



*Three Parameters Plus, Inc. Employee of the Year Steve Reidsma completes yet another jurisdictional field plot near the "G" Valley.*

*This was Steve's fourth field season on the project.*

## **Pebble Project Wetlands Study 2007 Agency Update**



# **Major Study Components**

## **Delineation**

**Based on Criteria and Indicators Found in the 1987 Corps Wetland Delineation Manual & 2006 Interim, and very soon – the 2007 Regional Supplement for the Alaska Region.**

## **Classify Wetlands and Assess Their Functions**

**Magee Rapid Procedure for Assessing Wetland Functional Capacity (HGM Based)**

## **Consider Wetland Values**

**Incorporate Subsistence, Recreation, Cultural Resource, and Other Values into the Functional Assessment Evaluation**

## **Identify & Evaluate Potential Compensatory Mitigation Projects**

## **Prepare Compensatory Mitigation Plan**

**Per June 10, 2004 Final Alaska District Compensatory Mitigation Guidelines (or subsequent guidance)**





W

@070807193100N5958161W15518123D

8/6/2007

## Status Report by Study Component





SE

@070626175613N5952170W15524139G

6/26/2007 09:59

Field Data  
Collection ←

Data QC/  
Validation

Line  
Drawing

Polygon  
Coding

Field  
Review

## Delineation

Wetlands and Other Waters of the U.S.



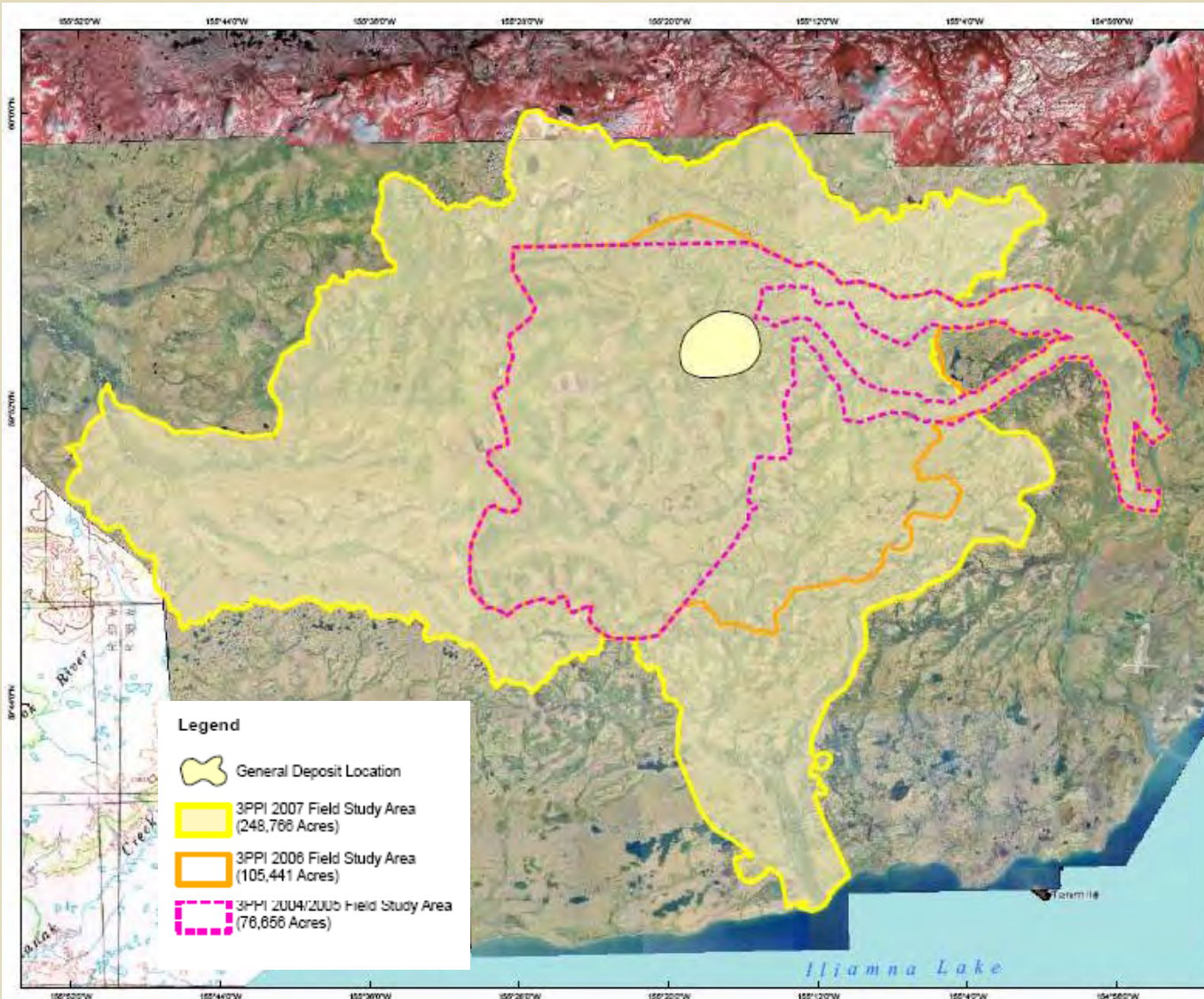
Both the 1987 and 2006 Delineation Methods Were Again Applied Concurrently at Pebble During the 2007 Field Season



***We're still loosing a lot of hair and sleep trying to reconcile the two methods and get all the data needed. If that wasn't enough of a challenge...***

*Greg Everetts, Ottertail Environmental, working in the Wiggly Lake Area*



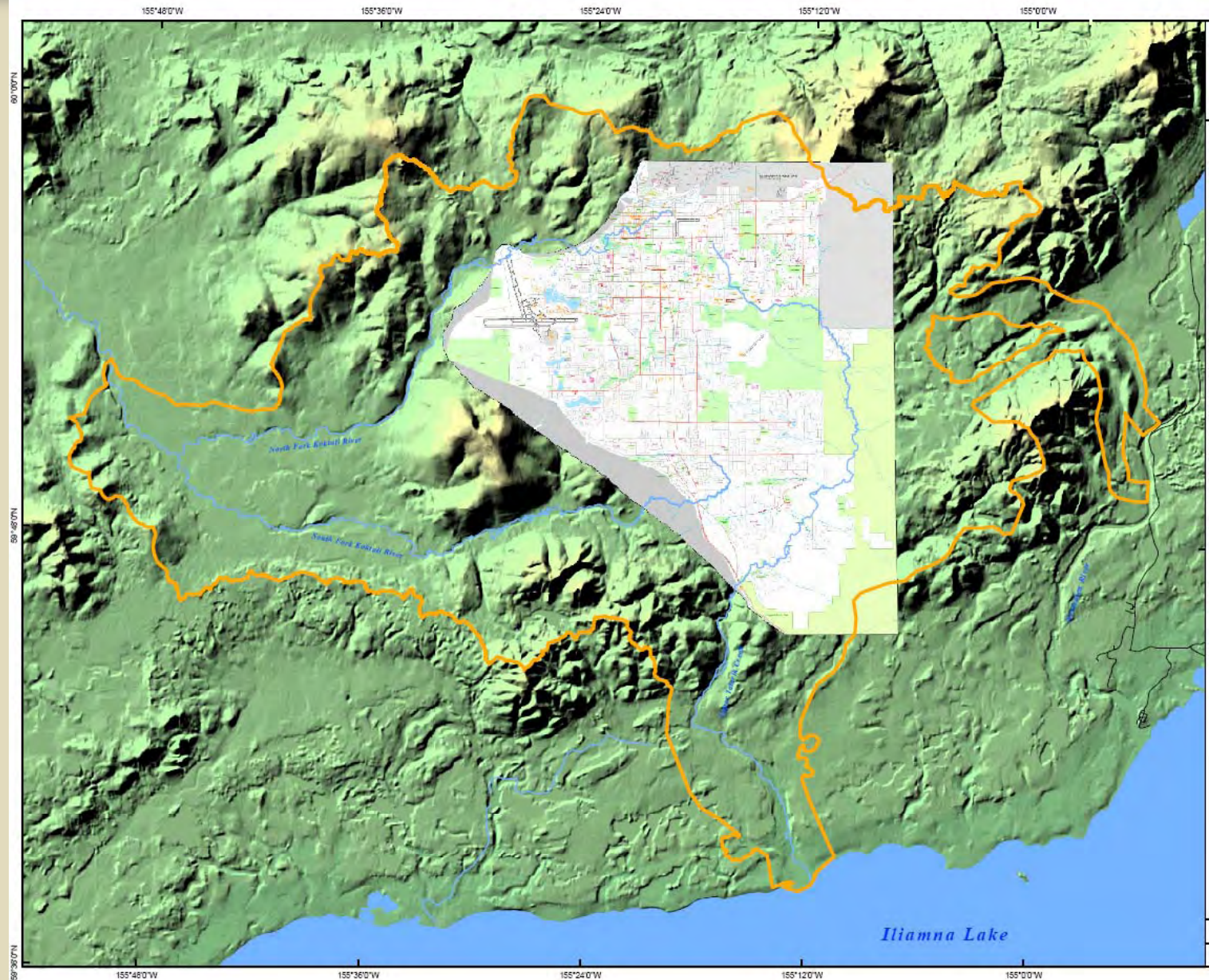


*In early 2007, the Wetlands Study Area doubled in size over that of our 2006 Study Area -- more than four times the size of our original 2004 Study Area (a mere 66,000 acres...).*

# Three Parameters +

Natural Resource Consulting

*To put this in perspective for you – here's the Anchorage Bowl superimposed over our 2007 Wetlands Study Area Boundary.*



## So, it was time to call for reinforcements



*Kelli*



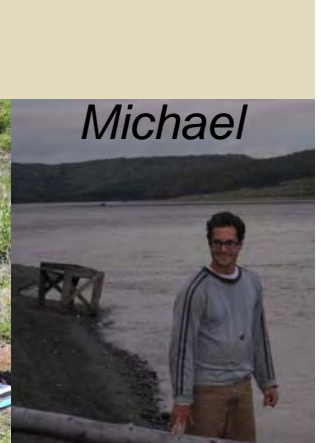
*Doug*



*Bryan*



*Jason*



*Michael*



*Lily*



*Meaghan*



*Jeff*



*Meredith*



*Tim & Ray  
( Bear Guard )*



*Karyn*



*Part of The Ootertail Crew...  
(waiting for helicopter orientation...)  
Tom, Ed, Michelle, Rachel, Pat, Greg*



# Three Parameters +

## *Pebble Wetland Boot Camp*

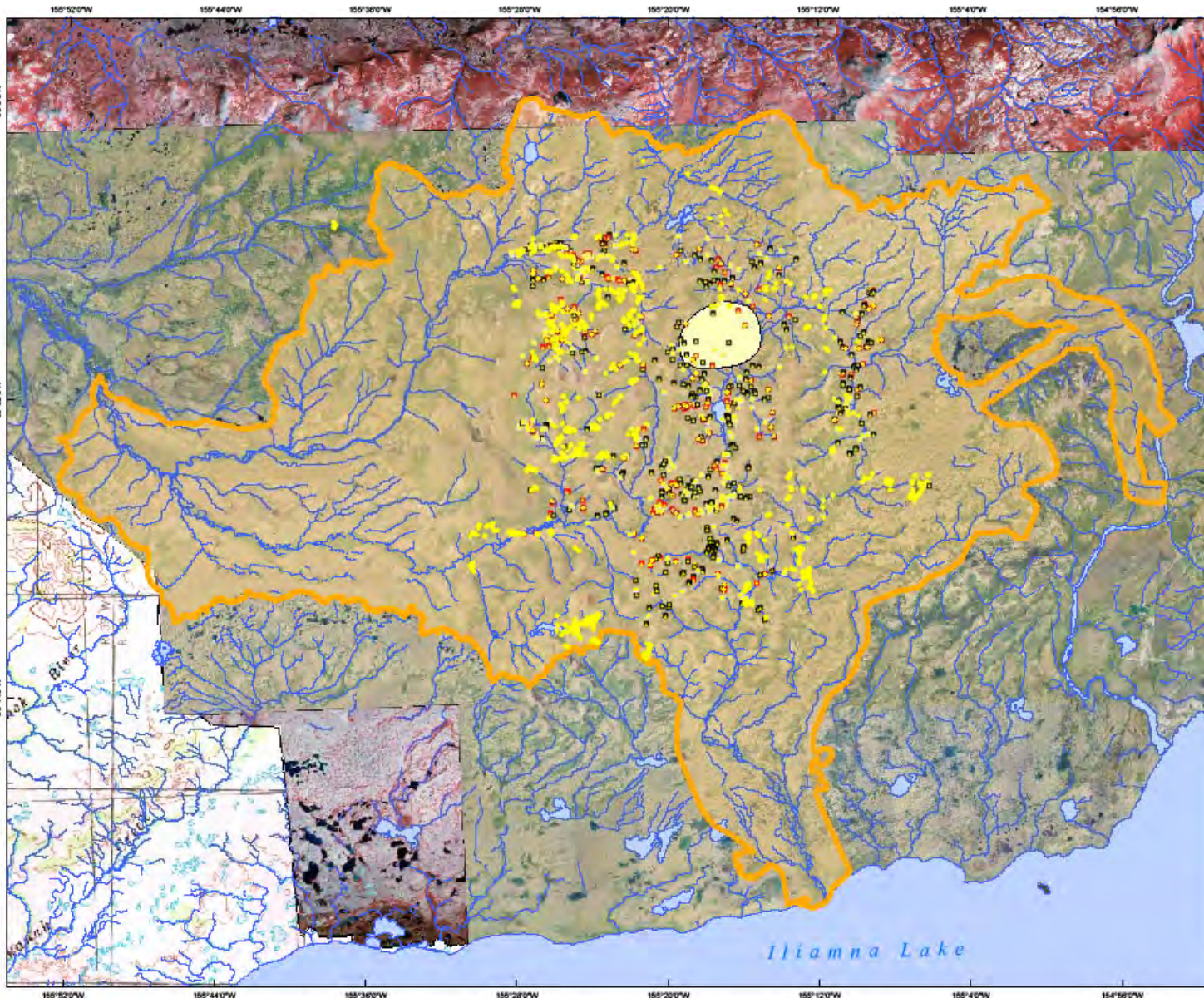


Three Parameters +

Natural Resource Consulting

# Shrubs, Shrubs, Always More Shrubs!












Three Parameters Plus, Inc.  
2007 SH-Wetland Fieldplot Locations

**DRAFT**

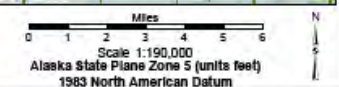
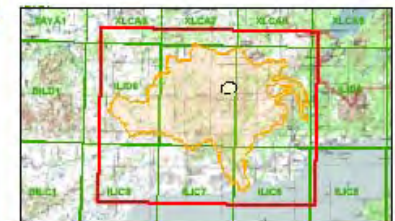
**Legend**

-  General Deposit Location
-  3PPI 2007 Field Study Area

**3PP Field Plots (10/21/07)**

-  SH-Wetland (132)
-  SH\_Trans. Wetland (70)
-  SH-Upland (314)
-  SH-Trans. Upland (234)
-  SH-Review (709)

JDWET CODE	Total
SH Wetland	132
SH Trans. Wetland	70
SH Upland	314
SH Trans. Upland	234
SH No Code	709
<b>Grand Total</b>	<b>1459</b>



File: RDI\_3PP\_SA-PLOTS2007\_11X17L\_1of1\_D02.mxd Date: November 13, 2007

Version: 2

Author: RDI-LS,DWR

# Keep Digging!

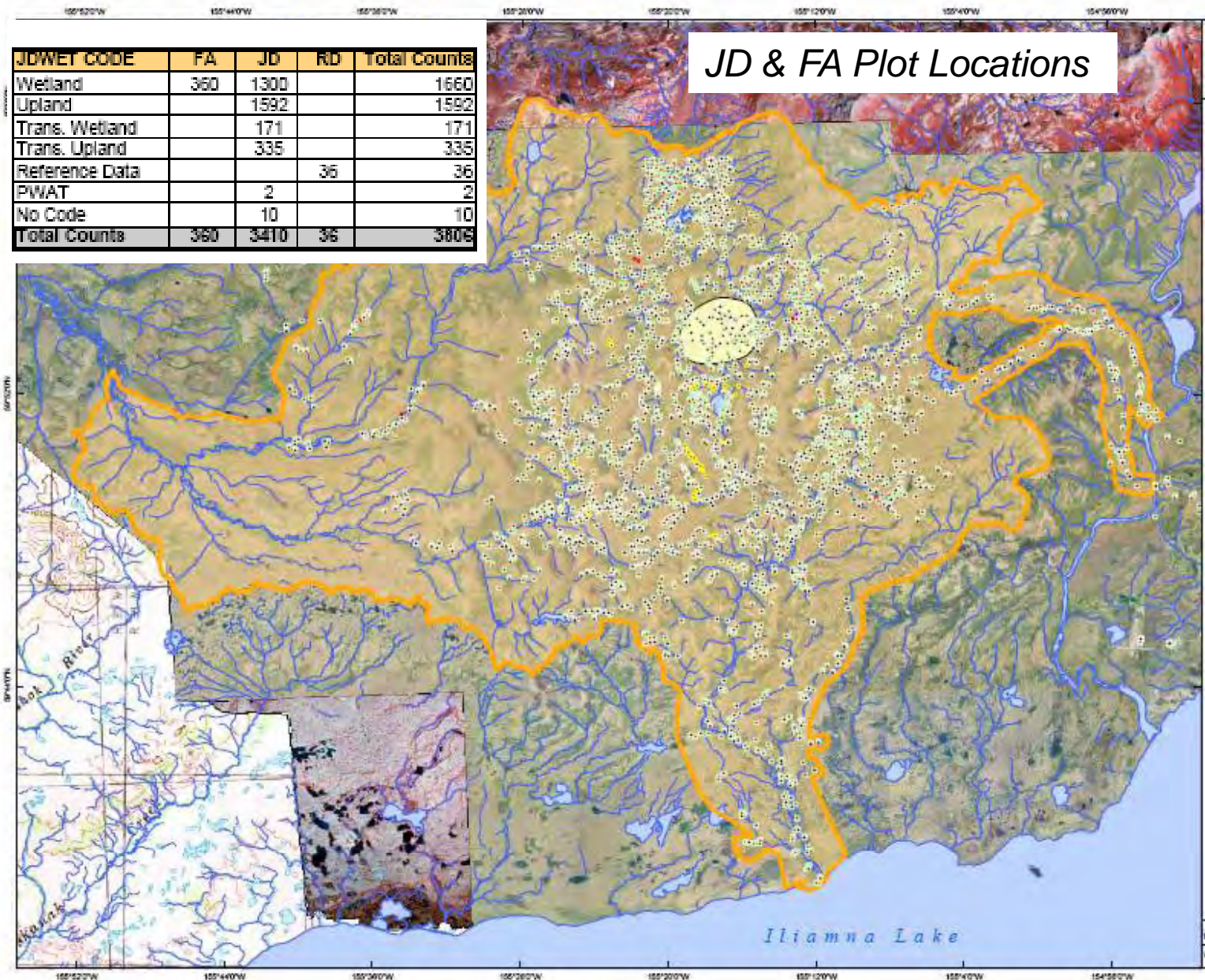


# Three Parameters +

Natural Resource Consulting

*In addition to the 1,459 rapid shrub height assessments, mine site crews have also completed 3,806 full jurisdictional determinations or stand alone functional assessments.*

*This brings the number of holes dug and photographed to over 5,000.*



# Three Parameters +

Natural Resource Consulting



*And you can't go far at Pebble without finding some water...*



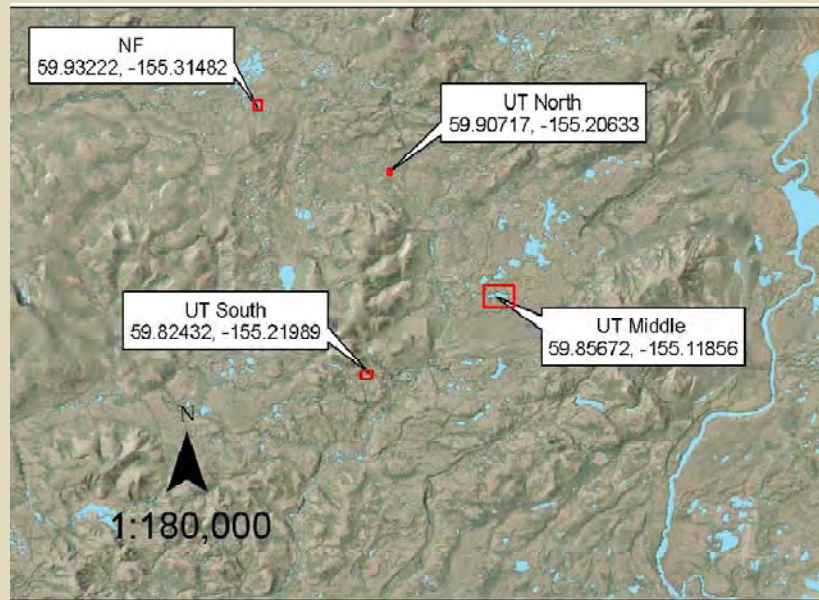
SE  
@070725192827N5954907W155223986

7/25/2007 11:32pm



E

## *Or Somebody talking about it...*

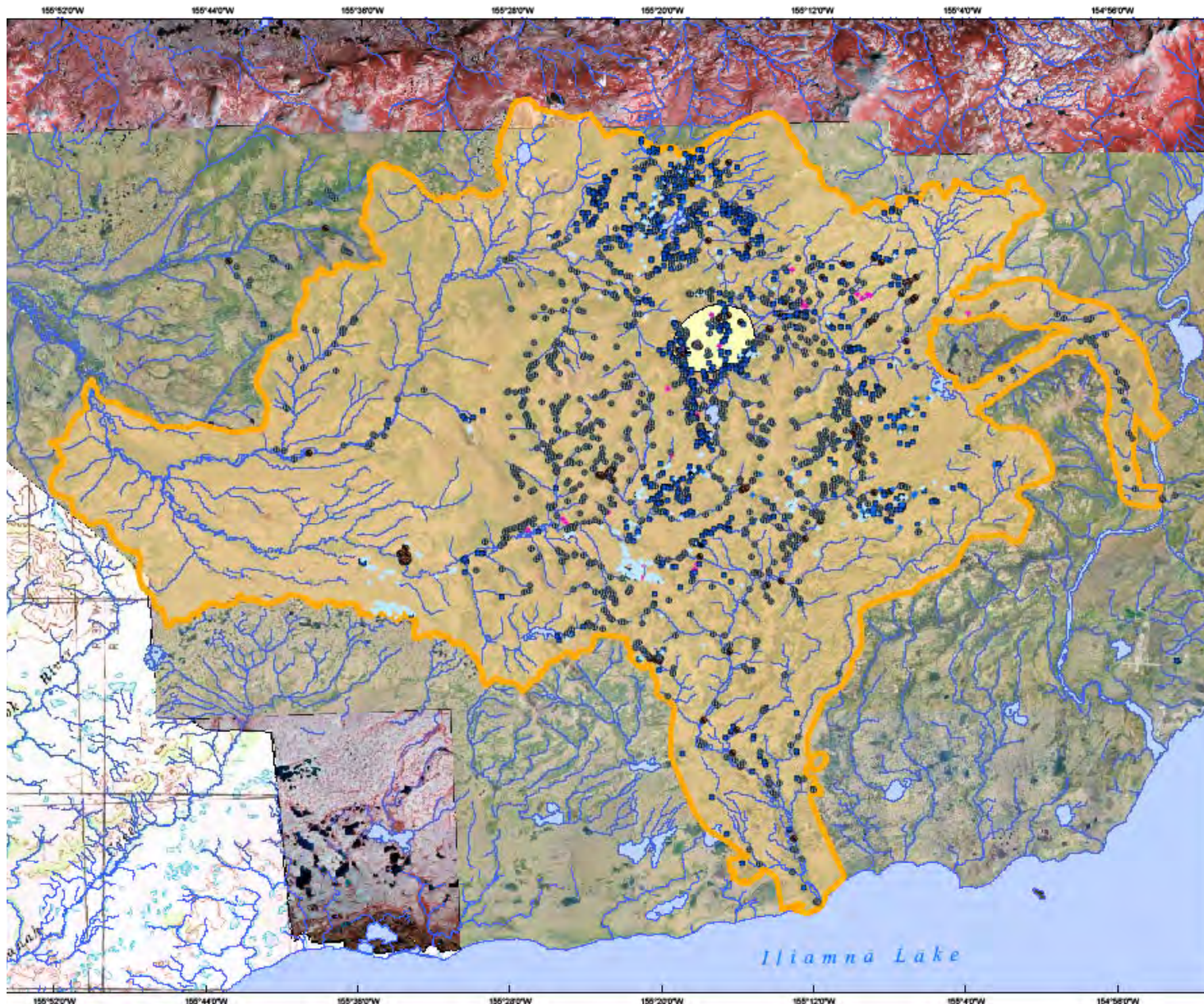


*Dr. Mark Rains explains the focus of the Small Pools Study to a regional citizen's advisory group on a tour last August while Karyn Noyes looks on...*

Our hypothesis is that pool electrical conductivity is controlled by water-rock interaction. If pool electrical conductivity is controlled by evaporation, then all conservative dissolved constituents (e.g., Na, K, Mg, Ca, Si, and Cl) should concentrate proportionally. If pool electrical conductivity is controlled by water-rock interaction, then conservative dissolved constituents commonly found in regional sediments (e.g., Na, K, Mg, Ca, and Si but not Cl) should concentrate preferentially. In order to evaluate this hypothesis, we will sample ~90 pools in each of the three basins and collect and analyze water samples according to the objectives listed above.

# Three Parameters +

Natural Resource Consulting



**Pebble Project**  
NORTHERN DYNASTY MINES INC.

Three Parameters Plus, Inc.  
2007 Stream Crossing and Waterbody  
Sample Locations

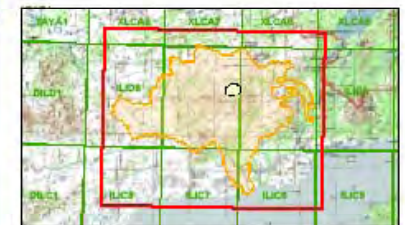
Legend **DRAFT**

- General Deposit Location
- 3PPI 2007 Field Study Area

3PP Field Plots (10/30/07)

- WB (pere. pond) (968)
- WB (lake) (63)
- WB (beaver back) (112)
- WB (seas. pond) (407)
- WB (unknown) (52)
- Stream Crossings (1060)
- Small Pool Study Monitoring Well Locations (8)

JDWET CODE	SC	WB	Total Counts
Stream Crossings	1060		1060
WB (pere. pond)		968	968
WB (lake)		63	63
WB (beaver back)		112	112
WB (seas. pond)		407	407
WB (unknown)		52	52
Small Pool		6	6
<b>Total Counts</b>	<b>1060</b>	<b>1602</b>	<b>2668</b>



Scale 1:190,000  
Alaska State Plane Zone 5 (units feet)  
1983 North American Datum

File: RDI\_SPP\_SA-WB-PLOTS2007\_11X17L\_top\_D01.mxd Date: November 16, 2007  
Version: 1 Author: RDI-LS,DWR



# Three Parameters +

Natural Resource Consulting



**Pebble Project**  
NORTHERN DYNASTY MINES INC.

Three Parameters Plus, Inc.  
2007 Other Fieldplot Locations  
**DRAFT**

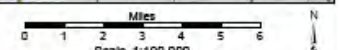
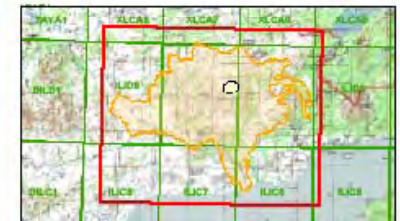
**Legend**

- General Deposit Location
- 3PPI 2007 Field Study Area

**3PP Field Plots (10/30/07)**

- Rep. Wetland (1552)
- Rep. Upland (2876)
- Photo Point (70)
- No Code (8)

3PP CODE	CR	DN	HO	NO	PP	RU	RW	Total Counts
Rep. Wetland							1552	1552
Rep. Upland						2876		2876
Photo Point	2	3	34	29		2		70
No Code				6				6
<b>Total Counts</b>	<b>2</b>	<b>3</b>	<b>34</b>	<b>29</b>	<b>6</b>	<b>2</b>	<b>1552</b>	<b>4504</b>

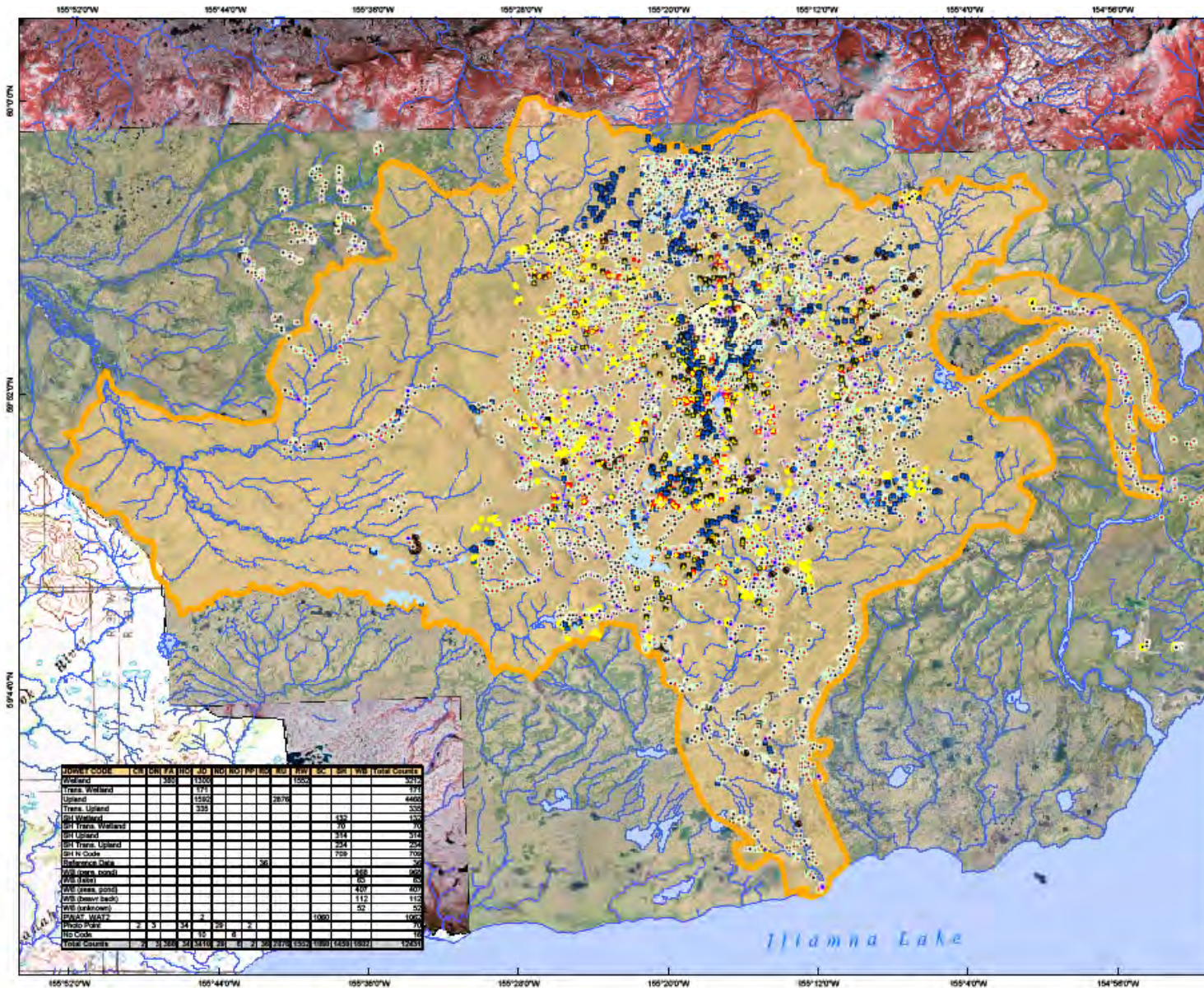


Scale 1:190,000  
Alaska State Plane Zone 5 (units feet)  
1983 North American Datum

File: RDL\_SPP\_SA-Other-PLOTS2007\_11X171\_1of1\_D01.mxd Date: November 18, 2007  
Version: 1 Author: RDL-L,DWR

# Three Parameters +

Natural Resource Consulting



**Pebble Project**  
NORTHERN DYNASTY MINES INC.

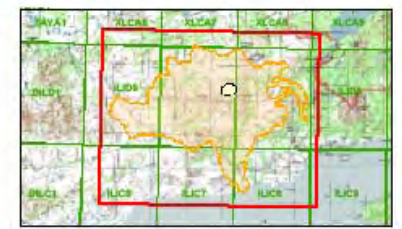
Three Parameters Plus, Inc.  
2007 All Fieldplot Locations  
**DRAFT**

**Legend**

- General Deposit Location
- 3PPI 2007 Field Study Area

- 3PP Field Plots (10/30/07)**
- Wetlands (3212)
  - Trans. Wetland (171)
  - Uplands (4468)
  - Trans. Upland (335)
  - SH-Wetland (132)
  - SH\_Trans. Wetland (70)
  - SH-Upland (314)
  - SH-Trans. Upland (234)
  - SH\_review (709)
  - Reference Data (28)
  - WB (pere. pond), (968)
  - WB (lake), (63)
  - WB (seas. pond), (407)
  - WB (beaver back), (112)
  - WB (unknown), (52)
  - WAT2: PWAT (1062)
  - Photo Point (70)
  - No Code (10)

Point Code	Cell	Cell Area	Plot	Plot Area	Wetland	Upland	SH	SH Trans	WB	WAT	Photo	Other	Total
Wetland	1300	1300	1300	1300									1300
Trans. Wetland	171	171											171
Upland	4468	4468			28%								4468
Trans. Upland	335	335											335
SH Wetland	132	132											132
SH Trans. Wetland	70	70											70
SH Upland	314	314											314
SH Trans. Upland	234	234											234
SH No Code	709	709											709
Reference Data	28	28											28
WB (pere. pond)	968	968											968
WB (lake)	63	63											63
WB (seas. pond)	407	407											407
WB (beaver back)	112	112											112
WB (unknown)	52	52											52
WAT2: PWAT	1062	1062											1062
Photo Point	70	70											70
No Code	10	10											10
Total Counts	10307	10307	10307	10307	28%	4468	335	132	70	314	234	709	10307



Scale 1:190,000  
Alaska State Plane Zone 5 (units feet)  
1983 North American Datum

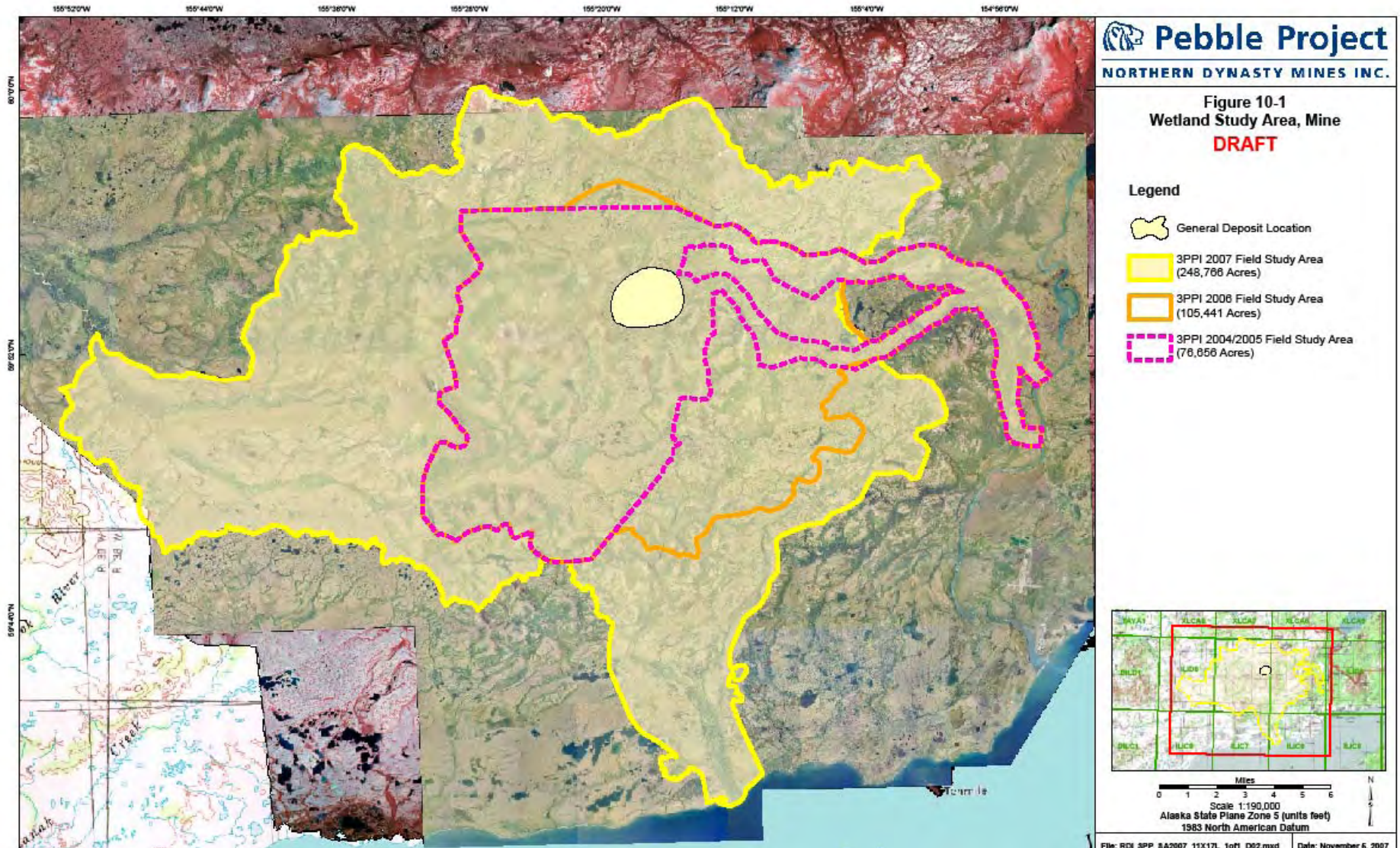


Year	Jurisdictional Determinations	Shrub Height Rapid JDs	Functional Assessments	HGM Reference Data Point	Stream Crossing Photos	Waterbody Evaluations	Representative Upland Photos	Representative Wetland Photos	Habitat Observations	Dens	Photo Points	New Disturbance	Cultural Resources	NO CODE	Totals
<b>2004</b>															
Number of Plots	1182	0	0	0	307	39	420	313	14	3	0	2	1	245	2526
Number of Crew Field Days	188	0	0	0	126	25	132	136	14	3	0	2	1	28	655
Average Plots/Crew Field Day	6.287	0	0	0	2.436	1.56	3.181	2.301	1	1	0	1	1	8.75	3.856
Number of Pictures	3512	0	0	0	886	78	856	634	28	6	0	4	2	418	6424
<b>2005</b>															
Number of Plots	317	630	350	36	165	291	450	122	12	0	0	2	0	354	2729
Number of Crew Field Days	101	58	90	9	62	66	109	60	11	0	0	2	0	78	646
Average Plots/Crew Field Day	3.138	10.862	3.888	4	2.661	4.409	4.128	2.033	1.09	0	0	1	0	4.538	4.224
Number of Pictures	975	1876	1047	73	491	575	907	248	22	0	0	4	0	880	7098
<b>2006</b>															
Number of Plots	524	125	0	0	196	312	510	422	0	0	1	16	1	0	2107
Number of Crew Field Days	145	11	0	0	58	62	77	74	0	0	1	5	1	0	434
Average Plots/Crew Field Day	3.613	11.363	0	0	3.379	5.032	6.623	5.702	0	0	1	3.2	1	0	4.854
Number of Pictures	1562	367	0	0	580	619	1016	834	0	0	2	32	2	0	5014
<b>2007</b>															
Number of Plots	1355	698	3	0	387	955	1459	664	8	0	1	9	0	6	5545
Number of Crew Field Days	352	170	3	0	117	99	142	117	7	0	1	1	0	3	1012
Average Plots/Crew Field Day	3.849	4.105	1	0	3.307	9.646	10.274	5.675	1.142	0	1	9	0	2	5.479
Number of Pictures	4031	2079	9	0	1156	1899	2918	1329	14	0	2	18	0	11	13466
<b>Summarize (2004 - 2007)</b>															
Total Number of Plots	3378	1453	363	36	1055	1597	2839	1521	34	3	2	29	2	605	12907
Total Number of Crew Field Days	786	239	93	9	363	252	460	387	32	3	2	10	2	109	2747
Total Average Plots/Crew Field Day	4.297	6.079	3.795	4	2.906	6.337	6.171	3.93	1.062	1	1	2.9	1	5.55	4.698
Total Number of Pictures	10080	4322	1056	73	3113	3171	5697	3045	64	6	4	58	4	1309	32002





## Plot Density By Study Area Boundary





Field Data  
Collection

Data  
Validation

Line  
Drawing ←

Polygon  
Coding ←

Field  
Review

S

@070703220221N5951523W15509658D

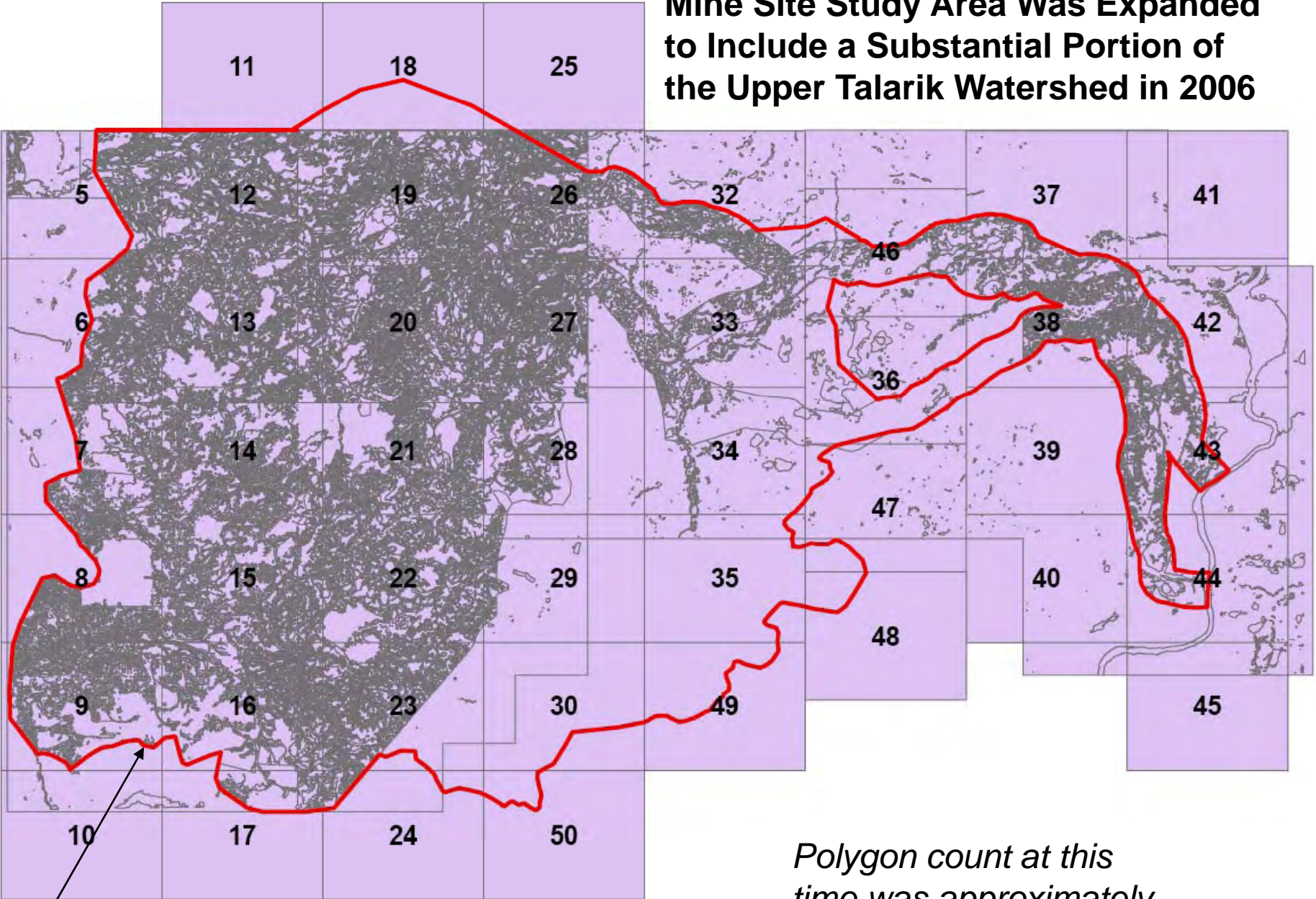
7/3/2007 14:05

## Delineation

Wetlands and Other Waters of the U.S.



**Mine Site Study Area Was Expanded to Include a Substantial Portion of the Upper Talarik Watershed in 2006**

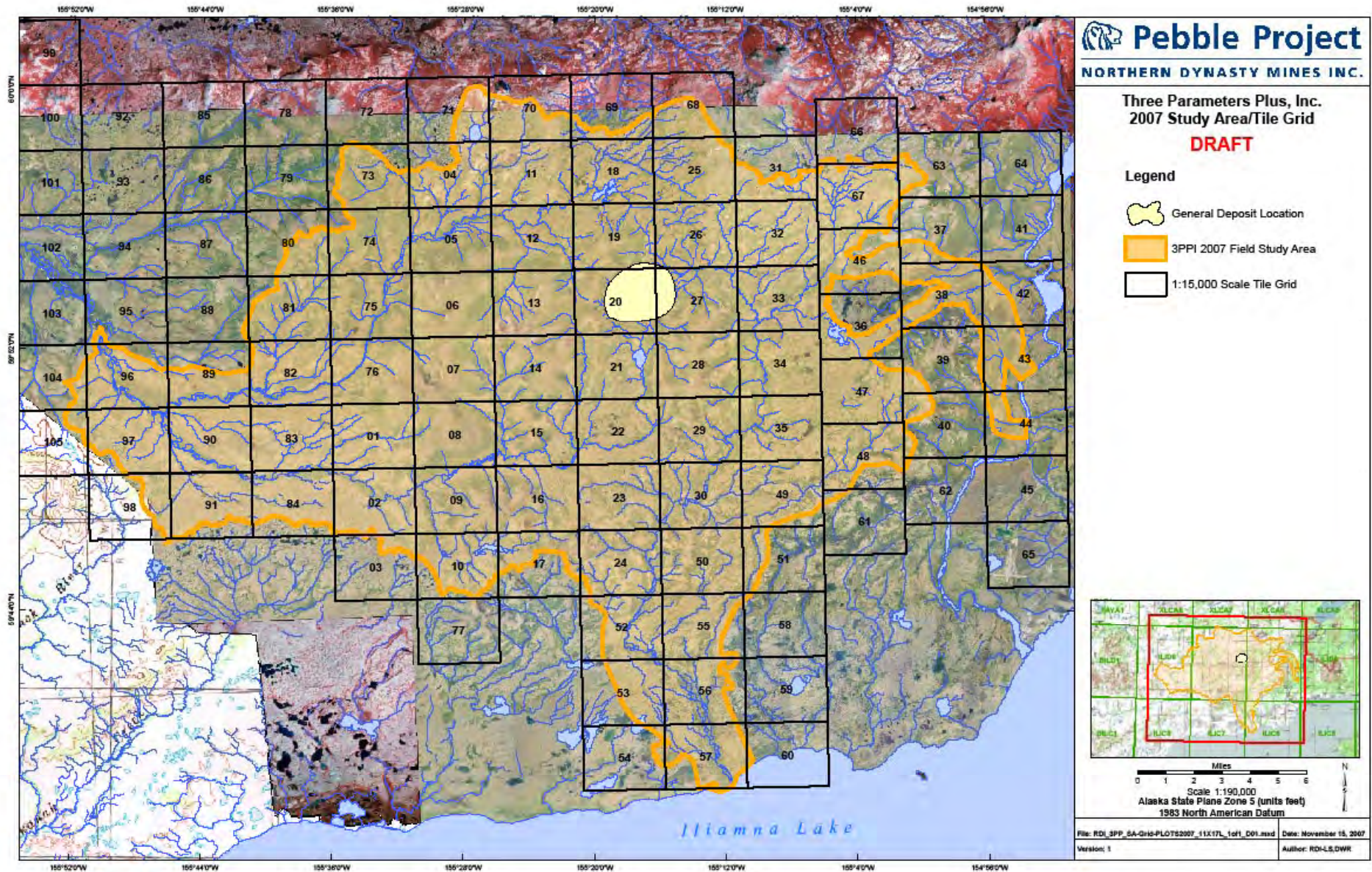


Red Study Area Boundary  
= 104,069 Acres

*Polygon count at this time was approximately 70,000*

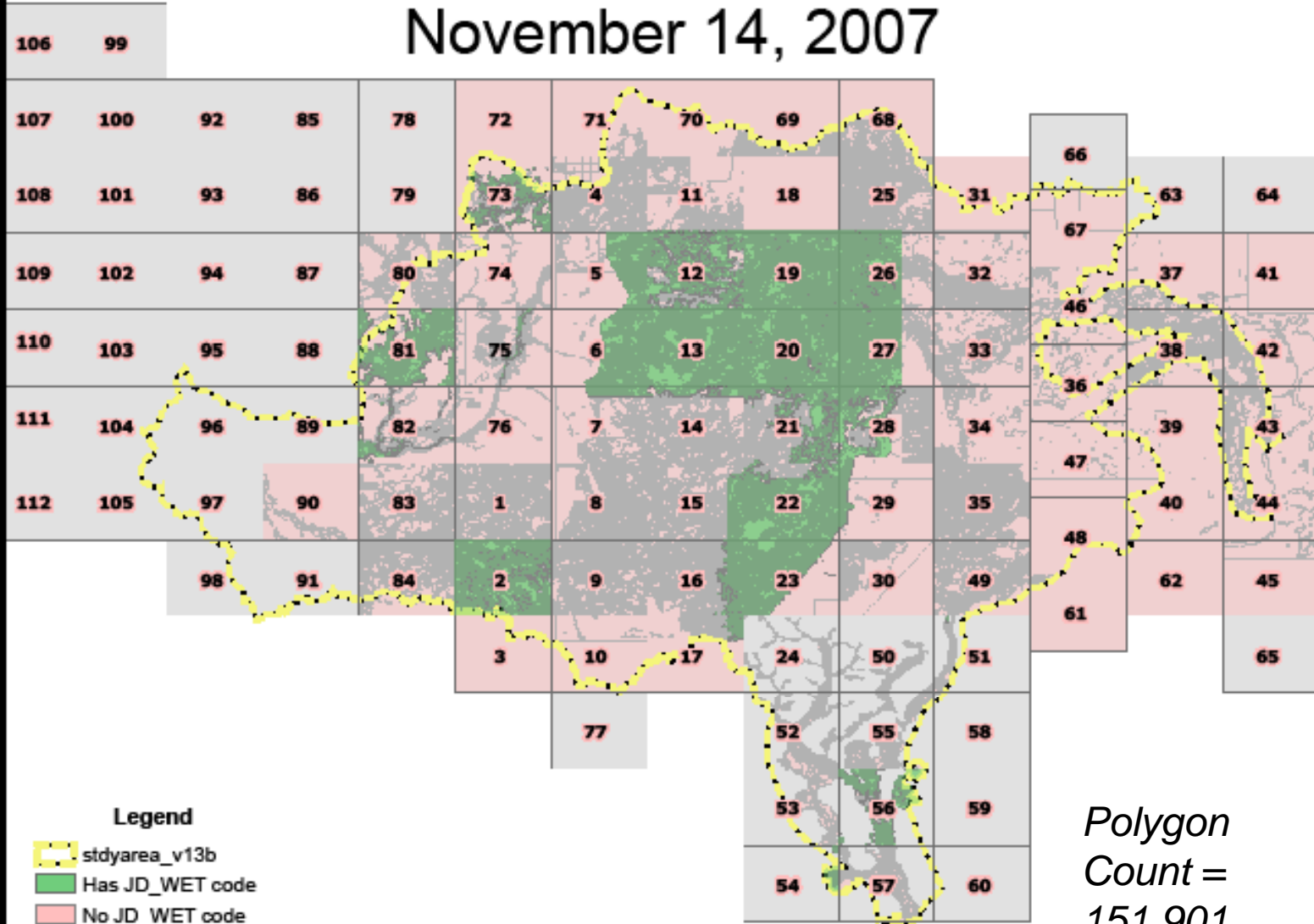
# Three Parameters +

Natural Resource Consulting





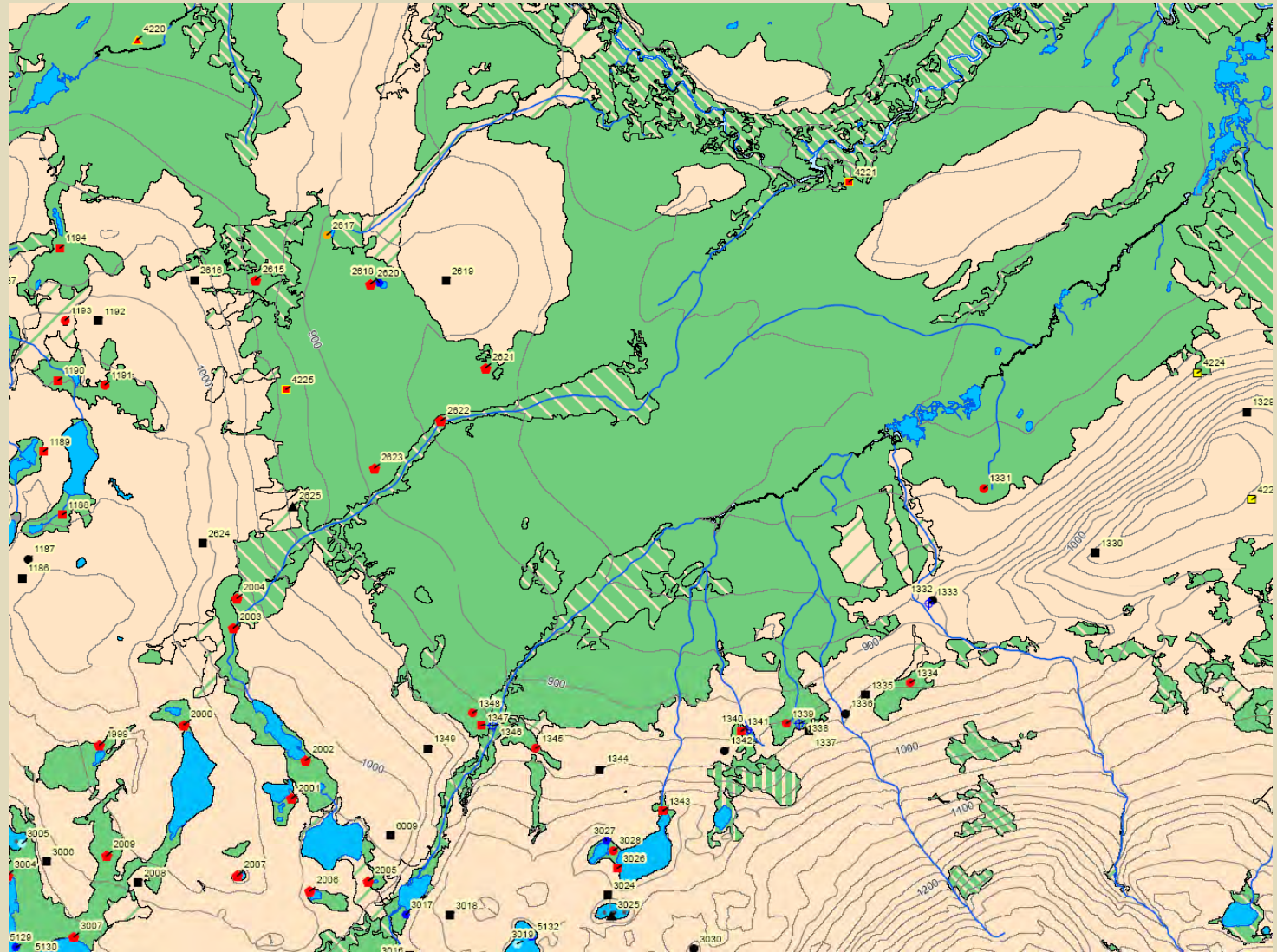
# Pebble - 3PPI Digital Mapping Status November 14, 2007



## Sample Jurisdictional Wetland Mapping

The end result is mapping that will look this detailed, with a comparable sample point density (higher in some areas).

Known inlets and outlets will be clearly shown by arcs. The drainage type will ultimately be symbolized by different line patterns to differentiate perennial from intermittent streams.



# Three Parameters +

# Natural Resource Consulting

But Lots of Laughter & Just Plain Silly Behavior Make Most of Our Days Go By Too Quickly



# Major Study Components



## **Delineation**

Based on Criteria and Indicators Found in the 1987 Corps Wetland Delineation Manual & 2006 Interim Regional Supplement for the Alaska Region.

## **Classify Wetlands and Assess Their Functions**

Small Pools Study

Magee Rapid Procedure for Assessing Wetland Functional Capacity (HGM Based)

## **Consider Wetland Values**

Incorporate Subsistence, Recreation, Cultural Resource, and Other “Values” into the Functional Assessment Evaluation

## **Identify & Evaluate Potential Compensatory Mitigation Projects**

## **Prepare Compensatory Mitigation Plan**

Per June 10, 2004 Final Alaska District Compensatory Mitigation Guidelines



## Classify Wetlands and Assess Their Functions

Magee Holland's Rapid Procedure for Assessing Wetland Functional Capacity

Determine HGM Classification

Collect Key Data (Inlets/Outlets, pH)

Run Models Using Field & Photo Interpreted Data

Multiply Scores of Potentially Impacted Wetlands x Acres Affected

Determine Debits by Function



## Magee Method Variables

- Wetland Size
- Ratio of Wetland Area to Watershed Area
- Juxtaposition
- Land Use/Intensity
- Soil Type
- Underlying Surficial Deposit
- Micro-Relief
- Water Regime
- Surface Water Fluctuation
- Overbank Flooding Frequency
- Sedimentation Evidence
- Basin Topography
- Inlets/Outlet Types
- Outlet Restrictions
- Water pH
- Piezometer Data (where available)
- Seeps & Springs
- Vegetation Types
- Vegetation Density/Dominance
- Interspersion
- Species Diversity
- Animal Food Plants
- Islands
- Woody Debris

*New Database Process to Extrapolate Plant Community Type Summary Data to Plots with the Same Vegetation Type, HGM Class, and in the Same Watershed.*

The screenshot shows a web browser window with the URL `http://localhost/pebblemine/Wetlands/WetlandsExtrapolatePlotVegMain.aspx?r=SYNCHRONIZEPLOT`. The page header includes the Northern Dynasty Mines Inc. - Pebble Project logo and navigation links for Home, Document Repository, Wetlands, and Logout. The main content area features a red warning message: "Extrapolating plot vegetation data will delete all non-extrapolated vegetation data from the selected plot type and insert/update newly extrapolated data based on Project Veg Type, Watershed, and, where applicable, HGM Type. The process may take a few minutes to complete." Below this message are two dropdown menus: "Select Firm" set to "3PP" and "Select Plot Type" set to "RW". A list of plot IDs is displayed in a scrollable area, including "All Plots" and "3PP003" through "3PP0181". At the bottom of the form is a button labeled "Extrapolate Plot Vegetation Data".

Extrapolating plot vegetation data will delete all non-extrapolated vegetation data from the selected plot type and insert/update newly extrapolated data based on Project Veg Type, Watershed, and, where applicable, HGM Type.

The process may take a few minutes to complete.

Select Firm 3PP

Select Plot Type RW

- All Plots
- 3PP003
- 3PP0075
- 3PP0087
- 3PP0097
- 3PP0098
- 3PP0114
- 3PP0121
- 3PP0124
- 3PP0127
- 3PP0131
- 3PP0145
- 3PP0159
- 3PP0160
- 3PP0176
- 3PP0178
- 3PP0180
- 3PP0181

Extrapolate Plot Vegetation Data

# Three Parameters +

Natural Resource Consulting

*When Extrapolated Data Are Used it Will Be Clearly Evident*

WetlandsFormInputMain

**Routine Wetland Determination**

Last Saved:  Show Menu:  Plot: 3PP10100 QC Status: Data Entry Complete

Find Plot: 3PP Go Type: SH Status: NICODE

Site Location | Vegetation | CRYP-AK06 | MORPH-AK06 | HYD-87 | HYD-AK06 | Soil Profile | Other Soil | Determination | Assessment | Save Plot | Main Menu

Vegetation results have been extrapolated from other site specific observations made in the same Watershed and Project Veg Type (and HGM type, where applicable)

Acronym	Latin Name	Common Name	Stratum	Ind. Status	% Cover	Dom.	Height	Tree DBH	Magee Stratum	Animal Food	Subsis. Food	Delete
BEPA-SE	Betula papyrifera	Paper birch (seedlings)	SAP	FACU	T	N			Shrub	Y	Food	
SAPL1	Salix pulchra (formerly s. plan)	Diamond-leaf willow	S	FACW	77.2	Y		4	SS	Y	Medicine	
SAPL	Salix planifolia s.l.	Diamond-leaf willow	S	FACW	55	Y			SS	Y	Medicine	
SABA	Salix barclayi	Barclay willow	S	FAC	24	Y		4	SS	Y	Medicine	
SAAR	Salix arbusculoides	Little-tree willow	S	FACW	20	Y			TS	Y	Medicine	
VAUL	Vaccinium uliginosum	Bog blueberry	S	FAC	12.2	N			DS	Y	Food	
EMNI	Empetrum nigrum	Black crowberry	S	FAC	11.8	N			DS	Y	Food & Mec	
VAVI	Vaccinium vitis-idaea	Mountain cranberry	S	FAC	10.8	N			DS	Y	Food & Mec	
BENA	Betula nana	Swamp birch	S	FAC	8.2	N			SS	Y	Food	
SACO	Salix commutata	Under-green willow	S	FAC	8	N			SS		Medicine	
SAAL	Salix alaxensis	Felt-leaf willow	S	FAC	7.7	N			TREE	Y	Medicine	
RITR	Ribes triste	Swamp red currant	S	FAC	6	N			SS	Y	Food	
ALSI	Alnus sinuata	Sitka alder (shrub)	S	FAC	6	N			TS		Fuel	
SPBE	Spiraea beauverdiana	Beauvered spiraea	S	FAC	6	N			SS	Y		
LEDE	Ledum decumbens	Narrow-leaf labrador-tea	S	FACW	5	N			DS	N	Food & Mec	
SACA	Salix candida	Hoary willow	S	OBL	4.6	N			SS		Medicine	
SAGL	Salix glauca	Gray-leaf willow	S	FAC	4	N			SS	Y	Medicine	
SARE	Salix reticulata	Net-leaf willow	S	FAC	3	N			DS	Y	Medicine	
SAHO	Salix hookeriana	Hookers willow	S	NL	3	N			SS	Y	Medicine	
VIDE	Viburnum edule	Squashberry	S	FACU	T	N			SS	Y	Food & Mec	
CACA	Calamagrostis canadensis	Blue-joint reedgrass	H	FAC	32	Y			SH			
GYDR	Gymnocarpium dryopteris	Oak fern	H	FACU	31.3	Y			SH			
EQAR	Equisetum arvense	Field horsetail	H	FACU	28.3	Y			SH	Y	Food & Mec	
EQPR	Equisetum pratense	Meadow horsetail	H	FACW	18.8	Y			SH	Y		
PEHY	Petasites hyperboreus	Arctic sweet coltsfoot	H	NL	15	Y			SH		Medicine	
SACA1	Sanguisorba canadensis	Canada burnet	H	FACW	11	N			SH	Y	Medicine	

Plot 1 of 1 << previous 1 next >> Go To Next Tab



# Three Parameters +

Natural Resource Consulting

Results can then contribute to the plot's final JD status and the functional assessment.

WetlandsFormInputMain

**Routine Wetland Determination** Show Menu:  Plot: 3PP10100 QC Status: Data Entry Complete

Last Saved:  Find Plot: 3PP Go Type: SH Status: NOCODE

Site Location	Vegetation	CRYP-AK06	MORPH-AK06	HYD-87	HYD-AK06	Soil Profile	Other Soil	Determination	Assessment
MOSS	Moss sp.			Unkeyed moss		B	N/A	8.3	N
SPHA-SP	Sphagnum sp.			Unkeyed sphagnum moss		B	N/A	5.8	N
LIVER-SF	Liverwort sp.			Unkeyed liverwort		B	N/A	5	N
MUSH	Unkeyed mushroom			Unkeyed mushroom		B	N/A	T	N
LICHEN-S	Lichen sp.			Unkeyed lichen		B	N/A	T	N
CLDE	Climacium dendroides			Tree climacium moss		B	NL	T	N
SPHAE	Sphaerophorus sp.							30	N

**% of Dominant Species that are OBL, FACW, or FAC (excluding FAC-):**  Calculated: **67 %** Calculate

5 Add Rows Delete Species Modify Species

**VEGETATION REMARKS**

**MISC. VEGETATION DATA**

Project Veg Type: Closed Willow Low Shrub

Field BBMP Veg Type: Closed Willow Low Shrub (E1)

Viereck Code: IIC1b ABR Hab Code: Slcw

Field JD Wet Code:  Field ENWI Code:

Field EROS Veg. Type:

Eros GIS: Lichen shrub tundra

Trace <= (%)  Method: 50/20-Stratum Proportion of Animal Food Plants (Calculated): 368.7

Proportion of Subsistence Food Plants (Calculated): 398

**% BY STRATUM (MAGEE - WETLANDS ONLY)**

TREE = Canopy: 7.7 % SAP = Sapling: 0 % TS = Tall Shrub: 26 %

SS = Short Shrub: 197.5 % DS = Dwarf Shrub: 42.8 % TH = Tall Herb: 10.2 %

SH = Short Herb: 281.1 % ML = Moss-Lichen: 83.6 % F = Floating: 0 %

SUB = Submerged: 0 % Number of Layers: 7

**INDICATOR 1: PREVALENCE INDEX (AK2006)**

Total % Cover of (A)	Multiplied by (B)
OBL Species: <input type="text"/>	x 1 = <input type="text"/>
FACW Species: <input type="text"/>	x 2 = <input type="text"/>
FAC Species: <input type="text"/>	x 3 = <input type="text"/>
FACU Species: <input type="text"/>	x 4 = <input type="text"/>
UPL Species: <input type="text"/>	x 5 = <input type="text"/>
Column Totals: <input type="text"/>	<input type="text"/>

Prevalence Index = B/A =  Calculated: 2.83

**HYDROPHYTIC VEGETATION INDICATORS**

2006 1987

Prevalence Index - Indicator 1

Wetland Cryptograms - Indicator 2

Morphological Adaptations - Indicator 3

Meets Requirements for Problematic Wetland Situation?

Hydrophytic Vegetation Present?

Plot 1 of 1 << previous 1 next >> Go To Next Tab



## Consider Wetland Values

Incorporate Subsistence Use, Recreational Use, Cultural Resources, and Other Values into the Functional Assessment Process



# Three Parameters +

Currently RDI is in the process of implementing a new data entry page in the wetlands application of the database that mimics the Alaska Natural Heritage Program Alaska Rare Species Site Survey Report.

**ALASKA RARE SPECIES SITE SURVEY REPORT**

SEND TO: ALASKA NATURAL HERITAGE PROGRAM 707 A Street, Anchorage, AK 99510

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. PLEASE INCLUDE GPS DATA AND ATTACH PRECISE MAP.

Data Sensitive?  Office Use Only

Map and/or GPS data requested to depict true locations to within:  mft on the ground, within  mmin on paper map.

Observed Area or Length (meters):   mft  ft

Number of Populations (populations surveyed) (Yes/No/Unknown):   if this about  if this population re-introduced? (Yes/No/Unknown)

Phenologic Stages (plants):  % dormant  % vegetative  % budding  % flowering  % fruiting  % seeding

Age Structure (all):  % senescent  % mature  % juvenile  % first-year  % newborn/seeding

Site Functions/Uses (animals):  Breeding  Foraging  Wintering  Roosting  Denning  Digital  Other

HABITAT DESCRIPTION (plant community, landform, dominant species, associates, other rare species, moisture, substrate/soils, aspect/slope, etc.):

CURRENT SITE USE / Visible Disturbances and Impacts / Possible Threats:

Overall Occurrence Quality:  Excellent  Good  Fair  Poor (consider size, viability, condition, and landscape context)

COMMENTS ON QUALITY:

OTHER COMMENTS:

IDENTIFICATION OF TAXON (fill in all applicable blanks): ID is about  % certain.

Keyed in reference:

Compared w/photo/drawing in:

Compared with specimen at:

By another person (include below, name):

By personal knowledge (yes/no):  Yes  No

Other:

OTHER KNOWLEDGEABLE PEOPLE (Name / Address / Phone / E-mail):

## Routine Wetland Determination

Show Menu:  Find Plot: 3PP Go

Last Saved:

Site Location: Vegetation CRYP-AK06 MORPH-AK06 HYD-87 HYD-AK06 Soil Profile Other Soil Determination

Completely Surveyed?  Yes  if No, about:  % of potential habitat surveyed. Species occupied  % of area/length

New Location Record?  Yes  Subsequent Visit?  Yes  Compared to last visit:  More

# individuals/stems:  census methods:

# colonies/genets:  if different, explain:

Does this population occur naturally at this site?  Yes  Is this population re-introduced?  Yes

Phenologic Stages:  % dormant  % vegetative  % budding  % flowering  % fruiting  % seeding

Age Structure (all):  % senescent  % mature  % juvenile  % first-year  % newborn/seeding

Site Functions/Uses (animals):  Breeding  Foraging  Wintering  Roosting  Denning  Digital  Other

Interactions (disease, predation, competition, parasitism, symbiosis, pollination, hybridization, dispersal, etc.):

Habitat Description (plant community, landform, dominant species, associates, other rare species, moisture, substrate/soils, aspect/slope, etc.):

Current Site Use / Visible Disturbances and Impacts / Possible Threats:

Overall Occurrence Quality:  Excellent  (consider size, viability, condition, and landscape context)

Comments on Quality:

Other Comments:

Identification of Taxon (Fill in all applicable fields): ID is about  % certain.

Keyed in reference:

Compared w/photo/drawing in:

Compared with specimen at:

By another person (include below, name):

By personal knowledge  Yes

Other:

Photographs (check all that apply)

Subject:  Type:

Diagnostic Feature  Digital

Whole organism(s)  Slide

Habitat or site  Print

Attached  Yes  Other

May we obtain copies at our cost?  Yes

Other Knowledgeable People

Name	Address	Phone	Email
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Mitigate =

Avoid

Minimize

Compensate ←

## Identify Potential Compensatory Mitigation Opportunities





Mitigate =

Avoid

Minimize

Compensate ←

## Prepare Compensatory Mitigation Plan

Per June 10, 2004 Final Alaska District Compensatory Mitigation Guidelines & Pending Rule Changes Published in the Federal Register this Summer



# Major Study Components



**Delineation**



**Classify Wetlands & Assess Their Functions**



**Consider Wetland Values**



**Identify & Evaluate Potential Compensatory Mitigation Projects**



**Prepare Compensatory Mitigation Plan**



*Mapping*

*Data Entry & QC*

*Lots More Field Work*

*Continued Well Monitoring  
for the Small Pools Study*

*Continue Review of  
Abandoned Mine Files*

*HDR Will Prepare EBD  
Access Corridor Sections*

*3PPI will Begin Drafting  
EBD Sections for Mine  
Site*

## 2008 Work Plan

(or as I like to say – let the madness continue...)

