

**APPENDIX E, Red Dog One Year Mine Plan 2012**



**Red Dog Operations**

**Alaska, USA**

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**ONE YEAR MINE PLAN – 2012**  
**ADDENDUM**

January 2012

## TABLE OF CONTENTS

<b>1. SUMMARY .....</b>	<b>1</b>
1.1. INTRODUCTION.....	1
1.2. MINE PRODUCTION.....	1
1.3. EQUIPMENT FLEETS.....	1
1.4. RISKS AND OPPORTUNITIES .....	2
<b>2. MONTHLY MINE PRODUCTION.....</b>	<b>3</b>
<b>3. EQUIPMENT FLEETS.....</b>	<b>5</b>
<b>4. APPENDICES .....</b>	<b>7</b>
APPENDIX-I 2012 MINE PLAN MAPS (BY MONTH).....	7
APPENDIX-II 2012 MINE PLAN 3D VIEW AND END OF PERIOD SURFACE (BY MONTH) .....	7

## TABLE OF TABLES

Table 1-1 2012 Mine Plan Summary .....	1
Table 1-2 2012 Equipment Schedule .....	2
Table 2-1 2012 Monthly Mine Plan Summary.....	3
Table 2-2 2012 Quarterly Mine Plan Summary.....	4
Table 3-1 Monthly Non-production Projects Hours.....	5
Table 3-2 2012 Monthly Equipment Performance Forecast.....	6

## TABLE OF FIGURES

Figure 4-1	Jan-2012 Mine Plan 3D View.....	8
Figure 4-2	Feb-2012 Mine Plan 3D View .....	9
Figure 4-3	Mar-2012 Mine Plan 3D View .....	10
Figure 4-4	Apr-2012 Mine Plan 3D View .....	11
Figure 4-5	May-2012 Mine Plan 3D View.....	12
Figure 4-6	Jun-2012 Mine Plan 3D View .....	13
Figure 4-7	Jul-2012 Mine Plan 3D View.....	14
Figure 4-8	Aug-2012 Mine Plan 3D View.....	15
Figure 4-9	Sep-2012 Mine Plan 3D View .....	16
Figure 4-10	Oct-2012 Mine Plan 3D View .....	17
Figure 4-11	Nov-2012 Mine Plan 3D View .....	18
Figure 4-12	Dec-2012 Mine Plan 3D View.....	19

### Distribution List – January 2012

#### Red Dog Mine, Teck Alaska Inc.

Sr. Vice President - Mike Agg

Sr. Vice President – Rob Scott

General Manager – Mike Bonneau

Operations Manager– John Egan

Mine Superintendent - Mark Smith

Mine General Forman – Larry Hanna

Chief Engineer – Tom Farr

Short Range Planning (2)

Long Range Planning (1)

Projects (1)

Geology (1)

Spares (4)

## 1. SUMMARY

### 1.1. Introduction

The 2012 mine plan was completed in June 2011. The following initial assumptions of the 2012 mine plan have changed dramatically during this several month period of mine development:

- 1) End of 2011 mine status projection has changed mainly due to geotechnical and production scheduling issues.
- 2) Final date of Main-pit completion reset to Feb. 29, 2012 from Dec. 31 2012.
- 3) Equipment availability, such as 12 haul trucks will be available through February of 2012.

This 2012 Mine Plan Addendum is a collection of revised monthly 2012 mine production plans, equipment forecast, Aqqaluk dewatering plan, Main Pit Dump (MPD) dumping plan and other major changes.

### 1.2. Mine Production

The production target forecast has been reset to 13,280 kt of total mine production from the Main Pit and the Aqqaluk Pit (Table 1-1). The 3,773 kt of ore at % Zn and % Pb is from the Main Pit and Aqqaluk Pit throughout 2012. Within the total 9,507 kt of waste scheduled, 9,319 kt is from the Aqqaluk Pit.

**Table 1-1 2012 Mine Plan Summary**

	Main Pit	Aqqaluk Pit	Total
Total (t)	404,318	12,875,501	13,279,819
Ore (t)	216,564	3,556,178	3,772,742
Zn (%)			
Pb (%)			
Waste (t)	187,754	9,319,323	9,507,077
SR	0.87	2.6	2.52

### 1.3. Equipment Fleets

The adjusted 2012 equipment schedule is shown in Table 1-2. For the first 2 months of 2012, the equipment required to achieve the 2012 plan will remain unchanged from current fleet size.

At the start of Mar. 2012, three trucks will be decommissioned as short waste cycle time of back filling waste into the Main Pit (MPD), and two more trucks will be decommissioned at the beginning of 4th quarter of 2012, as the Aqqaluk Pit stripping demand is reduced. Red Dog purchased one 993K Loader and one DML Drill in 2011, both as replacements. One drill and two loaders are scheduled for replacement in 2012.

**Table 1-2 2012 Equipment Schedule**

Equipment	Description	Jan & Feb	Mar. to Sep.	Q4
Drills	DML	3	3	3
Trucks	777	12	9	7
Loaders	992/993	5	5	5
Dozers	D9/D10	4	4	4

#### **1.4. Risks and Opportunities**

The challenge Red Dog will face in the beginning of 2012 is the completion of the Main Pit and back filling the Main Pit with waste. The delay of the Main Pit completion will create a risk of delaying equipment decommissioning as scheduled at the beginning of 1st quarter.

The challenges of modeled ore tonnage and grade deviation will continue throughout 2012; however, Red Dog's efforts to fine tune and optimize mine planning can help mitigate the pressures of the mine schedule change.

Opportunity exists to recover 62.6 kt of ore in the GHZ01 area during February and March before spring thaw or back filling this area.



**Table 2-2 2012 Quarterly Mine Plan Summary**

<u>Main</u>	Q1	Q2	Q3	Q4	2012 Total
Ore (t)	216,564	0	0	0	216,564
NSR (\$/t)	0.0		0.0	0.0	
Zn (%)	0.0		0.0	0.0	
Pb (%)	0.0		0.0	0.0	
sPb (%)	1.0	0.0	0.0	0.0	1.0
Ag (g/t)	0.0		0.0	0.0	
Fe (%)	7.4	0.0	0.0	0.0	7.4
Ba (%)	3.7	0.0	0.0	0.0	3.7
TOC (%)	0.4	0.0	0.0	0.0	0.4
SiO2 (%)	41.6	0.0	0.0	0.0	41.6
Marginal (t)	0	0	0	0	0
Waste (t)	187,754	0	0	0	187,754
Total(t)	404,318	0	0	0	404,318
SR	0.87	0.00	0.00	0.00	0.87

<u>Aqqaluk</u>	Q1	Q2	Q3	Q4	2012 Total
Ore (t)	716,926	936,835	964,374	938,043	3,556,178
NSR (\$/t)					
Zn (%)					
Pb (%)					
sPb (%)	0.8	1.0	0.7	0.7	0.8
Ag (g/t)					
Fe (%)	3.7	3.9	3.2	3.4	3.5
Ba (%)	6.1	8.0	9.5	7.4	7.9
TOC (%)	0.2	0.2	0.2	0.2	0.2
SiO2 (%)	48.5	43.3	43.5	47.1	45.4
Marginal (t)	0	0	0	0	0
Waste (t)	2,319,113	2,543,700	2,500,471	1,956,039	9,319,323
Total(t)	3,036,039	3,480,535	3,464,845	2,894,082	12,875,501
SR	3.23	2.72	2.59	2.09	2.6

<u>Total</u>	Q1	Q2	Q3	Q4	2012 Total
Ore (t)	933,490	936,835	964,374	938,043	3,772,742
NSR (\$/t)					
Zn (%)					
Pb (%)					
sPb (%)	0.9	1.0	0.7	0.7	0.8
Ag (g/t)					
Fe (%)	4.6	3.9	3.2	3.4	3.7
Ba (%)	5.5	8.0	9.5	7.4	7.6
TOC (%)	0.3	0.2	0.2	0.2	0.2
SiO2 (%)	46.9	43.3	43.5	47.1	45.2
Marginal (t)	0	0	0	0	0
Waste (t)	2,506,867	2,543,700	2,500,471	1,956,039	9,507,077
Total(t)	3,440,357	3,480,535	3,464,845	2,894,082	13,279,819
SR	2.7	2.7	2.6	2.1	2.52
Ag in Zn conc (g/dmt)					
Ag in Pb conc (g/dmt)					
Zn/Fe					
Zn/Pb tot	4.0	3.7	4.0	4.1	4.0
sPb/Pb					
Zn/TOC					
Zn conc (t)					
Pb conc (t)					
Total Conc (t)					



### 3. EQUIPMENT FLEETS

**Table 3-1 Monthly Non-production Projects Hours**

Projects	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Non-Capital Project</b>													
Drill hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Loader hours	0	0	0	0	40	40	40	40	40	0	0	0	200
Haultruck hours	0	0	0	0	95	95	95	95	95	0	0	0	476
Dozer hours	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>MWD 3:1 reslope</b>													
Drill hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Loader hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Haultruck hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Dozer hours	0	0	0	66	48	36	176	196	200	0	0	0	723
<b>Aqqaluk topsoil stripping</b>													
Drill hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Loader hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Haultruck hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Dozer hours	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>quarries</b>													
Drill hours	0	0	0	0	65	65	65	65	0	0	0	0	259
Loader hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Haultruck hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Dozer hours	0	0	0	0	20	30	30	10	0	0	0	0	90
<b>Infill drilling pad preparation</b>													
Drill hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Loader hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Haultruck hours	0	0	0	0	0	0	0	0	0	0	0	0	0
Dozer hours	69	65	69	67	69	67	69	69	67	69	67	69	815
<b>Total</b>													
Drill hours	0	0	0	0	65	65	65	65	0	0	0	0	259
Loader hours	0	0	0	0	40	40	40	40	40	0	0	0	200
Haultruck hours	0	0	0	0	95	95	95	95	95	0	0	0	476
Dozer hours	69	65	69	133	137	133	275	275	267	69	67	69	1627



## **4. APPENDICES**

**Appendix-I 2012 Mine Plan Maps (by month)**

**Appendix-II 2012 Mine Plan 3D View and End of Period Surface (by month)**

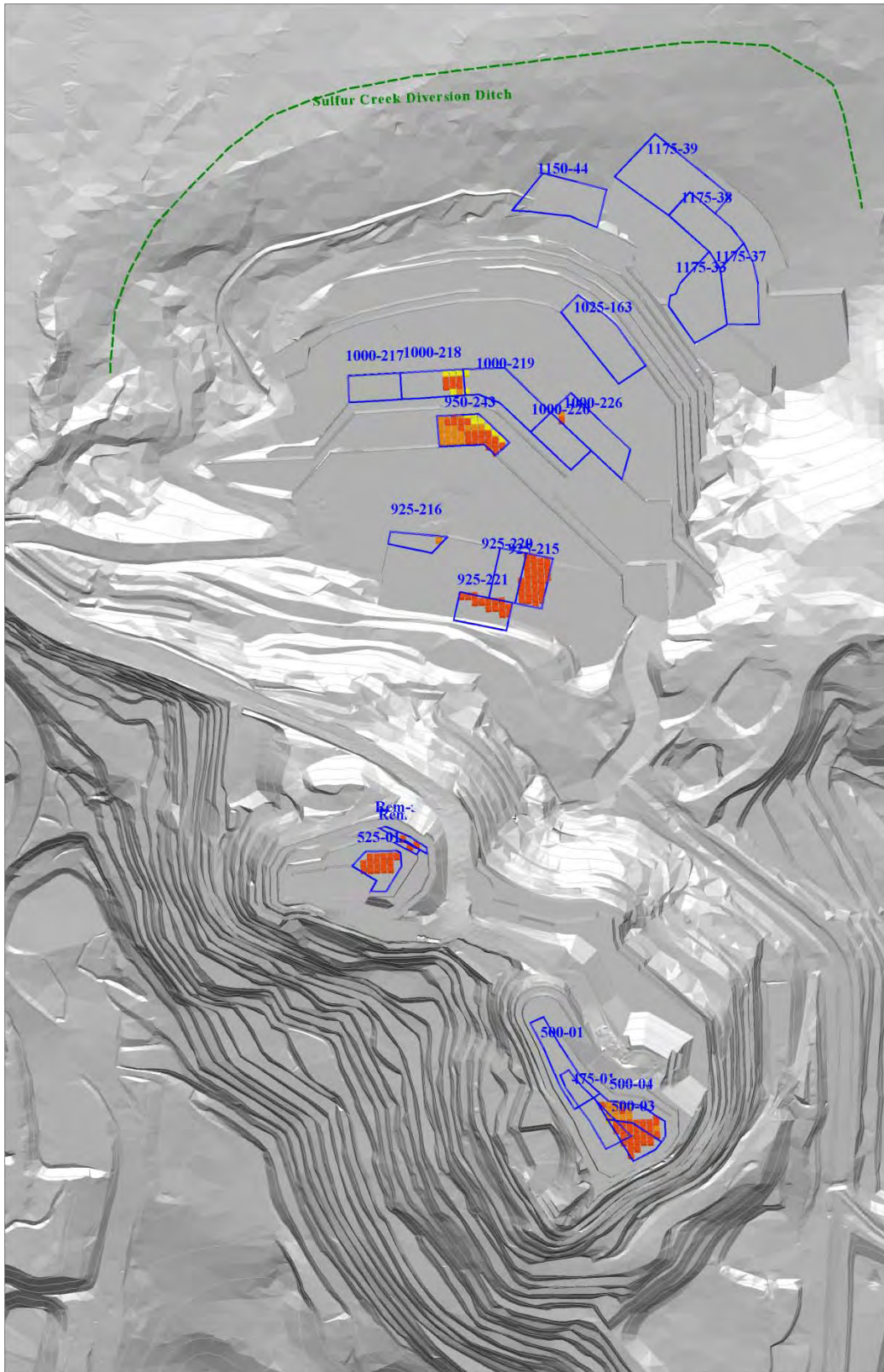


Figure 4-1 Jan-2012 Mine Plan 3D View



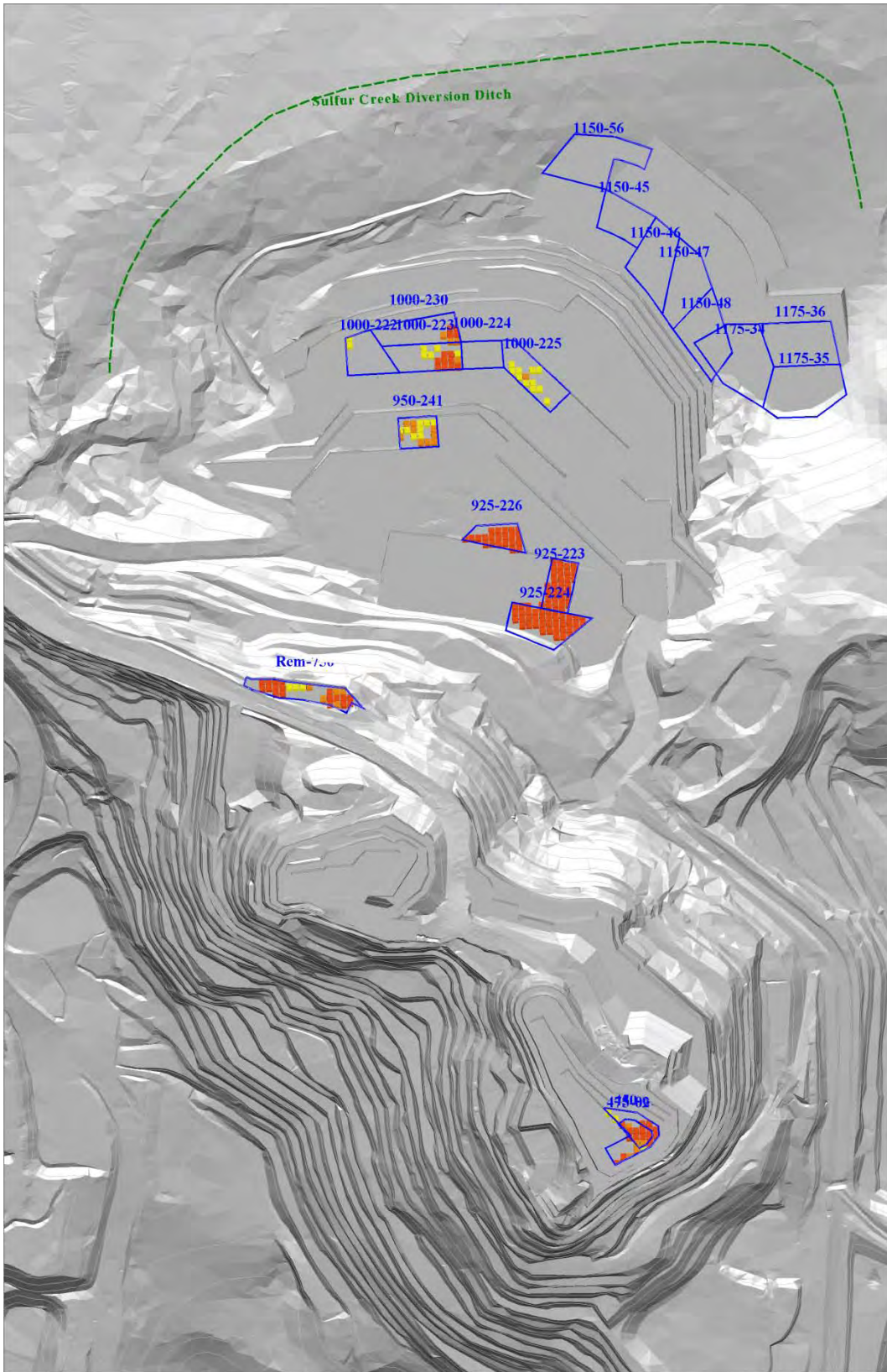


Figure 4-2 Feb-2012 Mine Plan 3D View

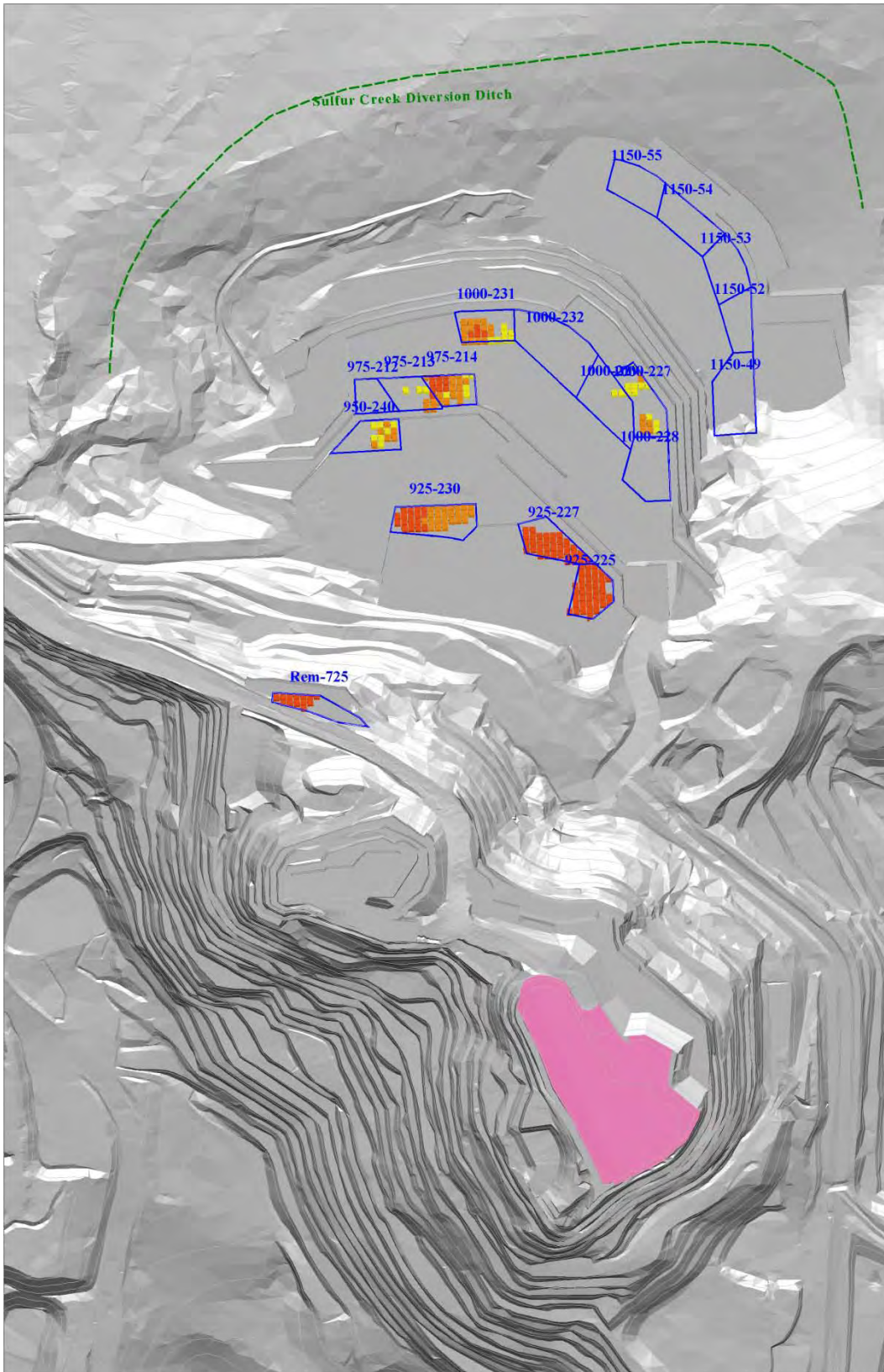


Figure 4-3 Mar-2012 Mine Plan 3D View



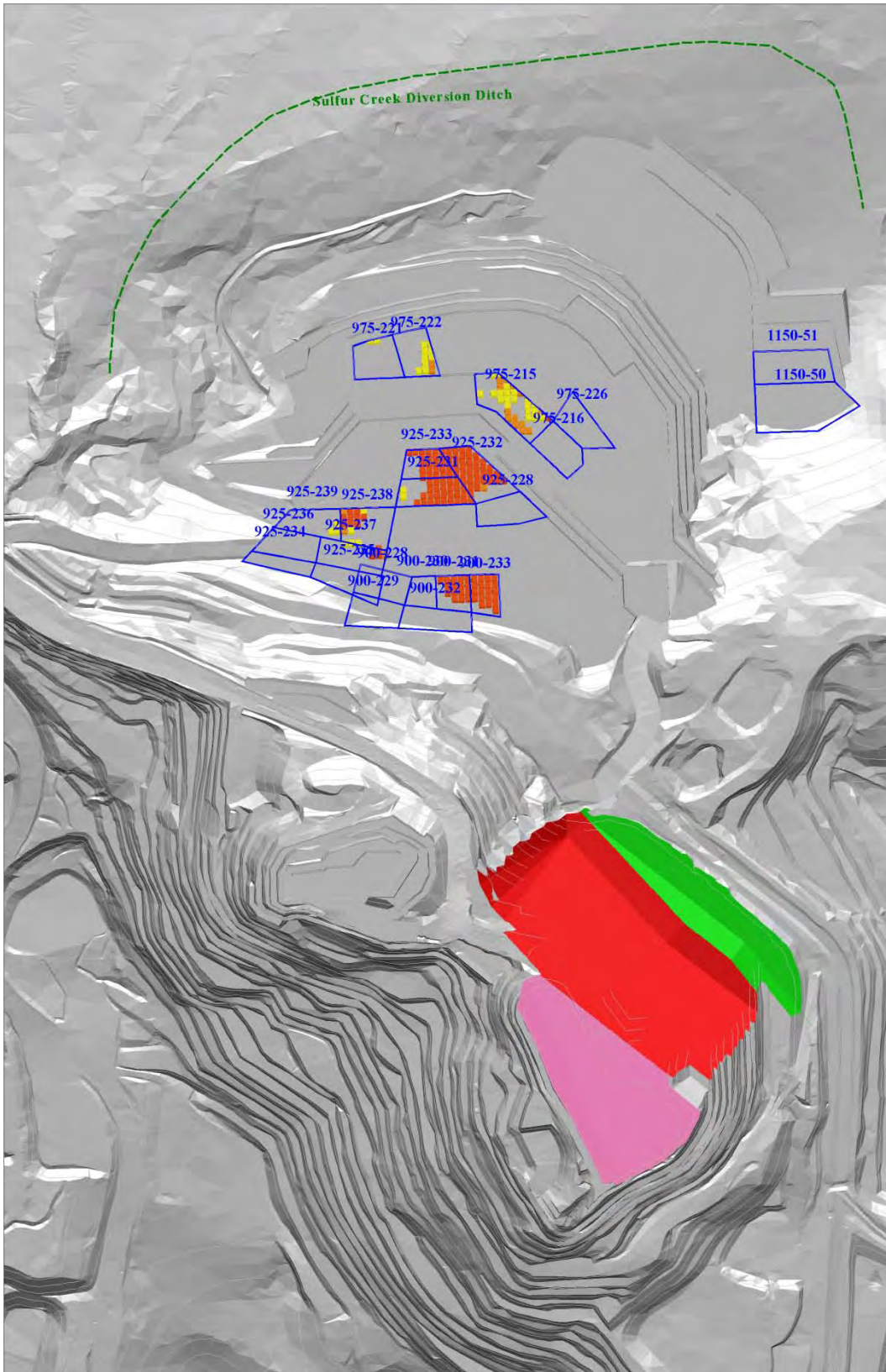


Figure 4-4 Apr-2012 Mine Plan 3D View

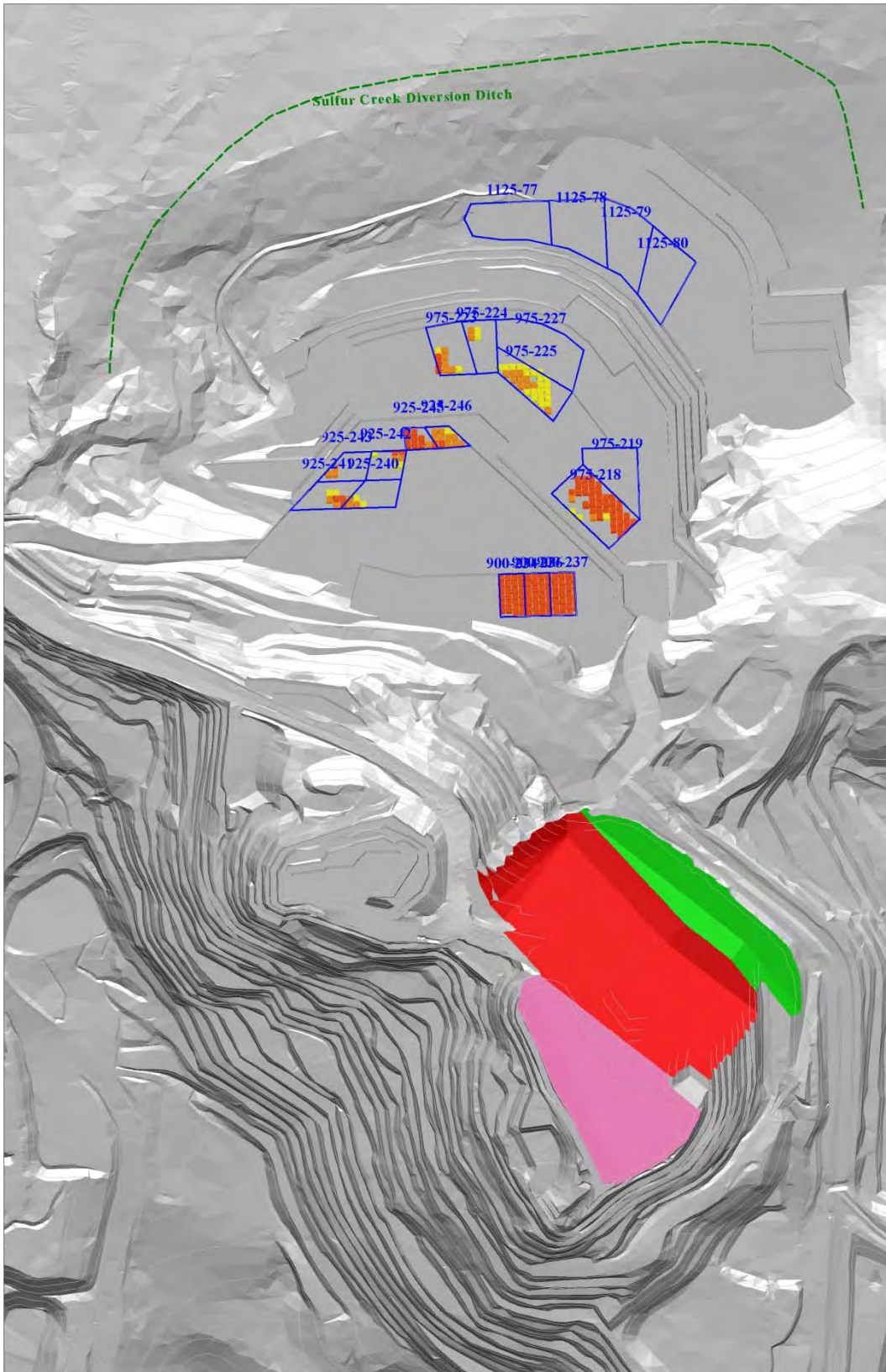


Figure 4-5 May-2012 Mine Plan 3D View



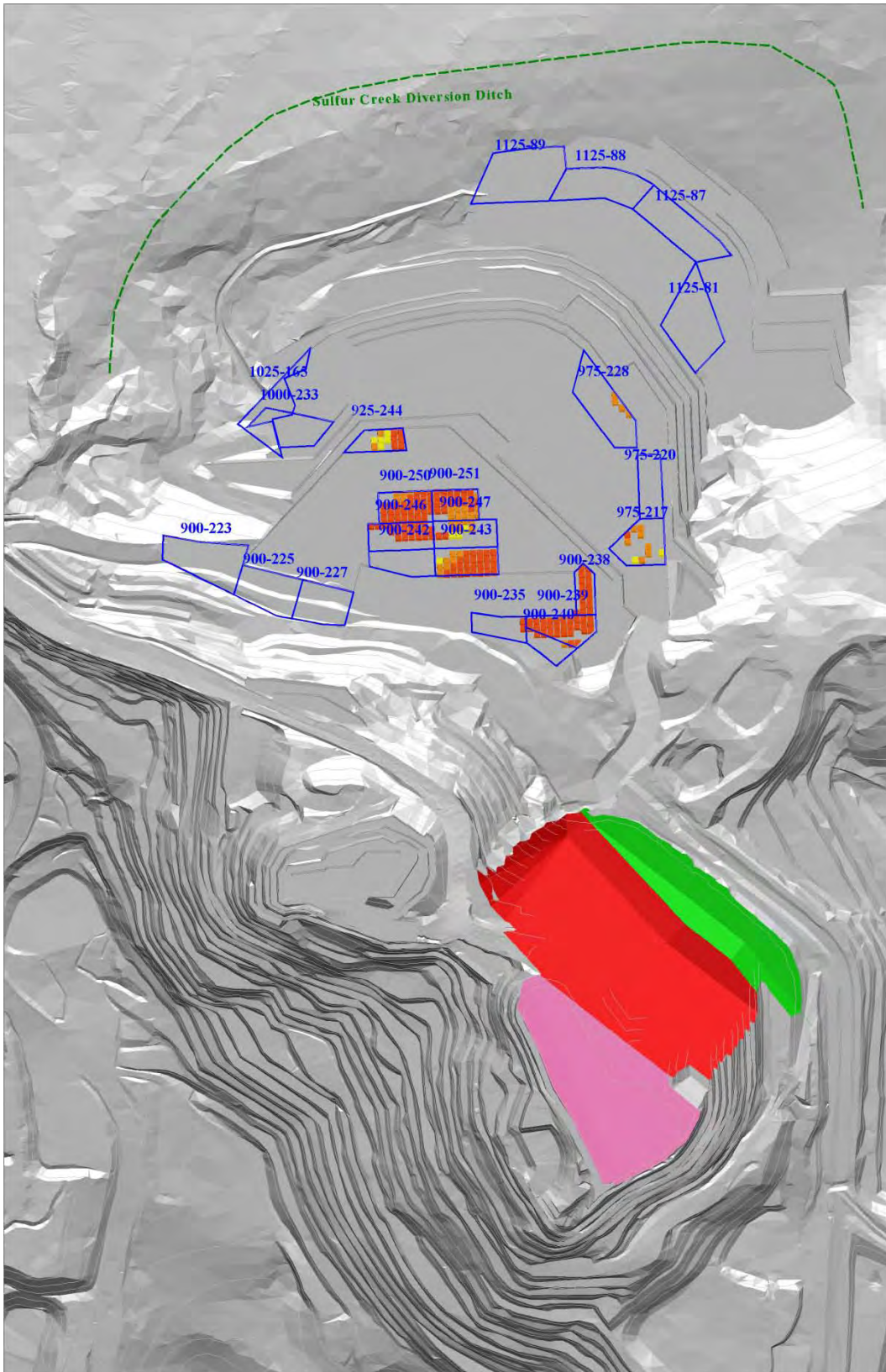


Figure 4-6 Jun-2012 Mine Plan 3D View

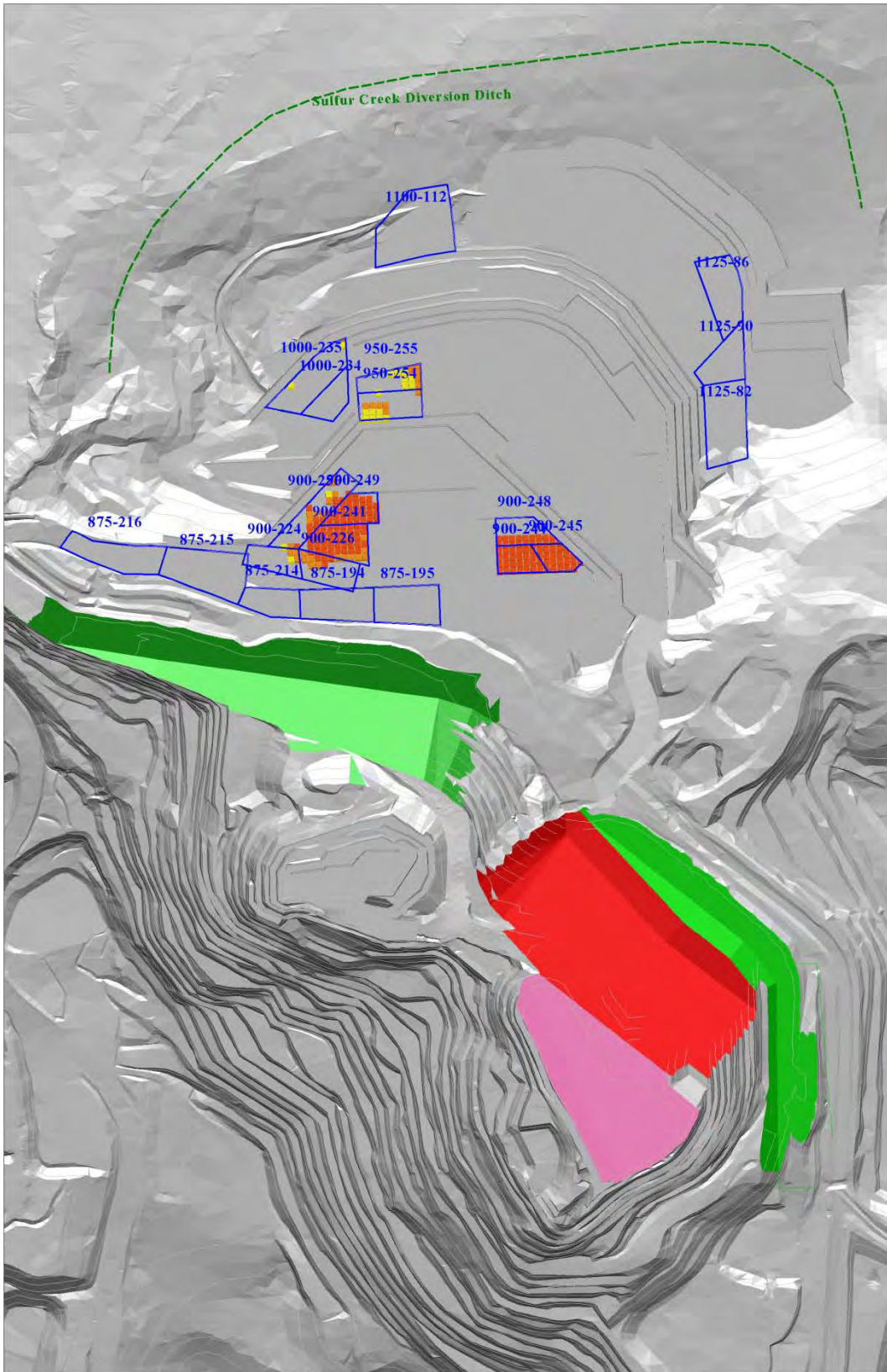


Figure 4-7 Jul-2012 Mine Plan 3D View



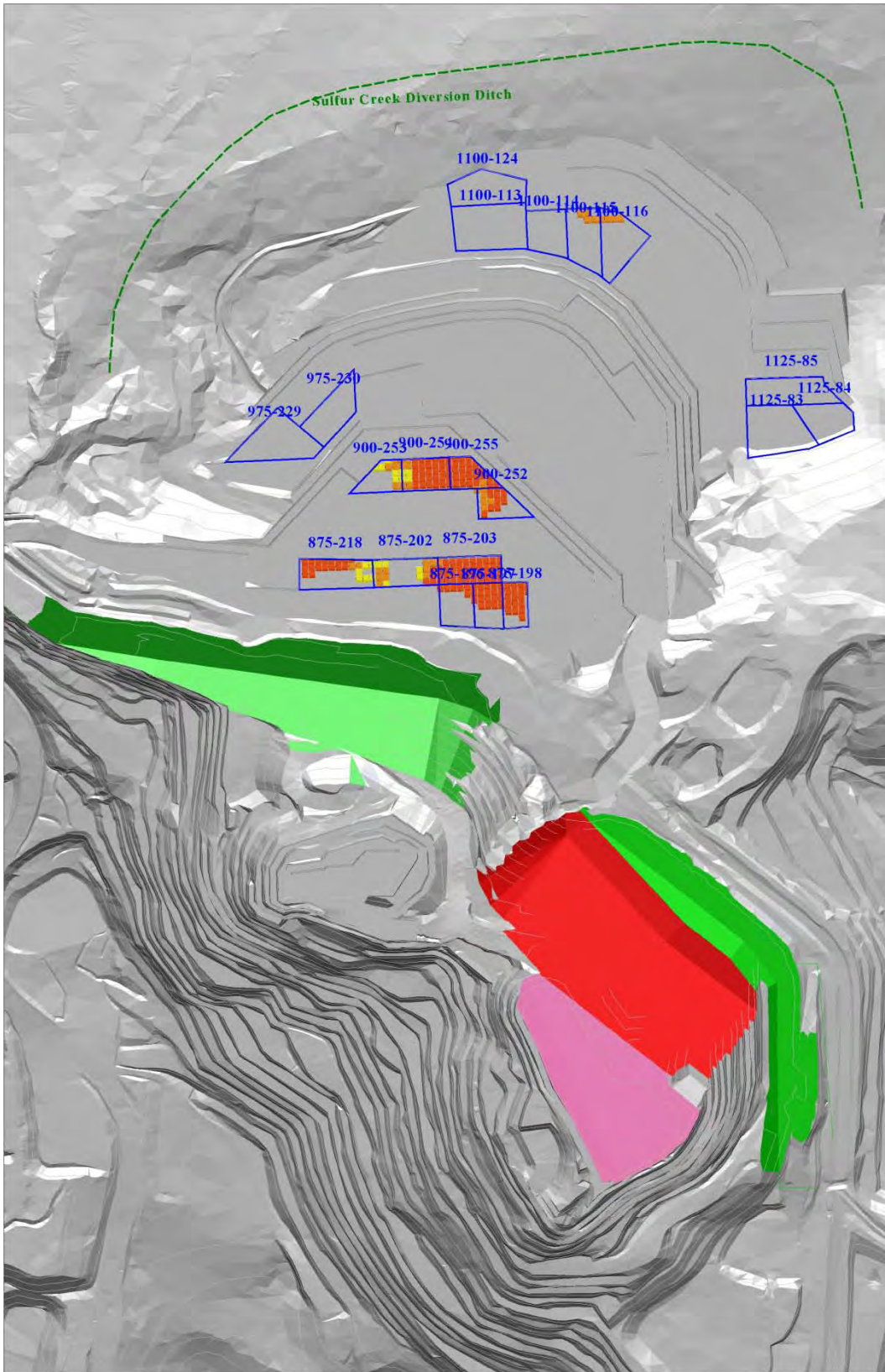


Figure 4-8 Aug-2012 Mine Plan 3D View

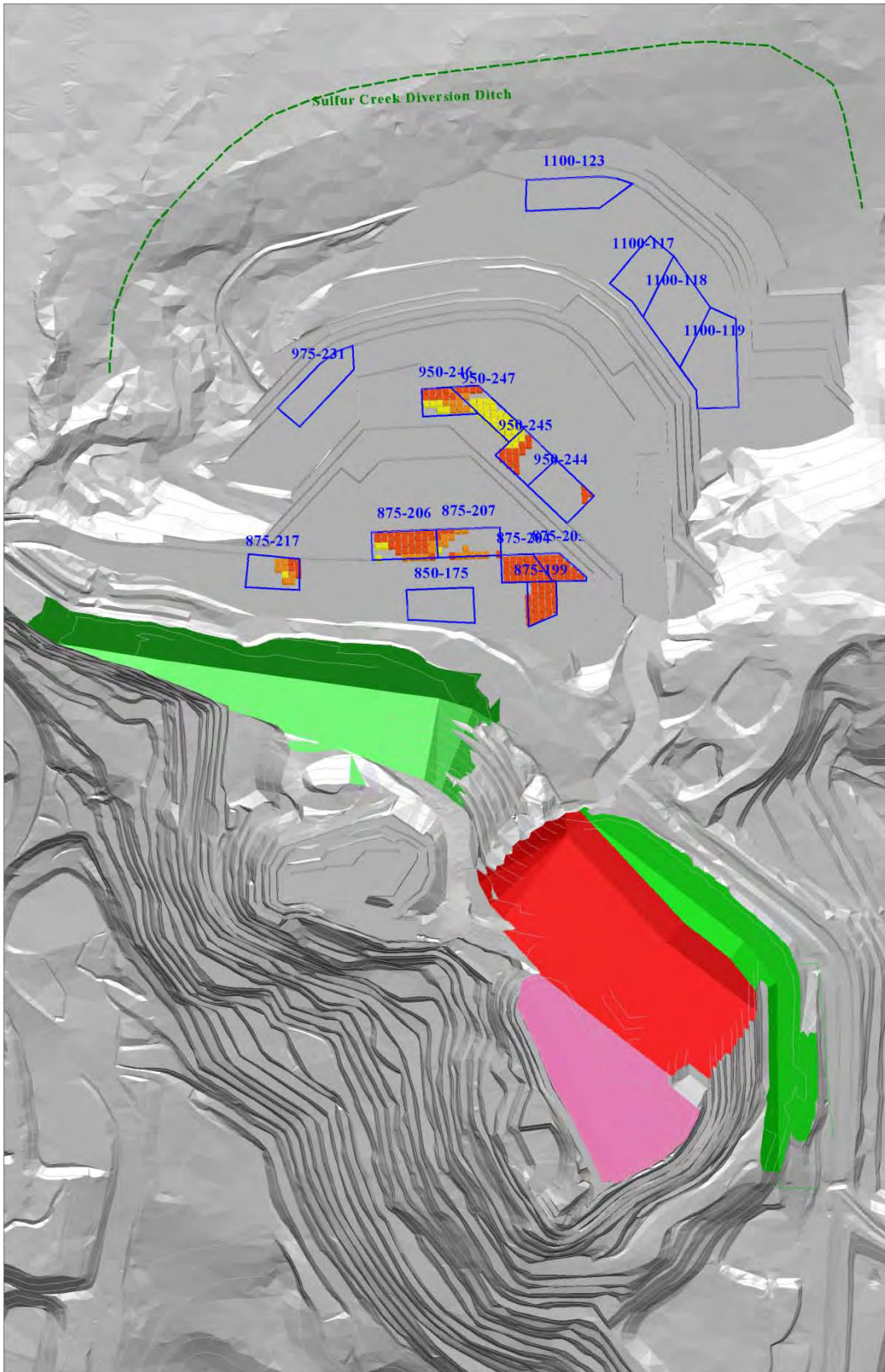


Figure 4-9 Sep-2012 Mine Plan 3D View



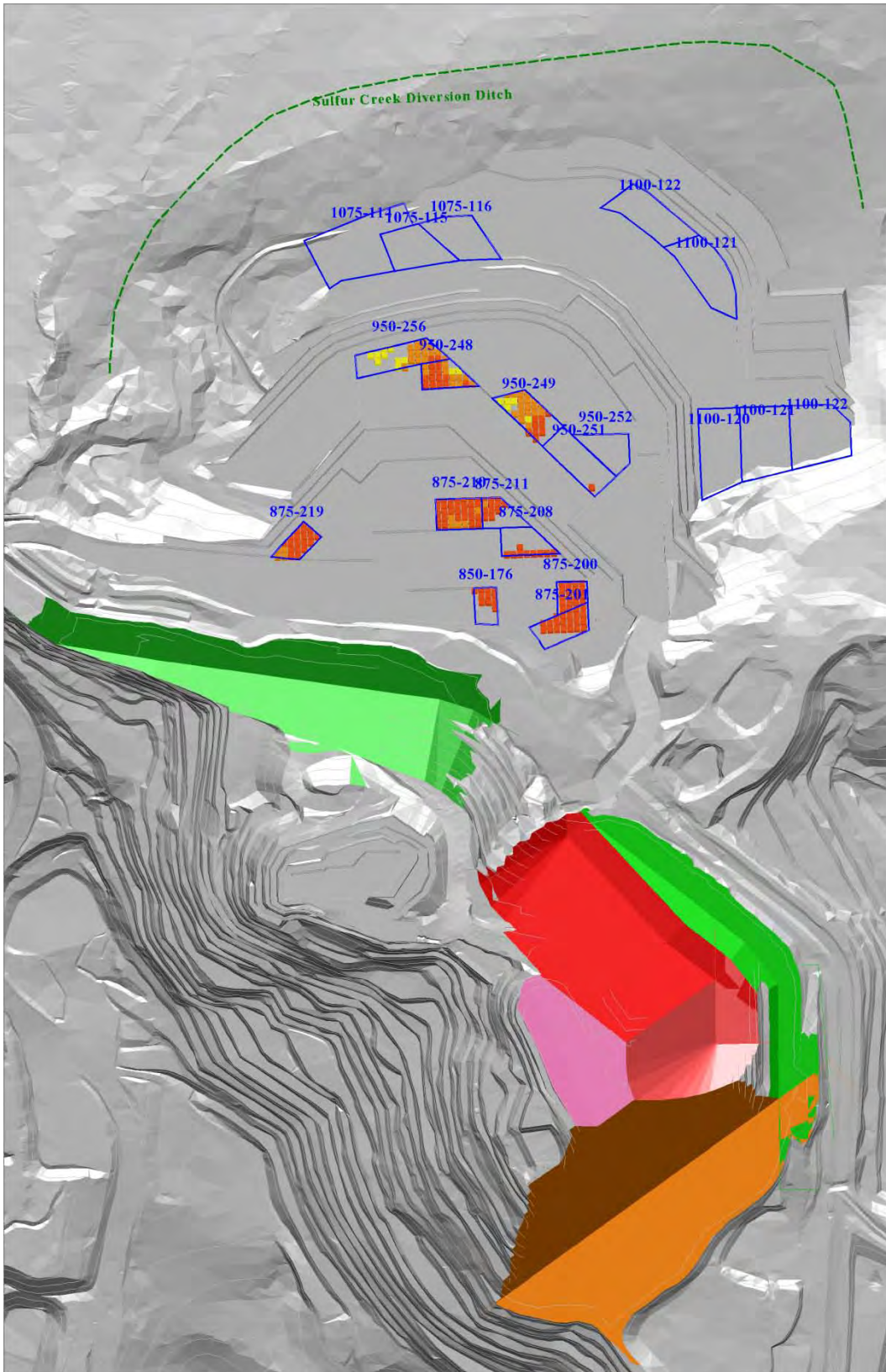


Figure 4-10 Oct-2012 Mine Plan 3D View

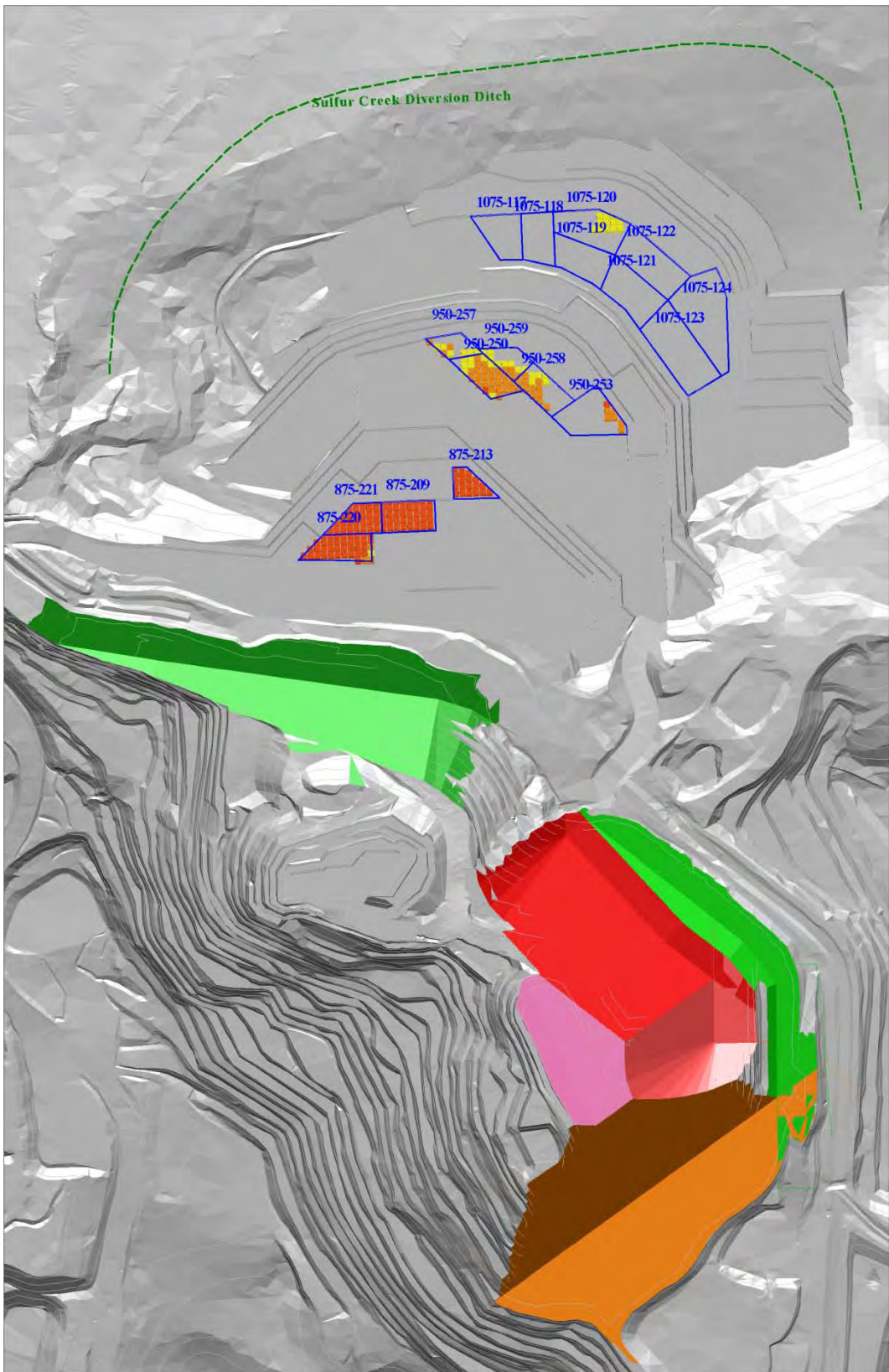


Figure 4-11 Nov-2012 Mine Plan 3D View



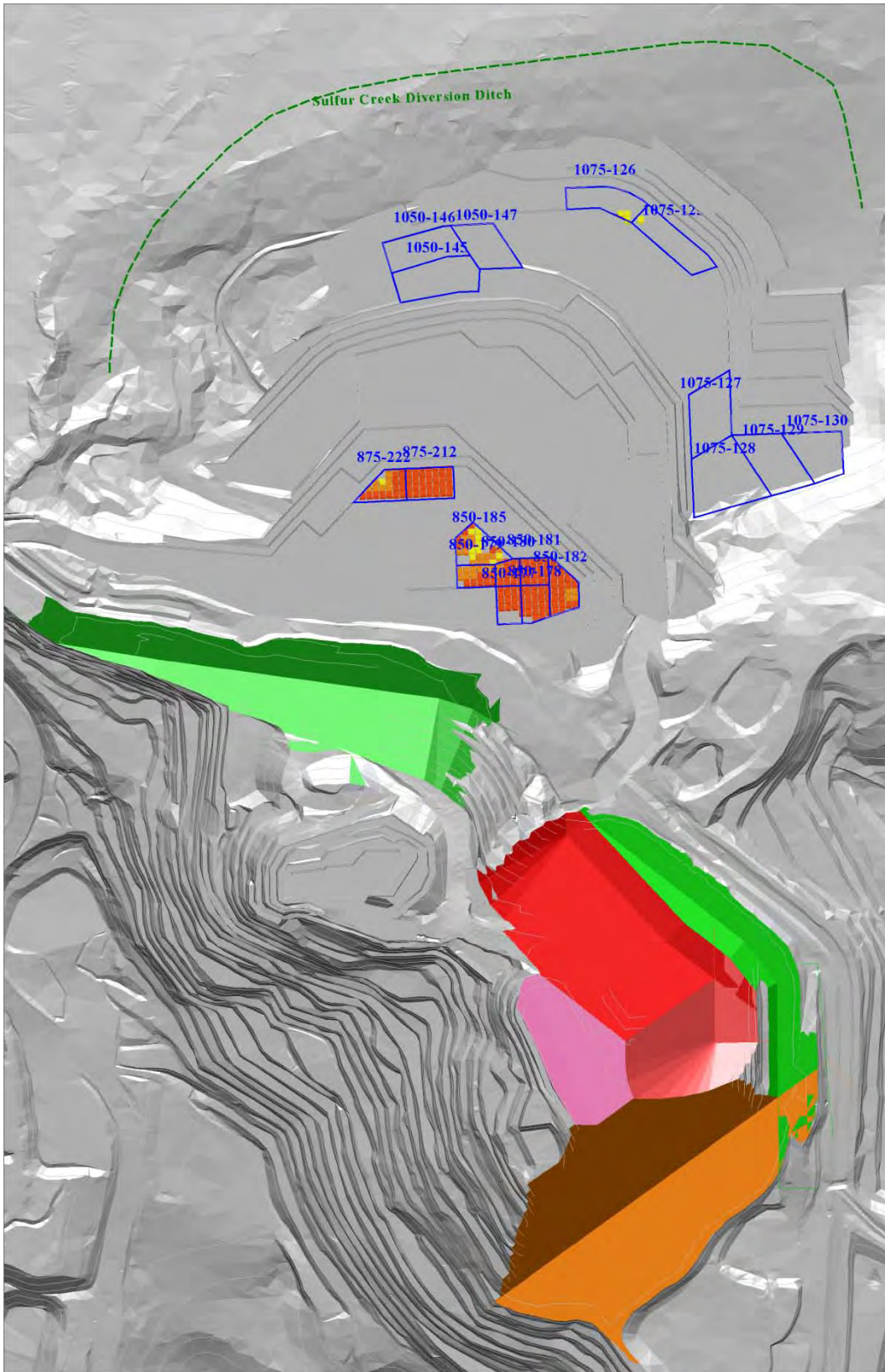
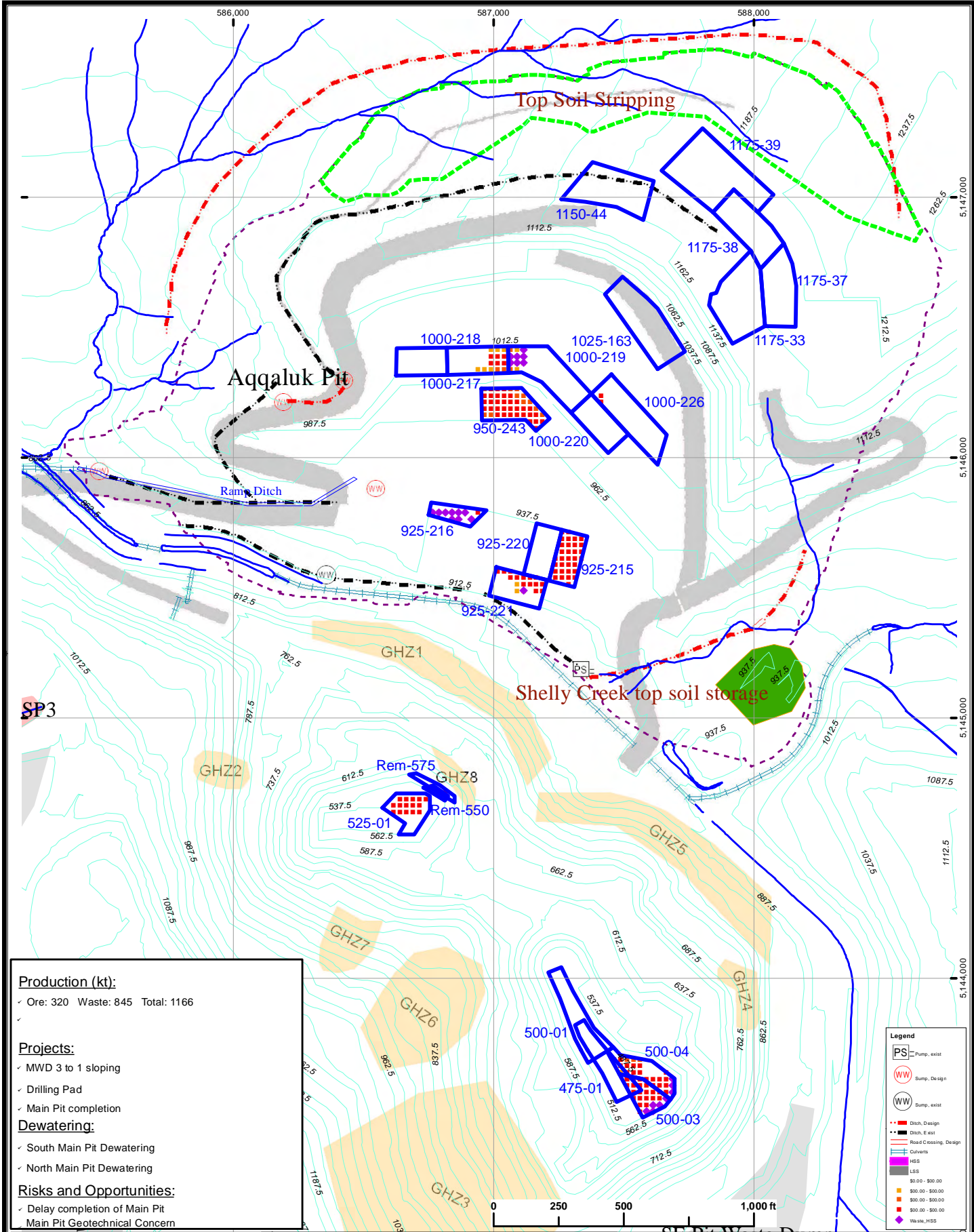


Figure 4-12 Dec-2012 Mine Plan 3D View



**Production (kt):**

✓ Ore: 320 Waste: 845 Total: 1166

**Projects:**

- ✓ MWD 3 to 1 sloping
- ✓ Drilling Pad
- ✓ Main Pit completion

**Dewatering:**

- ✓ South Main Pit Dewatering
- ✓ North Main Pit Dewatering

**Risks and Opportunities:**

- ✓ Delay completion of Main Pit
- Main Pit Geotechnical Concern

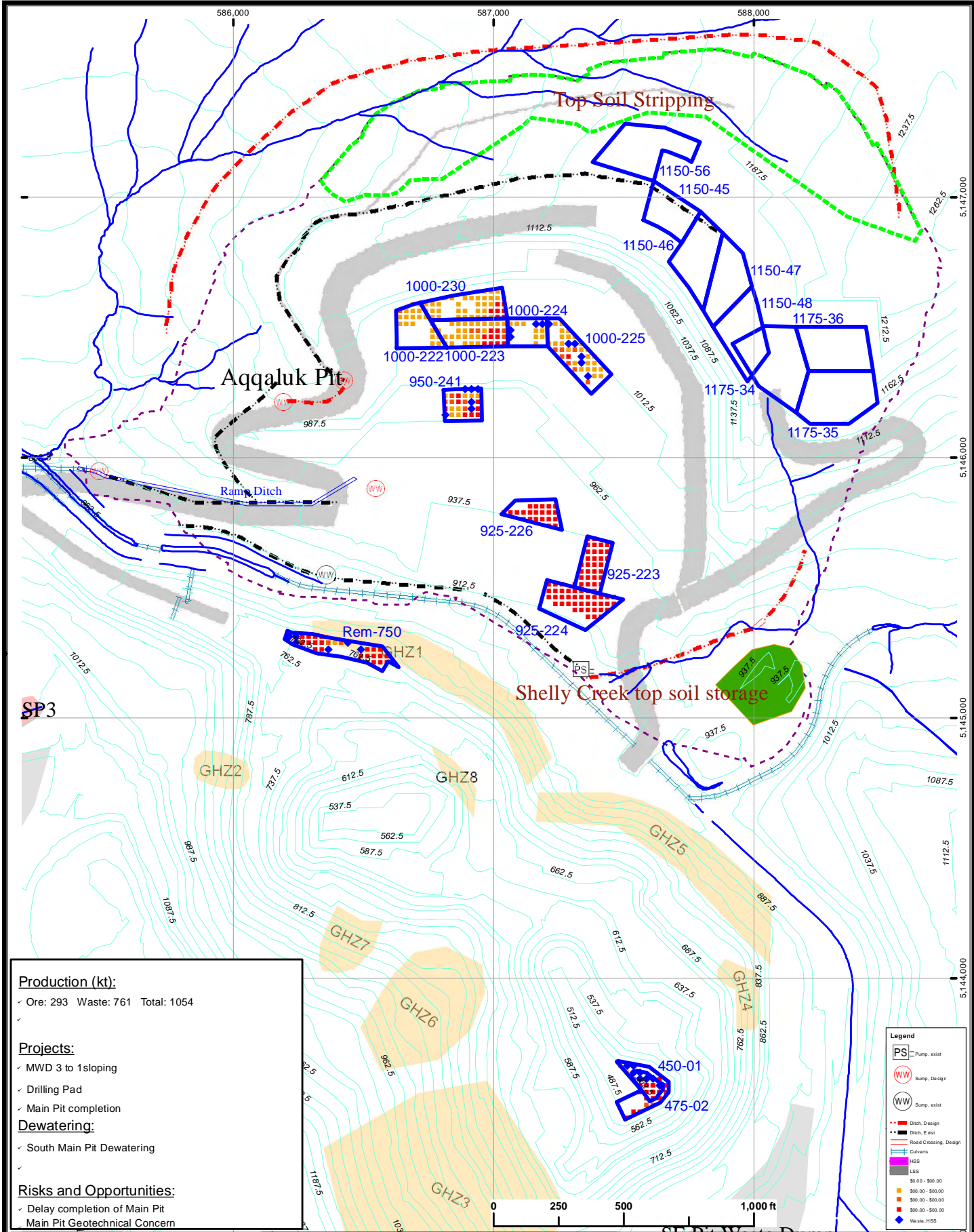
Legend	
PS	Pump, exist
WW	Sump, Design
WW	Sump, exist
- - -	Ditch, Design
- - -	Ditch, Exist
- - -	Road Crossing, Design
- - -	Culverts
■	HSS
■	LSS
■	\$0.00 - \$50.00
■	\$50.00 - \$100.00
■	\$100.00 - \$500.00
■	\$500.00 - \$1000.00
◆	Waste, HSS

**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Jan)**  
 Compiled by: HL Date: Jan-2012





**Production (kt):**  
 ✓ Ore: 293 Waste: 761 Total: 1054

**Projects:**  
 ✓ MWD 3 to 1 sloping  
 ✓ Drilling Pad  
 ✓ Main Pit completion

**Dewatering:**  
 ✓ South Main Pit Dewatering

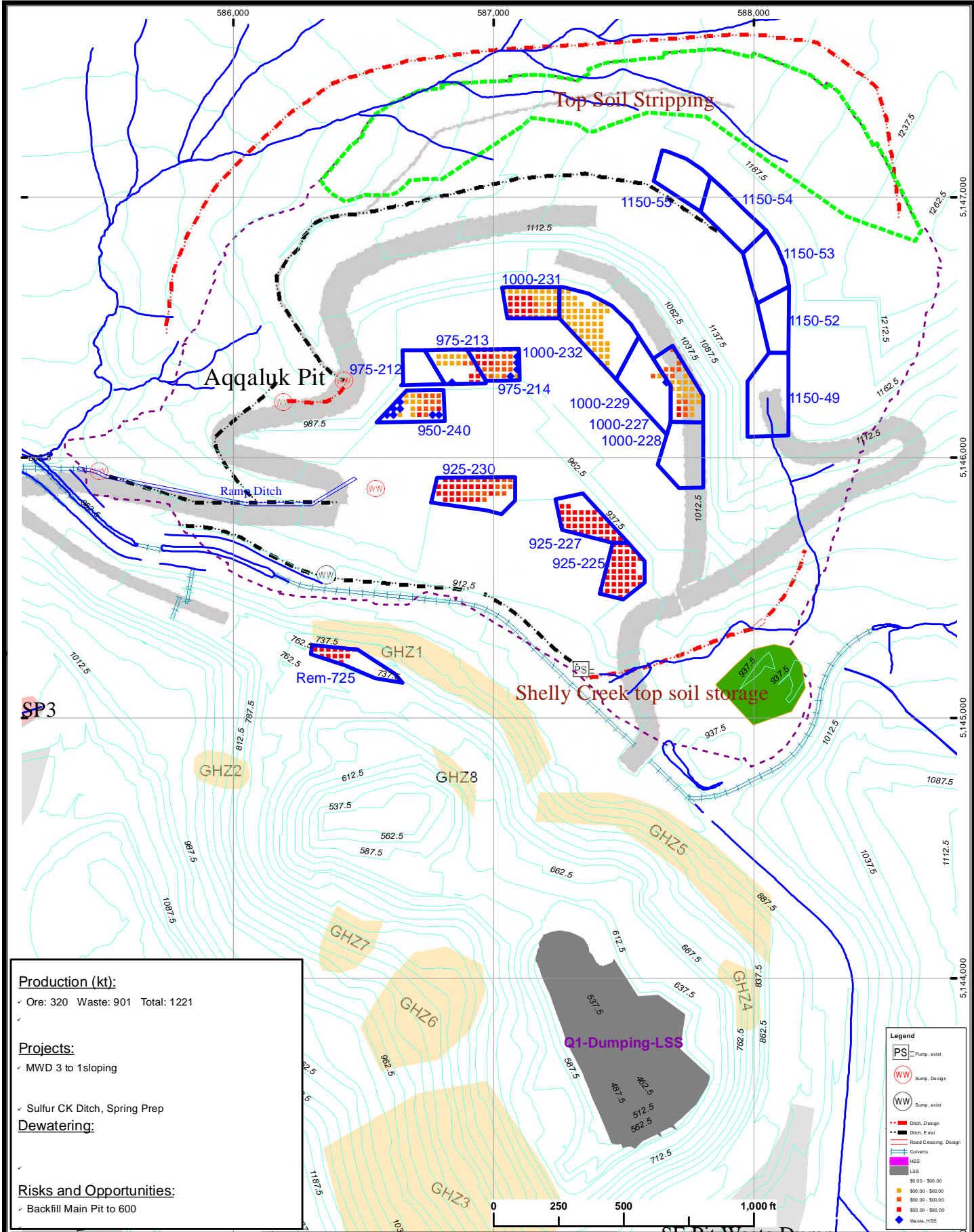
**Risks and Opportunities:**  
 ✓ Delay completion of Main Pit  
 Main Pit Geotechnical Concern

Legend	
PS	Pump, exist
WW	Sump, Design
WW	Sump, exist
- - -	Ditch, Design
- - -	Ditch, Exist
- - -	Road Crossing, Design
- - -	Covers
■	HSS
■	LSS
■	\$0.00 - \$50.00
■	\$50.00 - \$100.00
■	\$100.00 - \$500.00
■	\$500.00 - \$1000.00
■	Waste, HSS

**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Feb)**  
 Compiled by: HL Date: Jan-2012



**Production (kt):**  
 ✓ Ore: 320 Waste: 901 Total: 1221

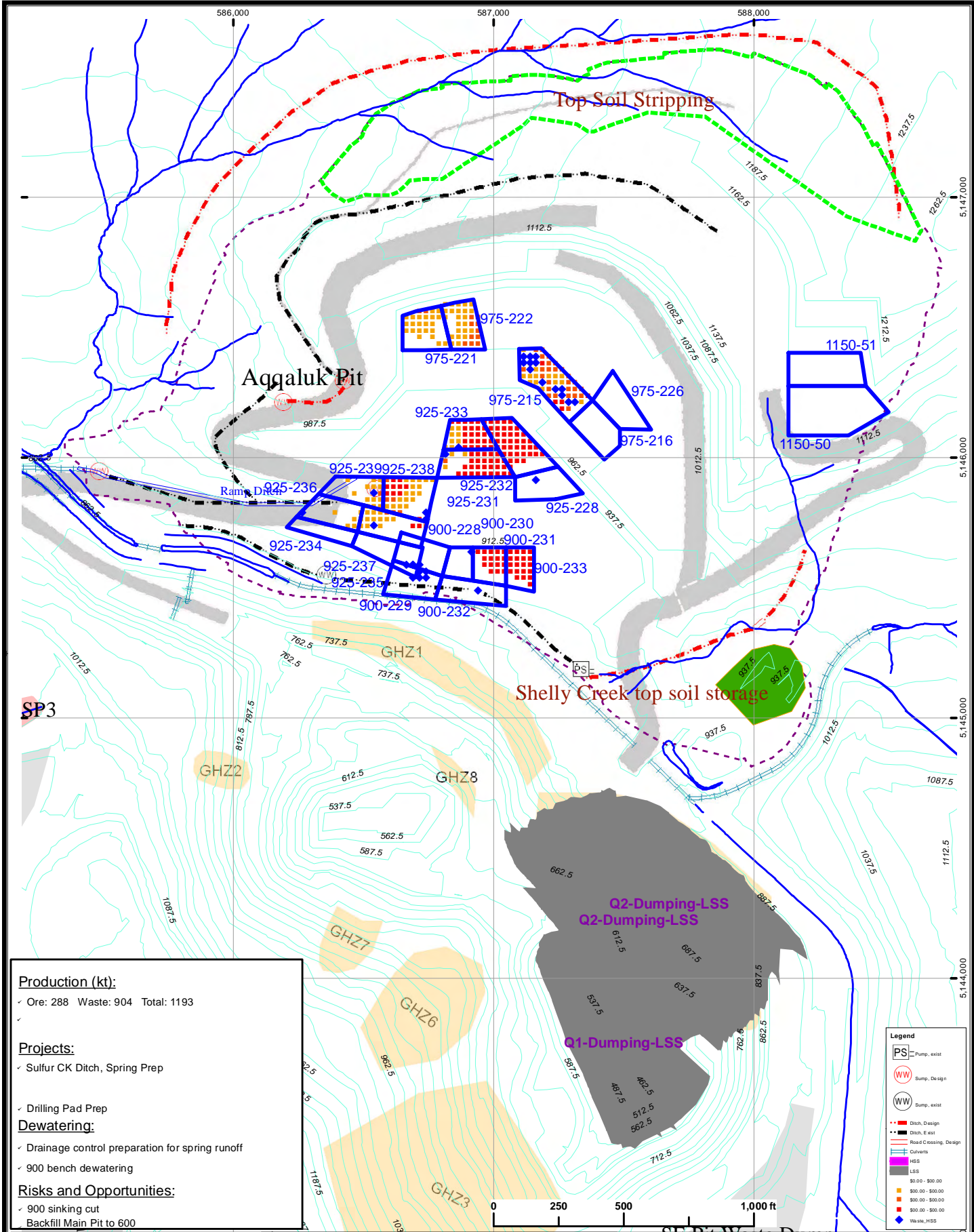
**Projects:**  
 ✓ MWD 3 to 1 sloping

✓ Sulfur CK Ditch, Spring Prep

**Dewatering:**

**Risks and Opportunities:**  
 ✓ Backfill Main Pit to 600





**Production (kt):**  
 ✓ Ore: 288 Waste: 904 Total: 1193

**Projects:**  
 ✓ Sulfur CK Ditch, Spring Prep

✓ Drilling Pad Prep

**Dewatering:**  
 ✓ Drainage control preparation for spring runoff  
 ✓ 900 bench dewatering

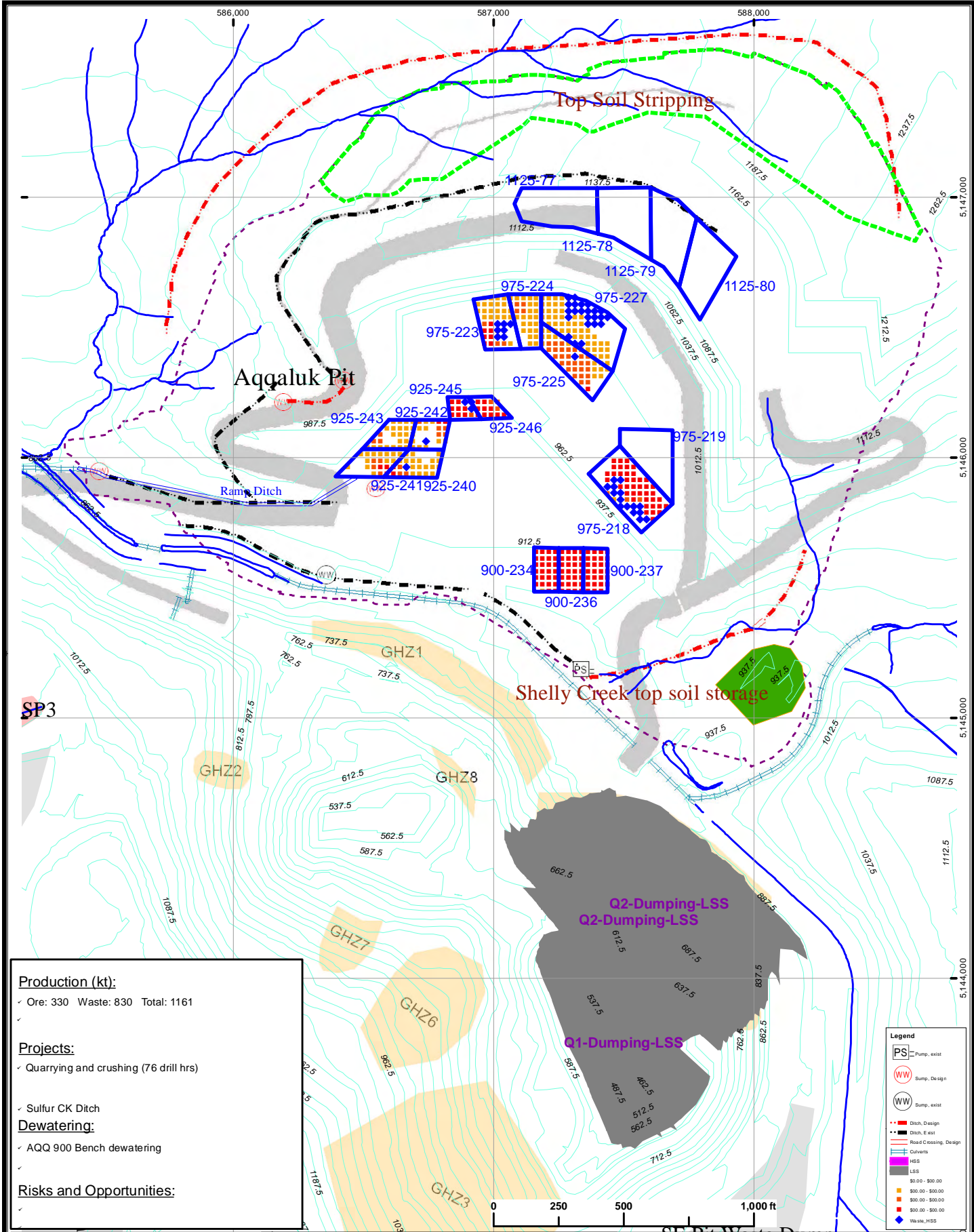
**Risks and Opportunities:**  
 ✓ 900 sinking cut  
 Backfill Main Pit to 600

- Legend**
- PS = Pump, exist
  - WW = Sump, Design
  - WW = Sump, exist
  - Ditch, Design
  - Ditch, Exist
  - Road Crossing, Design
  - Covers
  - HSS
  - LSS
  - \$0.00 - \$50.00
  - \$50.00 - \$100.00
  - \$100.00 - \$500.00
  - \$500.00 - \$1000.00
  - Waste, HSS

**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Apr)**  
 Compiled by: HL Date: Jan-2012



**Production (kt):**  
 ✓ Ore: 330 Waste: 830 Total: 1161  
 ✓

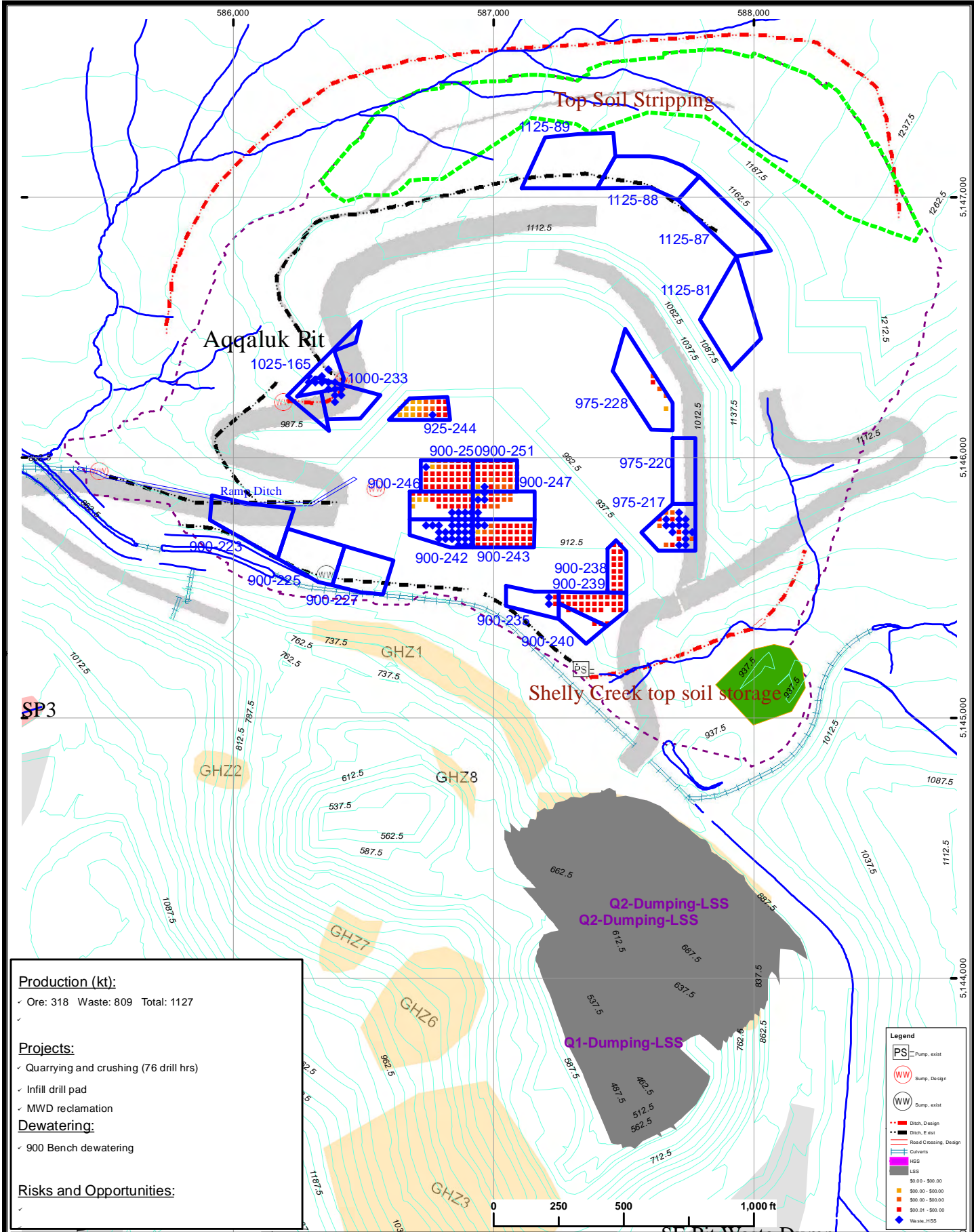
**Projects:**  
 ✓ Quarrying and crushing (76 drill hrs)

✓ Sulfur CK Ditch

**Dewatering:**  
 ✓ AQQ 900 Bench dewatering  
 ✓

**Risks and Opportunities:**  
 ✓





**Production (kt):**  
 ✓ Ore: 318 Waste: 809 Total: 1127  
 ✓

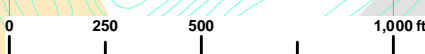
**Projects:**  
 ✓ Quarrying and crushing (76 drill hrs)  
 ✓ Infill drill pad  
 ✓ MWD reclamation

**Dewatering:**  
 ✓ 900 Bench dewatering

**Risks and Opportunities:**  
 ✓

**Legend**

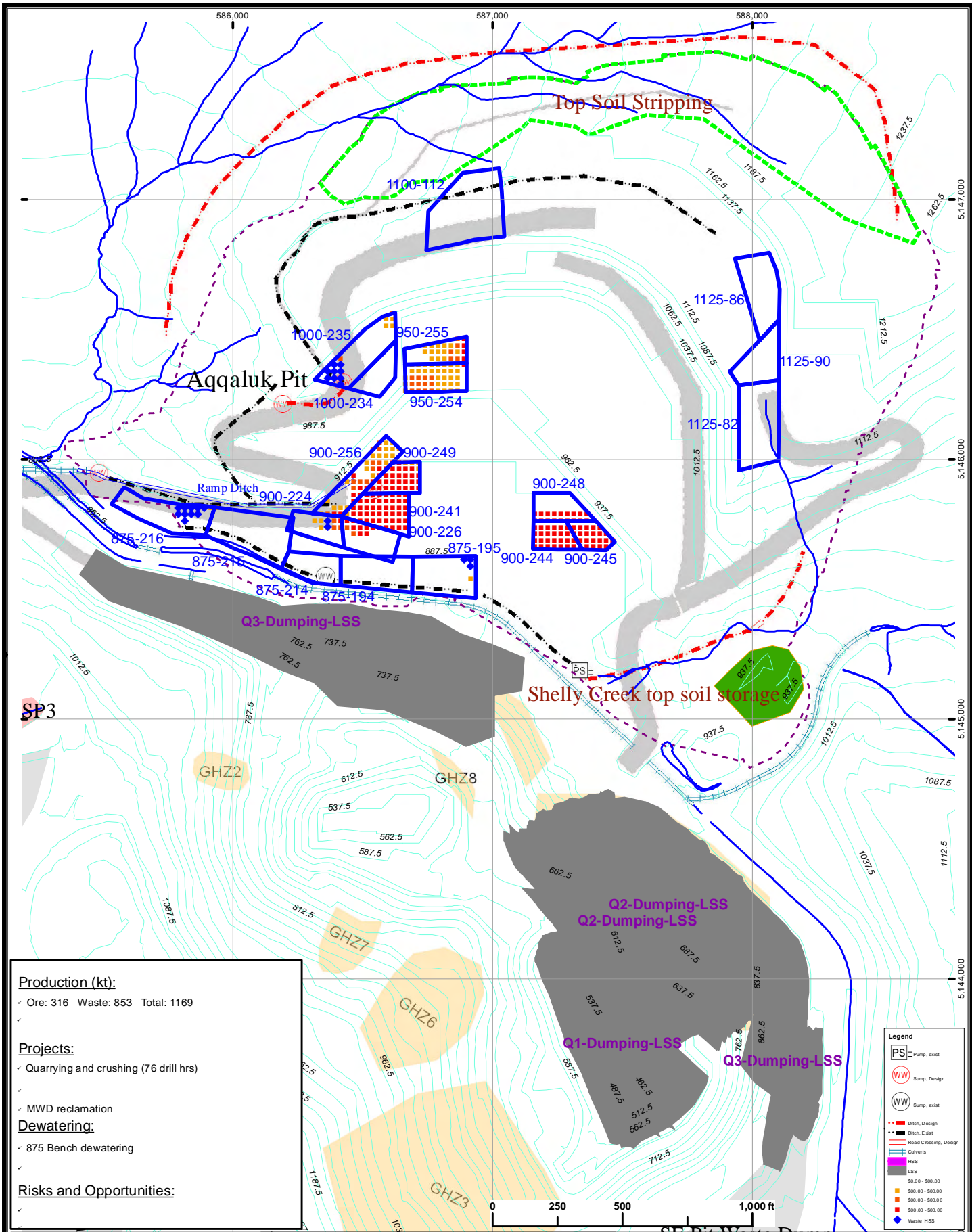
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- WW = Sump, Design
- WW = Sump, exist
- Ditch, Design
- Ditch, Exist
- Road Crossing, Design
- Covers
- HSS
- LSS
- \$0.00 - \$0.00
- \$0.00 - \$0.00
- \$0.00 - \$0.00
- \$0.01 - \$0.00
- Waste, HSS



**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Jun)**  
 Compiled by: HL Date: Jan-2012



**Production (kt):**

✓ Ore: 316 Waste: 853 Total: 1169

**Projects:**

✓ Quarrying and crushing (76 drill hrs)

✓ MWD reclamation

**Dewatering:**

✓ 875 Bench dewatering

**Risks and Opportunities:**

✓

- Legend**
- PS = Pump, exist
  - WW = Sump, Design
  - WW = Sump, exist
  - - - Ditch, Design
  - - - Ditch, Exist
  - - - Road Crossing, Design
  - - - Culverts
  - LSS
  - Waste, HSS

- 0.00 - 500.00
- 500.00 - 1000.00
- 1000.00 - 2000.00
- 2000.00 - 5000.00
- Waste, HSS

Red Dog Operations

**Teck**

1 in = 500 ft

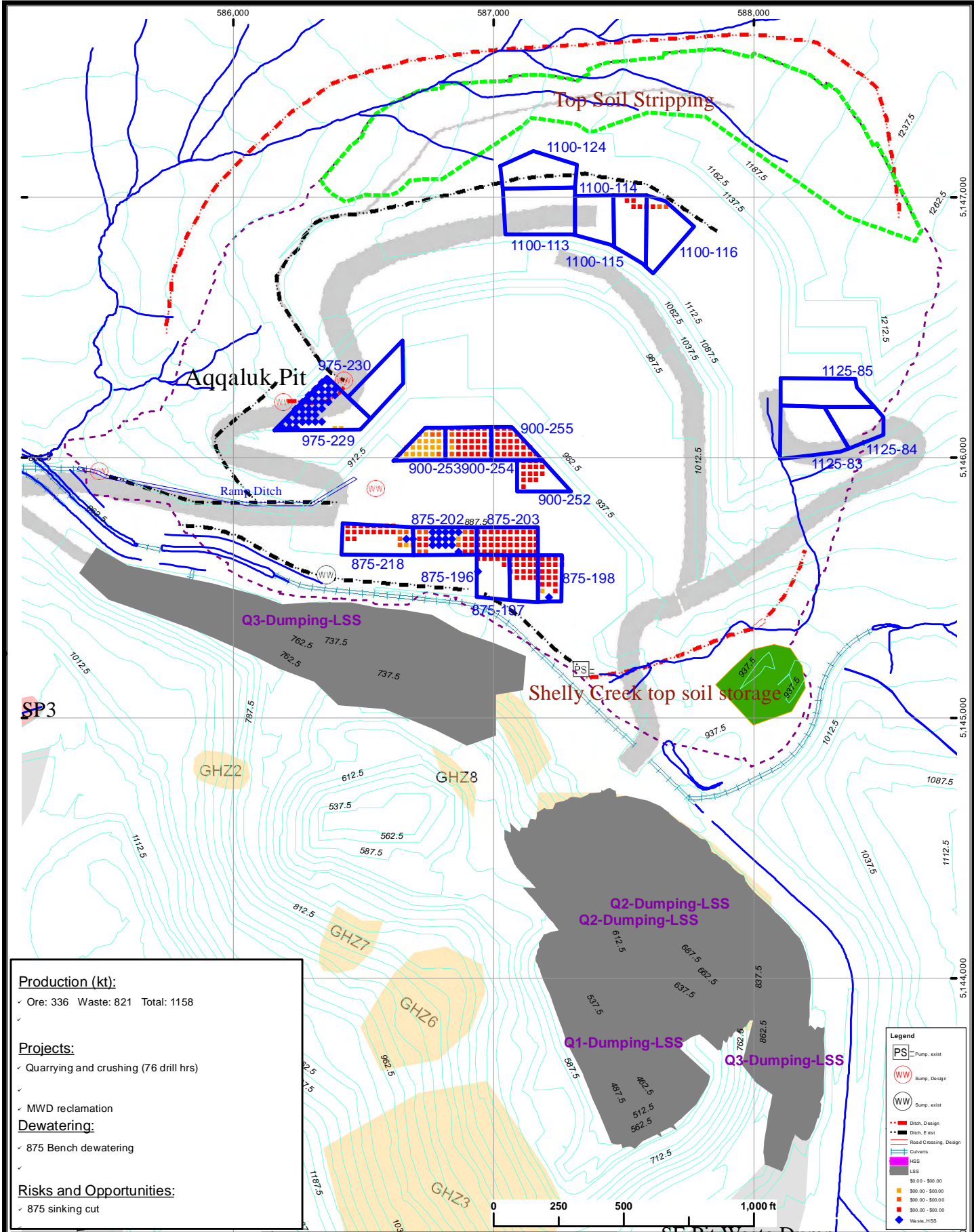
NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007



**2012 1-Year Mine Plan (Jul)**

Compiled by: HL

Date: Jan-2012



**Production (kt):**  
 ✓ Ore: 336 Waste: 821 Total: 1158  
 ✓

**Projects:**  
 ✓ Quarrying and crushing (76 drill hrs)  
 ✓

**MWD reclamation**  
 ✓

**Dewatering:**  
 ✓ 875 Bench dewatering  
 ✓

**Risks and Opportunities:**  
 ✓ 875 sinking cut  
 ✓

**Legend**

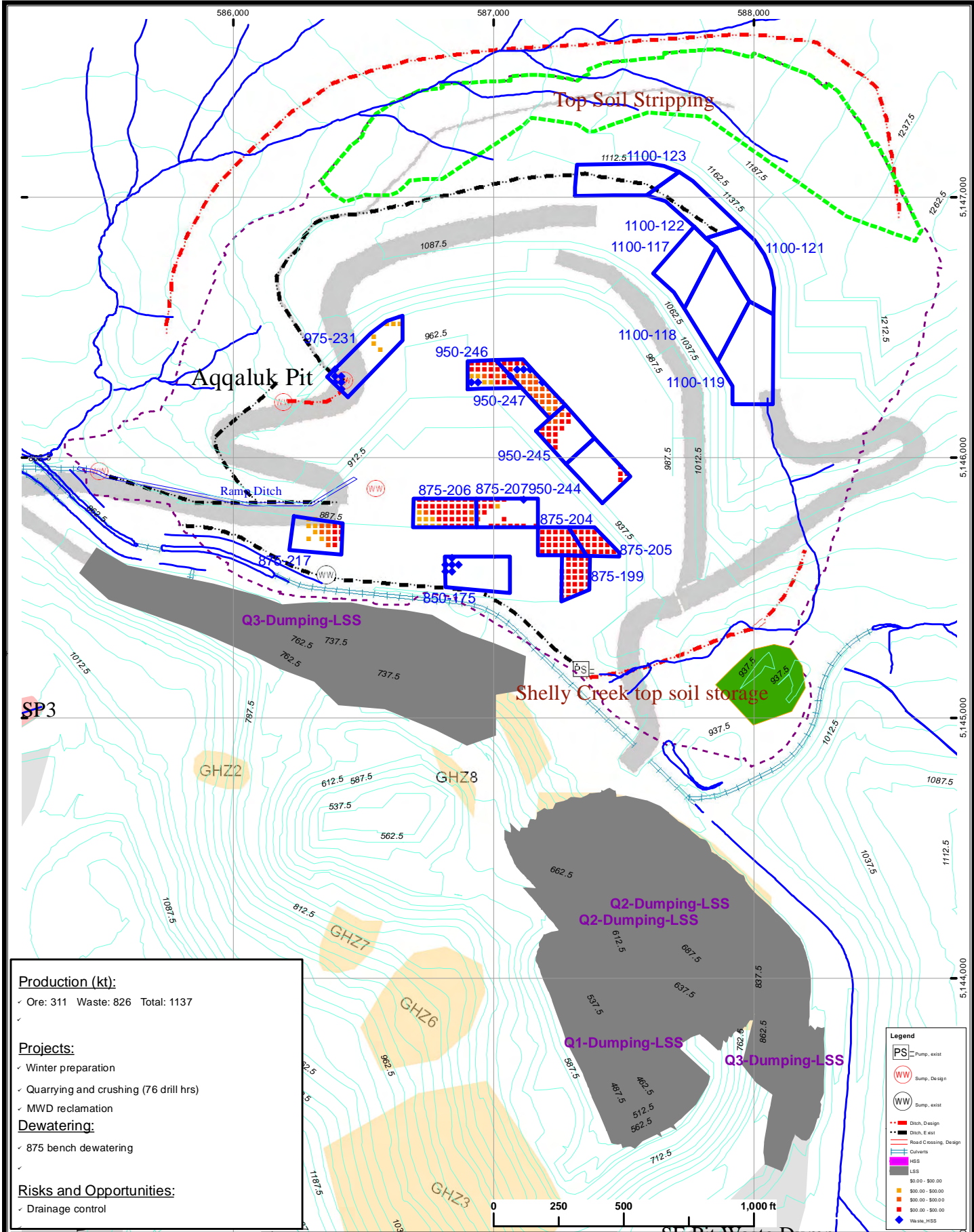
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- WW = Sump, Design
- WW = Sump, exist
- Ditch, Design
- Ditch, Exist
- Road Crossing, Design
- Culverts
- HSS
- LSS
- \$0.00 - \$500.00
- \$500.00 - \$1000.00
- \$1000.00 - \$5000.00
- \$5000.00 - \$10000.00
- Waste, HSS

**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Aug)**  
 Compiled by: HL Date: Jan-2012





**Production (kt):**  
 ✓ Ore: 311 Waste: 826 Total: 1137  
 ✓

**Projects:**  
 ✓ Winter preparation  
 ✓ Quarrying and crushing (76 drill hrs)  
 ✓ MWD reclamation

**Dewatering:**  
 ✓ 875 bench dewatering  
 ✓

**Risks and Opportunities:**  
 ✓ Drainage control

**Legend**

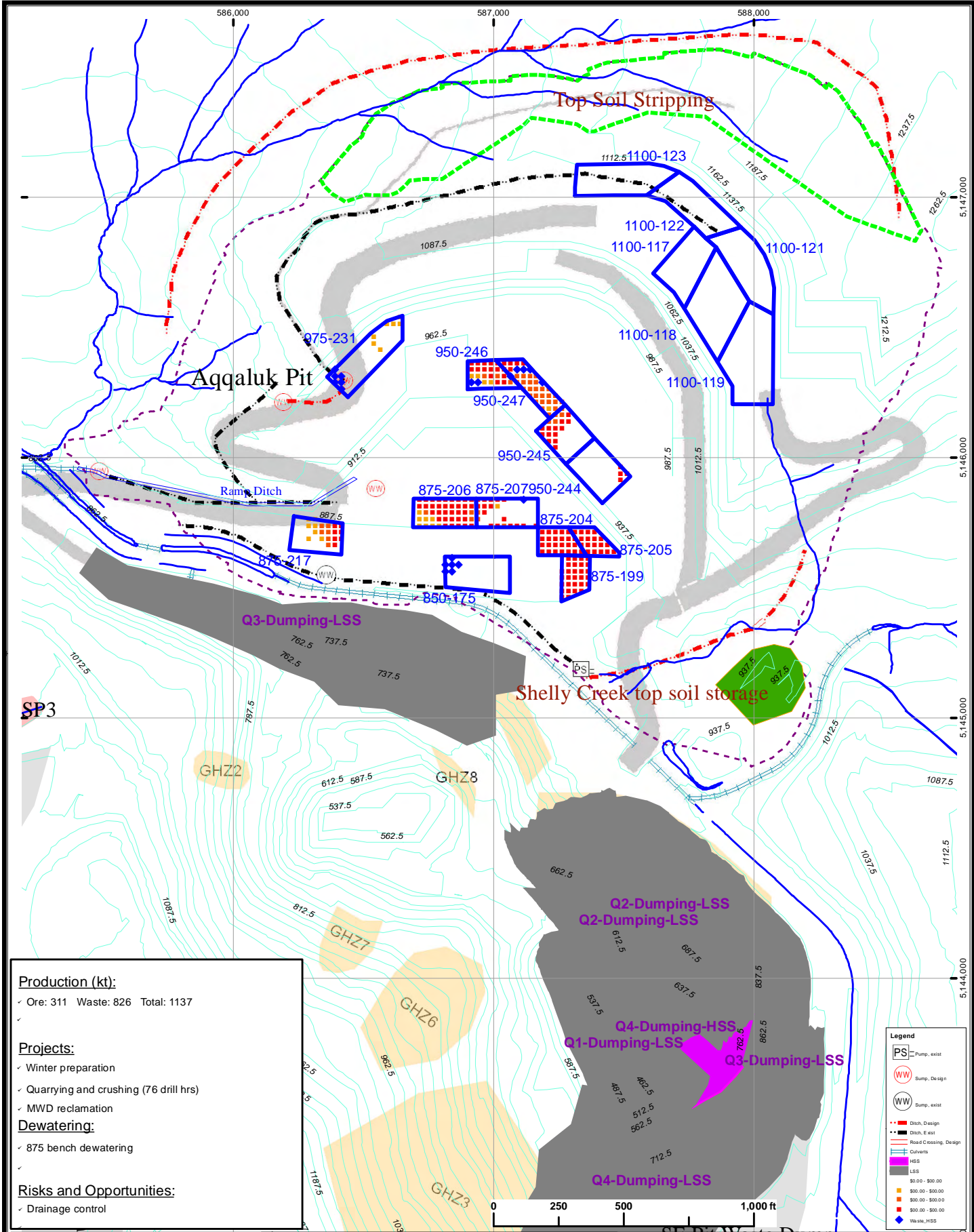
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- WW = Sump, Design
- WW = Sump, exist
- Ditch, Design
- Ditch, Exist
- Road Crossing, Design
- Culverts
- HSS
- LSS
- \$0.00 - \$50.00
- \$50.00 - \$500.00
- \$500.00 - \$500.00
- \$500.00 - \$500.00
- ◆ Waste, HSS

**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Sep)**  
 Compiled by: HL Date: Jan-2012





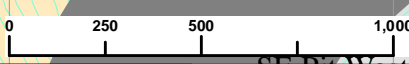
**Production (kt):**  
 ✓ Ore: 311 Waste: 826 Total: 1137

**Projects:**  
 ✓ Winter preparation  
 ✓ Quarrying and crushing (76 drill hrs)  
 ✓ MWD reclamation

**Dewatering:**  
 ✓ 875 bench dewatering

**Risks and Opportunities:**  
 ✓ Drainage control

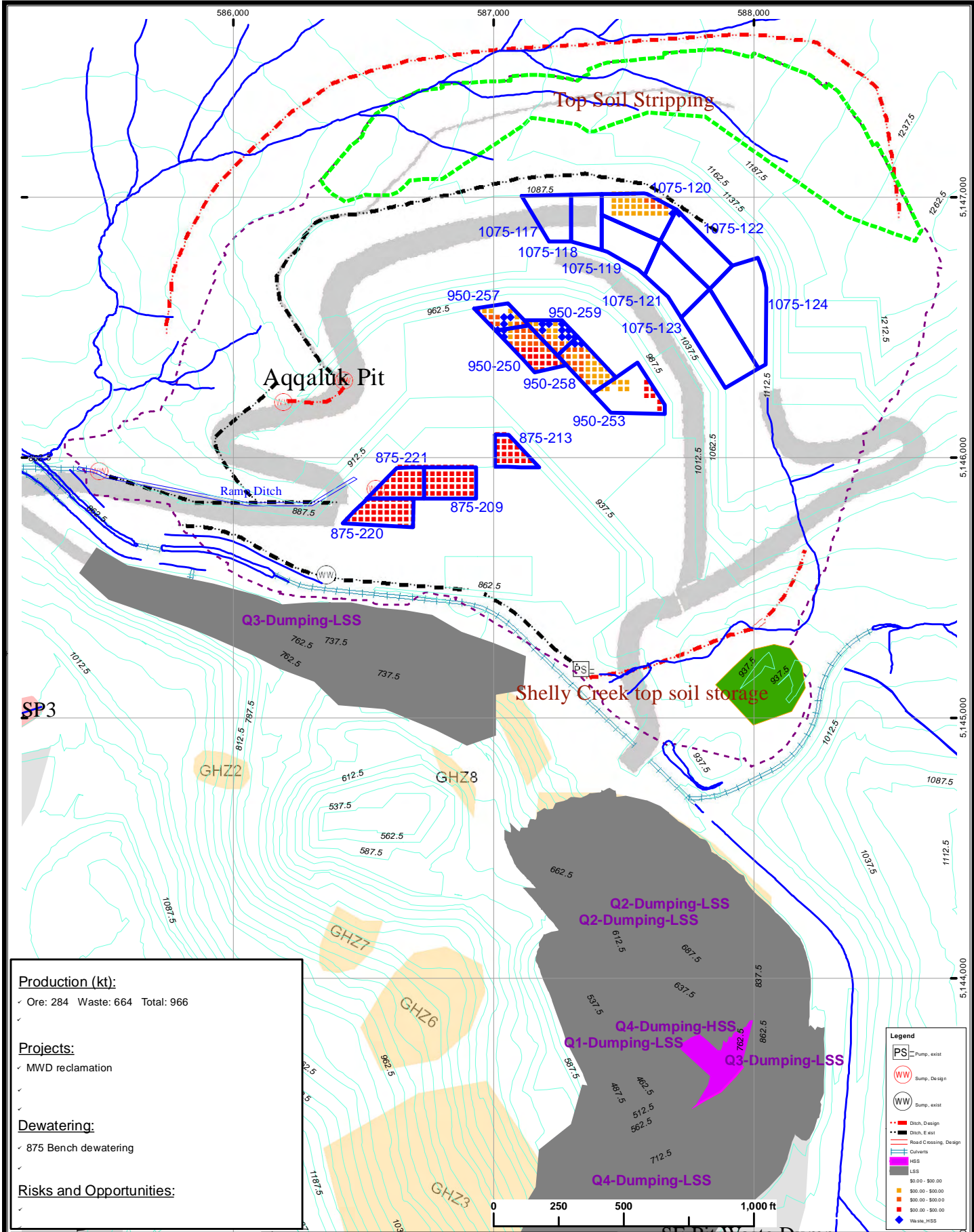
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  - WW = Sump, Design
  - WW = Sump, exist
  - Ditch, Design
  - Ditch, Exist
  - Road Crossing, Design
  - Culverts
  - HSS
  - LSS
  - \$0.00 - \$50.00
  - \$50.00 - \$500.00
  - \$500.00 - \$500.00
  - \$500.00 - \$500.00
  - Waste, HSS



**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Oct)**  
 Compiled by: HL Date: Jan-2012

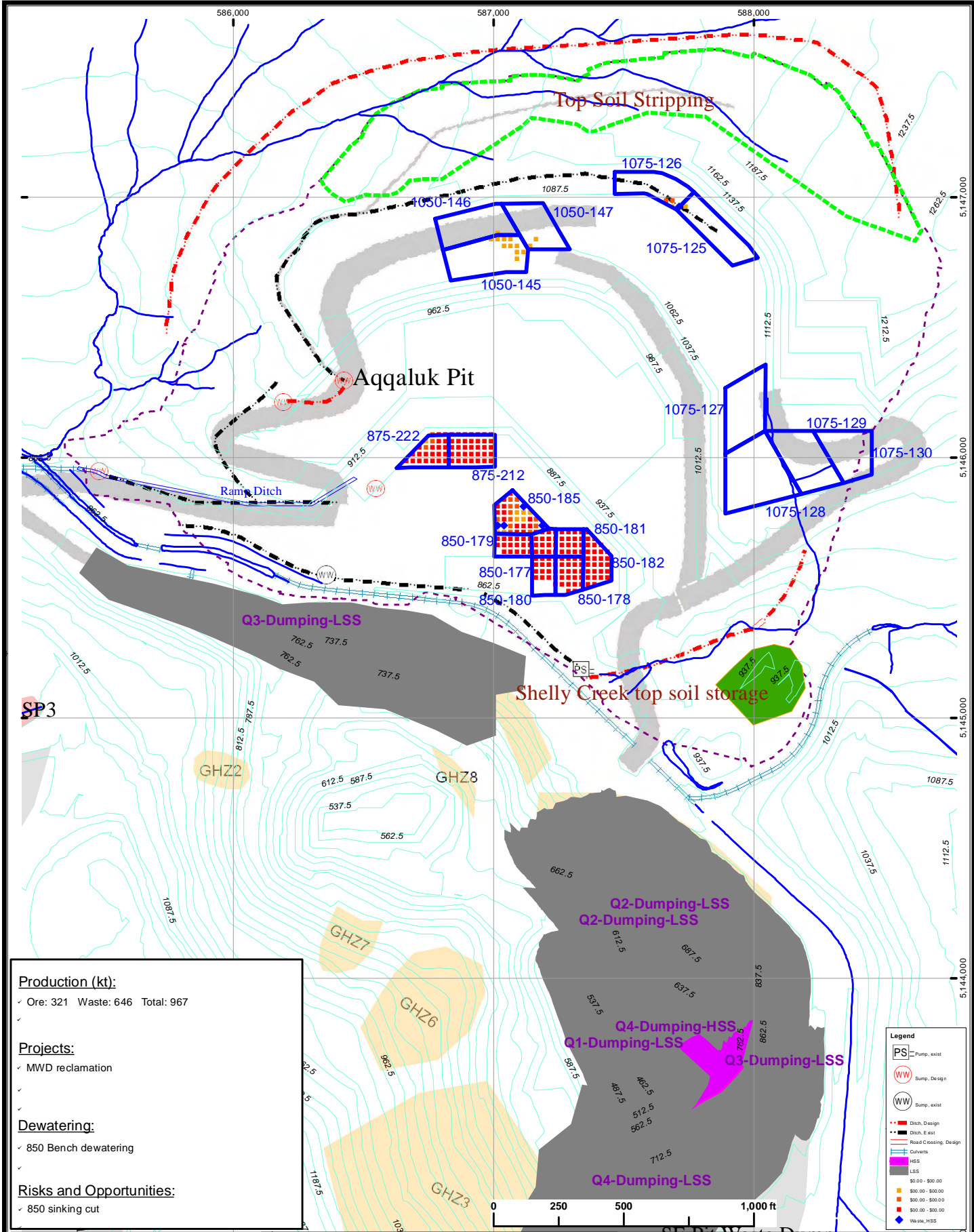


**Production (kt):**  
 ✓ Ore: 284 Waste: 664 Total: 966  
 ✓

**Projects:**  
 ✓ MWD reclamation  
 ✓

**Dewatering:**  
 ✓ 875 Bench dewatering  
 ✓

**Risks and Opportunities:**  
 ✓



**Production (kt):**  
 ✓ Ore: 321 Waste: 646 Total: 967

**Projects:**  
 ✓ MWD reclamation

**Dewatering:**  
 ✓ 850 Bench dewatering

**Risks and Opportunities:**  
 ✓ 850 sinking cut

- Legend**
- PS = Pump, exist
  - WW = Sump, Design
  - WW = Sump, exist
  - - - Ditch, Design
  - - - Ditch, Exist
  - - - Road Crossing, Design
  - - - Culverts
  - HSS
  - LSS
  - \$0.00 - \$50.00
  - \$50.00 - \$100.00
  - \$100.00 - \$500.00
  - \$500.00 - \$1000.00
  - Waste, HSS

**Red Dog Operations**

1 in = 500 ft  
 NAD\_1927\_StatePlane\_Alaska\_7\_FIPS\_5007

**2012 1-Year Mine Plan (Dec)**  
 Compiled by: HL Date: Jan-2012