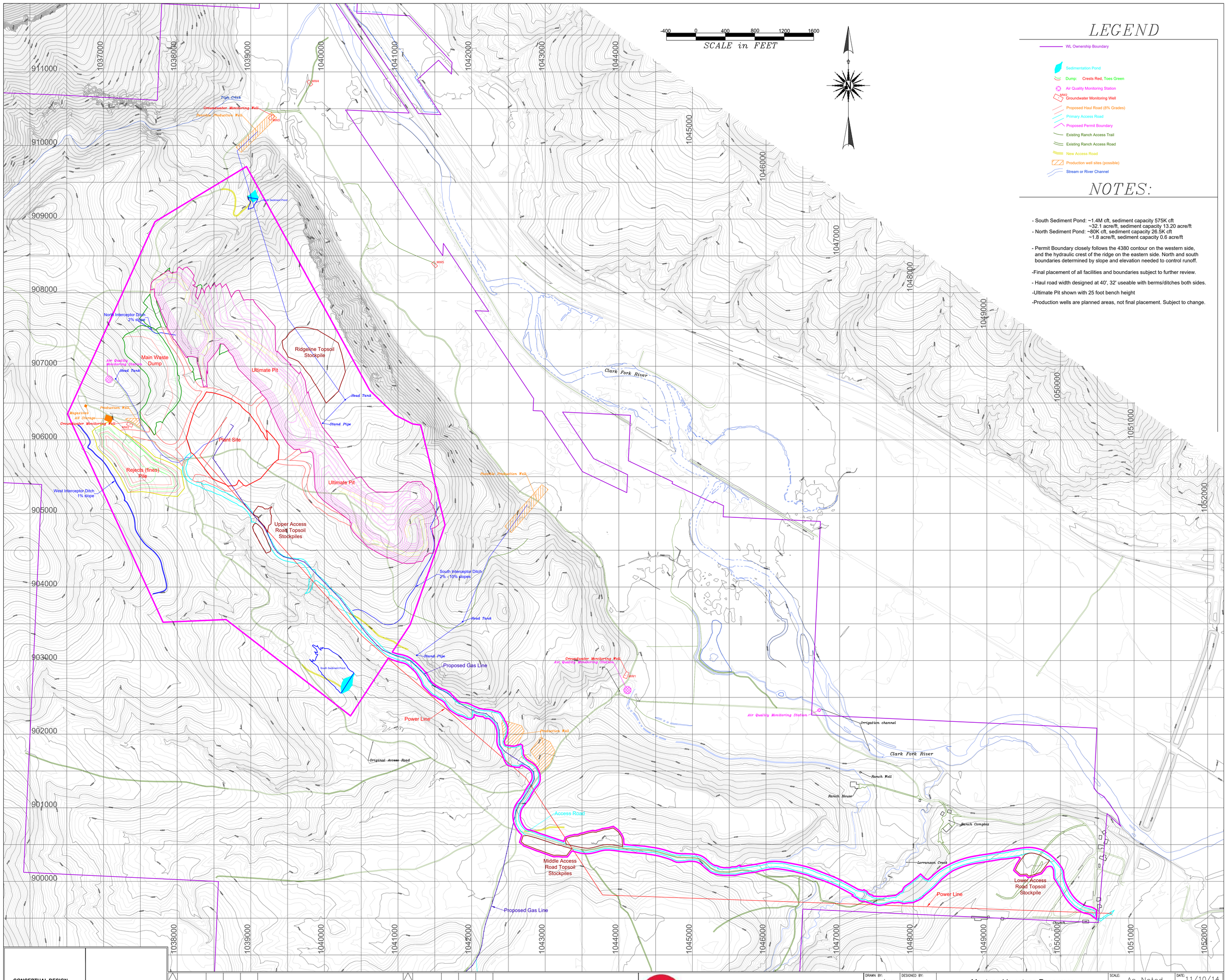
REV	DATE	DRAWN	CHECK	DISP	DESCRIPTION
1	8/31/17	DC	DC		Updated Property Boundary

Montana Limestone Resources

DRAWN BY: SEH	DESIGNED BY:
CHECKED BY: SJC	DISCIPLINE APPR:
PROJECT ENG:	OPERATIONS APPR:

Montana Limestone Resources
Project Overview Map
Drummond, MT

SCALE: As Noted	DATE: 11/10/14
DRAWING NUMBER: Exhibit 1-1	REV: 1
SHEET: 1 OF: 1	PROJECT No.:



NOTES:

- South Sediment Pond: ~1.4M cft, sediment capacity 575K cft
  ~32.1 acre/ft, sediment capacity 13.20 acre/ft
- North Sediment Pond: ~80K cft, sediment capacity 26.5K cft
  ~1.8 acre/ft, sediment capacity 0.6 acre/ft

- Permit Boundary closely follows the 4380 contour on the western side, and the hydraulic crest of the ridge on the eastern side. North and south boundaries determined by slope and elevation needed to control runoff.

-Final placement of all facilities and boundaries subject to further review.

- Haul road width designed at 40', 32' useable with berms/ditches both sides.

-Ultimate Pit shown with 25 foot bench height

-Production wells are planned areas, not final placement. Subject to change.

CONCEPTUAL DESIGN
NOT FOR CONSTRUCTION

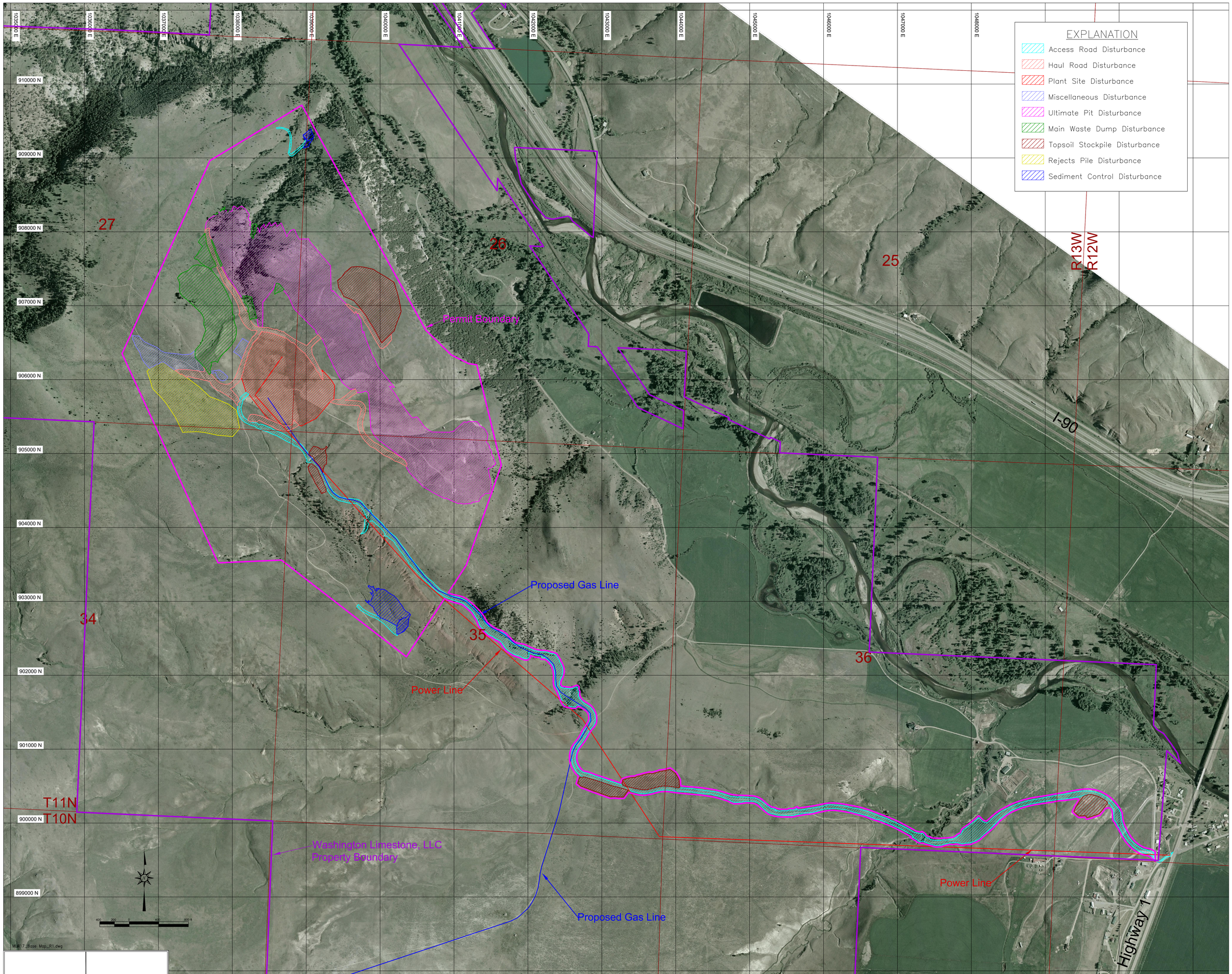
REV	DATE	DRAWN	CHECK	DISP	DESCRIPTION
1	09/07/17	DC	DC		Revised labels, updated property boundaries

Montana Limestone Resources

DRAWN BY: SDN/SEH	DESIGNED BY:
CHECKED BY: SJC	DISCIPLINE APPR:
PROJECT ENG:	OPERATIONS APPR:

Montana Limestone Resources
Mine Plan Map
Drummond, MT

SCALE: As Noted	DATE: 11/10/14
DRAWING NUMBER: Exhibit 3-1	REV: 1
SHEET: 1 OF: 1	PROJECT No.:



CONCEPTUAL DESIGN
NOT FOR CONSTRUCTION

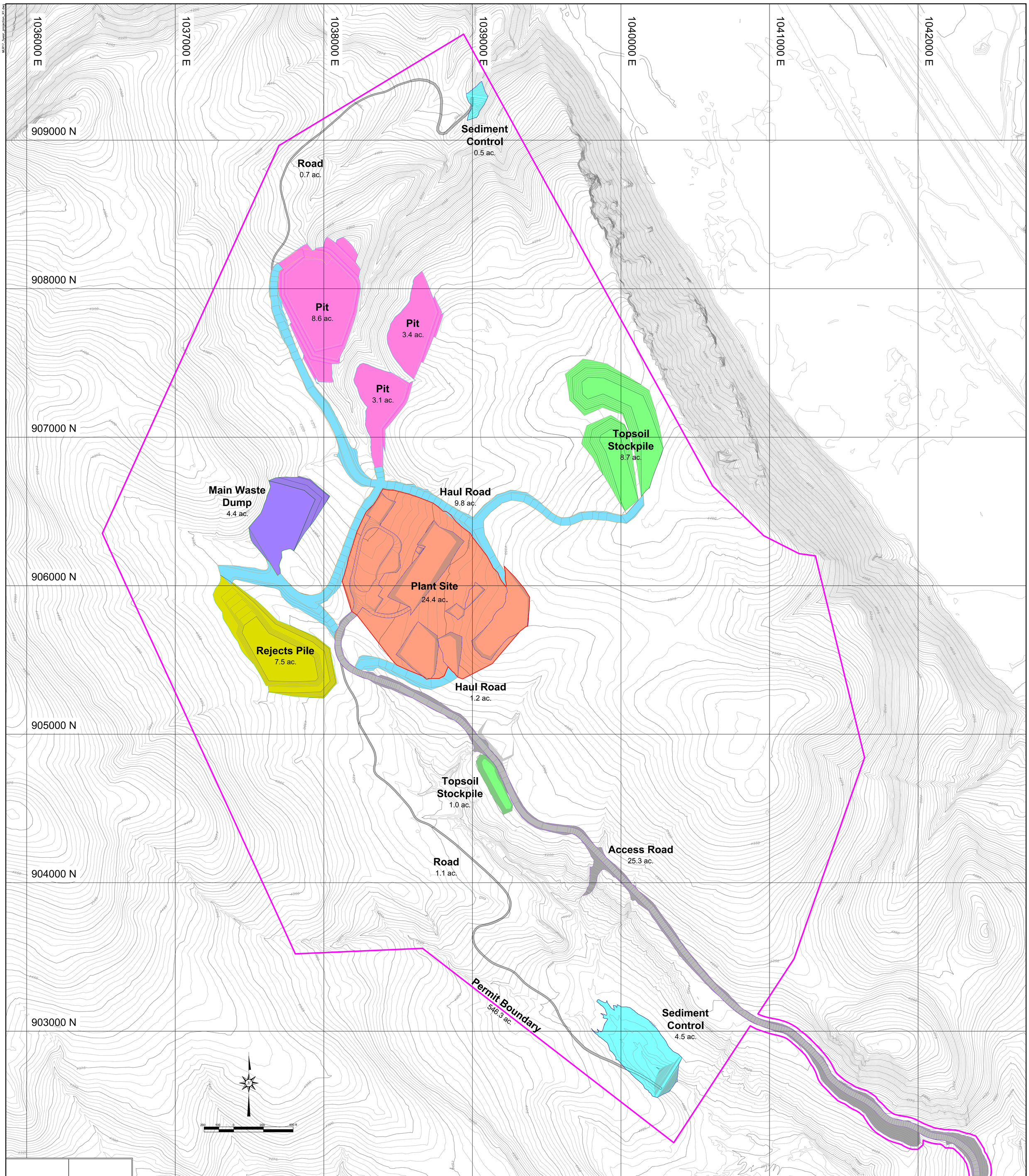
REV	DATE	DRAWN	CHECK	DISP	DESCRIPTION
1	8/31/17	DC	DC		Updated Property Boundary

Montana Limestone Resources

DRAWN BY: SEH	DESIGNED BY:
CHECKED BY: SJC	DISCIPLINE APPR:
PROJECT ENG:	OPERATIONS APPR:

Montana Limestone Resources
Ultimate Disturbance Map
Drummond, MT

SCALE: As Noted	DATE: 11/10/14
DRAWING NUMBER: Exhibit 3-2	REV: 1
SHEET: 1 OF: 1	PROJECT No.:



CONCEPTUAL DESIGN
NOT FOR CONSTRUCTION

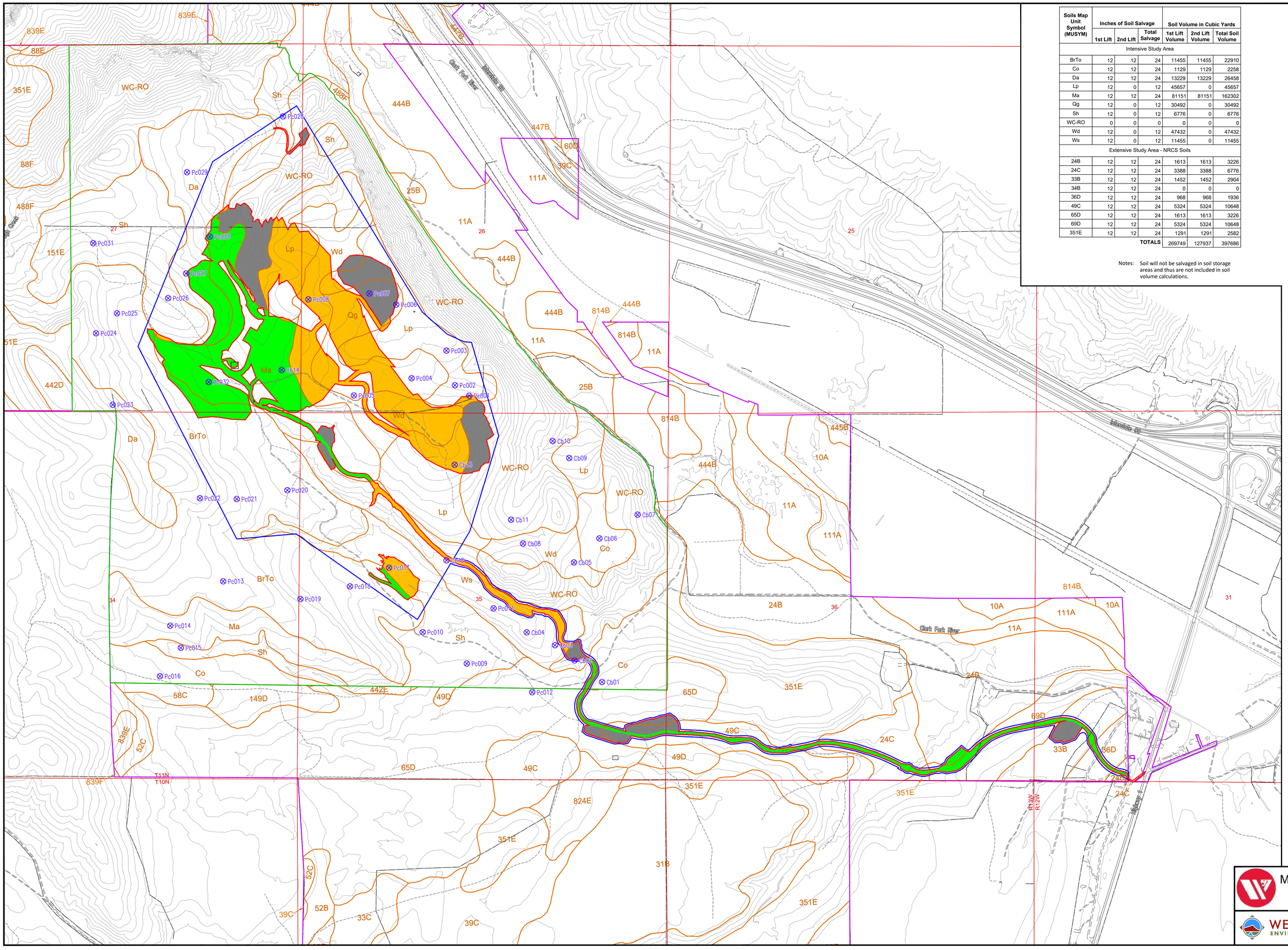
REV	DATE	DRAWN	CHECK	DISP	DESCRIPTION
1	8/31/17	JS/DC	DC		Revised rejects pile topography

Montana Limestone Resources

DRAWN BY: SEH
DESIGNED BY:
CHECKED BY: SJC
DISCIPLINE APPR:
PROJECT ENG:
OPERATIONS APPR:

Montana Limestone Resources
End-of-Year 5 Mining Disturbance
Drummond, MT

SCALE: As Noted
DATE: 11/10/14
DRAWING NUMBER: Exhibit 3-4
REV: 1
SHEET: 1 OF: 1
PROJECT No.:



Soils Map Unit Symbol (MUSYM)	Inches of Soil Salvage			Soil Volume in Cubic Yards		
	1st Lift	2nd Lift	Total Salvage	1st Lift Volume	2nd Lift Volume	Total Soil Volume
Intensive Study Area						
BrTo	12	12	24	11455	11455	22910
Co	12	12	24	1129	1129	2258
Da	12	12	24	13229	13229	26458
Lp	12	0	12	45657	0	45657
Ma	12	12	24	81151	81151	162302
Qg	12	0	12	30492	0	30492
Sh	12	0	12	6776	0	6776
WC-RO	0	0	0	0	0	0
Wd	12	0	12	47432	0	47432
Ws	12	0	12	11455	0	11455
Extensive Study Area - NRCS Soils						
24B	12	12	24	1613	1613	3226
24C	12	12	24	3388	3388	6776
33B	12	12	24	1452	1452	2904
34B	12	12	24	0	0	0
36D	12	12	24	968	968	1936
49C	12	12	24	5324	5324	10648
65D	12	12	24	1613	1613	3226
69D	12	12	24	5324	5324	10648
351E	12	12	24	1291	1291	2582
			TOTALS	269749	127937	397686

Notes: Soil will not be salvaged in soil storage areas and thus are not included in soil volume calculations.

Intensive Study Area Soils

Symbol	Name	Acres	Percent of Area
BrTo	Braziel-Tolbert loams, 5-25%	274	20.5
Co	Coben clay loam, 5-15%	81	6.0
Da	Danvers silty clay loam, 5-25%	87	6.5
Lp	Lap gravelly loam, 5-50%	121	9.0
Ma	Martinsdale gravelly loam, 2-15%	125	9.4
Qg	Quigley silt loam, 2-15%	40	3.0
Sh	Shawmut gravelly loam, 2-15%	154	11.5
WC-RO	Whitecow - Rock Outcrop, 15-60%	331	24.8
Wd	Windham skeletal loam, 2-15%	70	5.2
Ws	Winspect skeletal loam, 2-50%	53	4.0
	Totals	1336	100

Extensive Study Area NRCS Soils

Symbol	Name	Acres	Percent of Area
10A	Mccabe-Canarway complex, impacted, 0-2%, occasionally flooded	26	1.2
11A	Mccabe-Canarway complex, 0-2%, occasionally flooded	146	6.7
24B	Con loam, 0-4%	172	7.9
24C	Con loam, 4-8%	30	1.4
25B	Straw silty clay loam, 0-4%	27	1.2
31B	Varney clay loam, 0-4%	154	7.1
33B	Rothiemay loam, 2-4%	61	2.8
33C	Rothiemay loam, 4-8%	18	0.8
33D	Rothiemay loam, 8-15%	7	0.3
34B	Cetrack loam, 0-4%	2	0.1
36B	Varney-Con loams, 0-4%	34	1.6
36D	Varney-Con loams, 8-15%	11	0.5
39C	Winspect gravelly loam, 4-8%	63	2.9
42E	Windham gravelly loam, 15-35%	69	3.1
49C	Danvers clay loam, 4-8%	53	2.4
49D	Danvers clay loam, 8-15%	52	2.4
52B	Martinsdale loam, 0-4%	9	0.4
52C	Martinsdale loam, 4-8%	14	0.6
58C	Coben clay loam, 4-8%	7	0.3
65D	Tanna loam, 8-15%	271	12.4
69C	Boxwell loam, 4-8%	4	0.2
69D	Boxwell loam, 8-15%	41	1.9
88E	Whitecow gravelly loam, 15-35%	1	0.1
88F	Whitecow gravelly loam, 35-60%	48	2.2
111A	Canarway-Mccabe complex, 0-2%, occasionally flooded	84	3.8
149D	Danvers cobbly loam, 8-15%	17	0.8
151E	Shawmut cobbly loam, 15-35%	44	2.0
169F	Doney-Dolus complex, 15-45%	37	1.7
351E	Roy-Shawmut-Danvers complex, 15-35%	287	13.1
442D	Braziel-Tolbert gravelly loams, 8-15%	9	0.4
442E	Braziel-Tolbert complex, 15-35%	2	0.1
444B	Gregson silt loam, 0-4%, rarely flooded	137	6.3
445B	Saypo silt loam, 0-4%, rarely flooded	3	0.2
447B	Kleinschmidt gravelly loam, cool, 0-4%, rarely flooded	3	0.1
488F	Whitecow gravelly loam, cool, 35-60%	131	6.0
814B	Bandy loam, 0-4%, rarely flooded	16	0.7
824E	Con-Sixbeacon cobbly loams, 15-35%	23	1.1
839E	Windham-Lap-Rock outcrop complex, 15-35%	17	0.8
839F	Windham-Lap-Rock outcrop complex, 35-60%	32	1.5
855A	Mannixlee-Blossberg complex, 0-2%, rarely flooded	13	0.6
915	Welded tuff	10	0.5
	Totals	2185	100

LEGEND

- Permit Boundary
- Disturbance Boundary
- Intensive Study Area
- Extensive Study Area
- Soil Type Boundary
- Cb01 Soil Sample Site
- 0" Total Salvage Depth
- 12" Total Salvage Depth
- 24" Total Salvage Depth

N

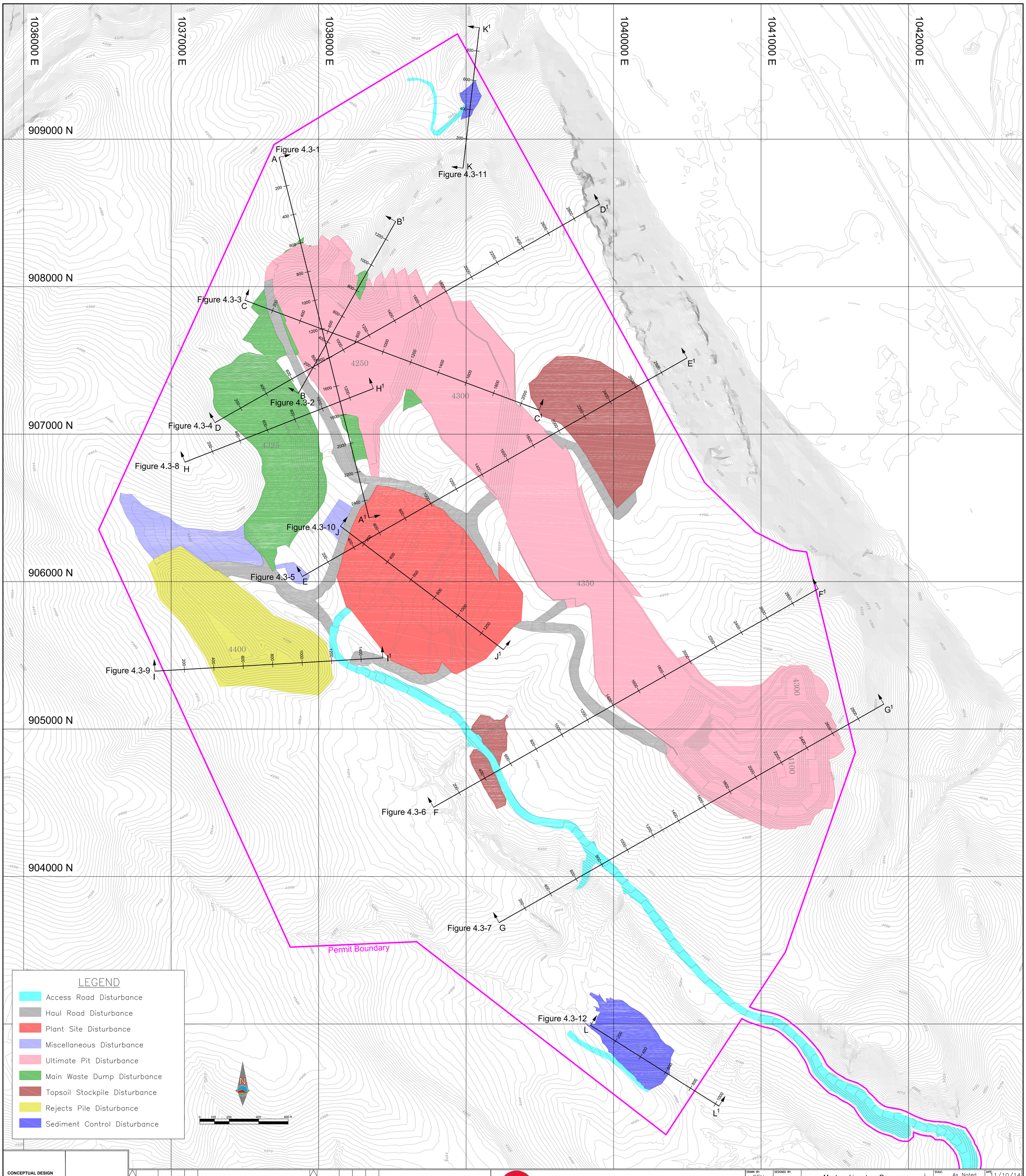
0 300 600 1200
Feet

Montana Limestone Resources
Soils Salvage Map

WESTECH ENVIRONMENTAL

SCALE: 1"=600'
DATE: 11/11/14 Rev. 08/31/17
DRAWN BY: DC
CHECKED BY: CB
FILE: MLR17 Soils Salvage R1.dwg

EXHIBIT
3-7
SHEET: 1 of 1



CONCEPTUAL DESIGN
NOT FOR CONSTRUCTION

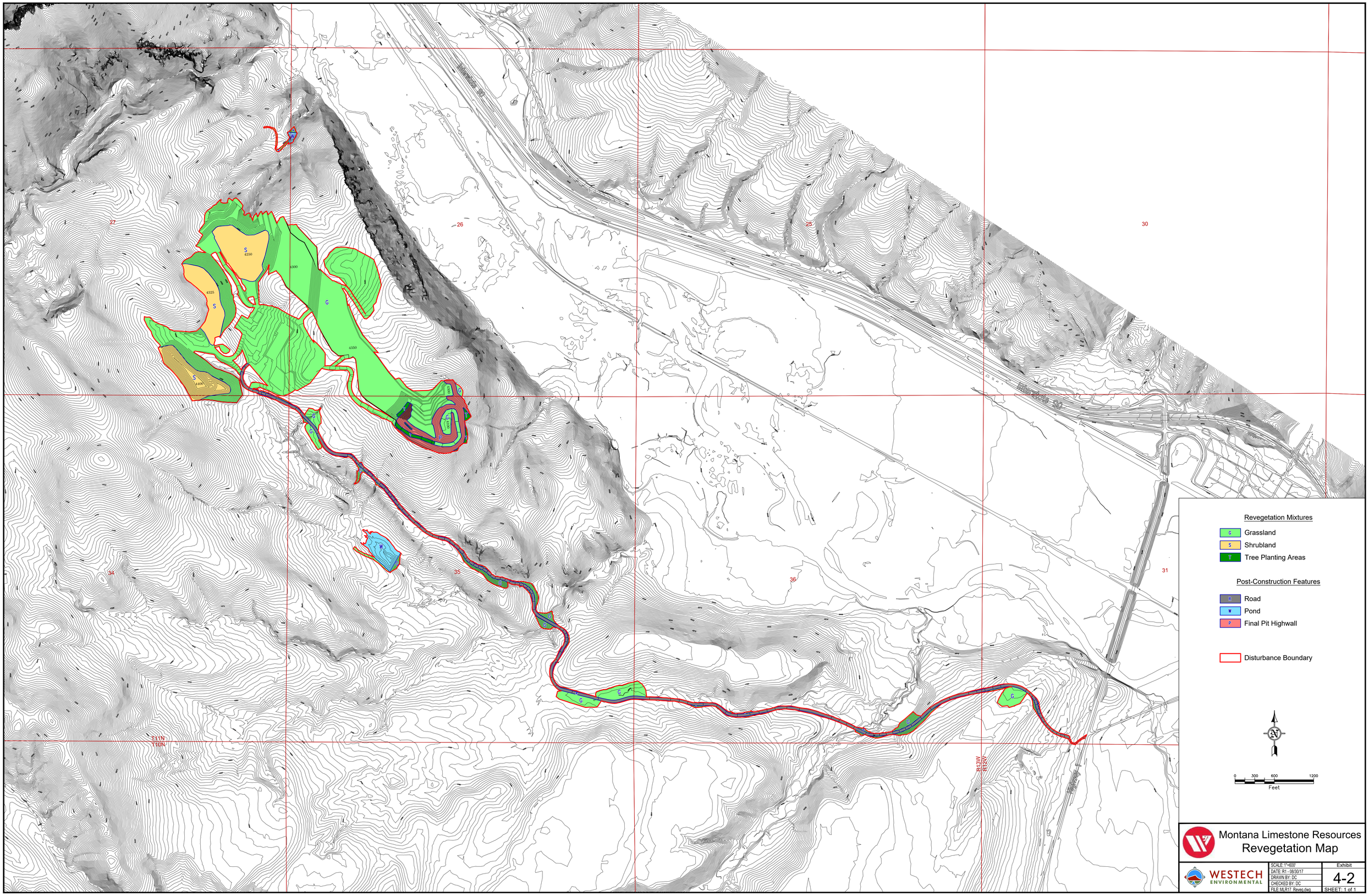
REV	DATE	DRAWN	CHECK	DISP	DESCRIPTION
1	08/30/17	DC	LL		DEQ Comments

Montana Limestone Resources

DRAWN BY: SEH
CHECKED BY: SJC
PROJECT ENG:
DESIGNED BY:
DISCIPLINE APPR:
OPERATIONS APPR:

Montana Limestone Resources
Post-Mine Topography Map
Drummond, MT

SCALE: As Noted
DATE: 11/10/14
DRAWING NUMBER: Exhibit 4-1
REV: 1
SHEET: 1 OF: 1
PROJECT No.:


Revegetation Mixtures
Grassland
Shrubland
Tree Planting Areas
Post-Construction Features
Road
Pond
Final Pit Highwall
Disturbance Boundary
N
0 300 600 1200
Feet
Montana Limestone Resources
Revegetation Map
WESTECH ENVIRONMENTAL
SCALE: 1"=600'
DATE: R1 - 08/30/17
DRAWN BY: DC
CHECKED BY: DC
FILE: MLR17_Reveg.dwg
Exhibit
4-2
SHEET: 1 of 1