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### Introduction

The James Bay Lowland Gypsum Development Group (JBGDG) consists three privately owned companies or proprietorships as well as representatives from the community of Moose River Crossing. This group has been interested in the development of the deposits at Moose River Crossing for approximately five years.

In 1992 physical work was performed on the Moose River Crossing property. The conclusion was that if gypsum beds existed below the overburden, they were to deep to be reached with the hand tools used.

Based on this conclusion, physical work was carried out in October, 1993 using an excavator capable of reaching depths of 20'(or deeper with benching). This report will document all the results of the physical work and provide conclusions and recommendations.

### Location and access

Diagram #1 is a key map showing the location of the Moose River Crossing property. The property is in Carroll and Canfield Townships, Porcupine Mining District and consists of twenty-one contiguous claims (57 units) numbered 1131388, 1131389, 1131390, 1170583, 1170584, 1170585, 1170586, 1170587, 1170589, 1170590, 1188872 (15 units), 1188873 (9 units), 1188874 (4 units), 1188875 (1 unit), 1188876 (2 units), 1188877 (1 unit), 1190293 (1 unit), 1190294 (2 units), 1190295 (4 units), 1190296 (6 units) and 1190297 (2 units). Diagram #2 shows the location of these claims within the property.

The Ontario Northland Railway was used for access and to deliver equipment to the property.

#### Topography

The property is covered by spruce, poplar, birch, and alder. The railway line divides the property into two distinct vegetation areas. To the North is spruce, alder and open swamp, giving the impression of lower ground. This effect is caused by the railway bed having restricted the water flow for many years. To the South is lower ground with the exception of a distinct ridge that runs through the property roughly parallel to the rail and river.

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## Equipment

Excavator

A CAT EL200 excavator was used to dig all test pits. The excavator was off-loaded "on line" while the train waited as there is no railway siding at the property.

Our decision to use an excavator enabled us to obtain the following information:

- Overburden depths at the test pit sites.
- The nature of the sedimentary beds beneath this overburden.
- Seepage rates and general, local water table information.
- The physical properties and layering of the overburden.
- Excavation times.
- The stability of the overburden (for stripping)
- An overview of the general handling and flotation of equipment for future access to desired sites.

#### Ramps

A set of steel ramps and a steel frame to link the ramps to the flat-car had to be fabricated in order to off-load the excavator.

Four-wheelers

Two Honda four-wheelers were used to move men, samples and equipment between camp and work sites. The four-wheelers were off-loaded using the excavator.

### Trailer

A trailer was used as a living quarters for the duration of the work. It was off-loaded using the excavator.

Survey Equipment

A transit, level and a Magellan G.P.S. receiver were used to survey pit locations, locate claim lines and to obtain some topographic information.

### Physical Work

### Introduction

Twelve test pits were excavated at various locations within the property. Samples were taken from five of the test pits in order to determine the composition of the minerals exposed. The locations of the test pits were then marked and surveyed. All test pits were filled with excavated material to restore the sites as closely as possible to their original condition. To follow is a description of the findings at each test pit.

Pit #1

Pit #1 was excavated near the northernmost boundary of claim #1131389, along an existing trail that runs parallel to the Ontario Northland railway line (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0'- 3' overburden (moss and brown loamy clay) 3'-20' soft grey clay containing sea shells

Pit #2

Pit #2 was excavated near the easternmost boundary of claim #1131390, along the existing trail mentioned above (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 3' overburden 3' -15' soft grey clay containing sea shells 15'-20' very hard grey clay

Pit #3

Pit #3 was excavated within the south-easternmost unit of claim #1188872, along the existing trail mentioned above (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 3' overburden 3' -15' soft grey clay containing sea shells 15'-20' very hard grey clay Note: Sample taken from 18'-20'

Pit #4

Pit #4 was excavated near the northernmost boundary of claim #1188875, along the existing trail mentioned above (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 3' overburden 3' -20' wet, soft grey clay containing sea shells

#### Pit #5

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Pit #5 was excavated in the east-central area of claim #1188874, along the existing trail mentioned above (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 2' overburden 2' -20' wet, soft grey clay containing sea shells

Pit #6

Pit #6 was excavated near the southernmost boundary of claim #1188874, along the existing trail mentioned above (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 1' overburden 1' - 6' brown loamy clay 6' -11' soft grey clay containing sea shells 11'-20' very hard grey clay

Pit #7

Pit #7 was excavated within claim #1190293 near the Ontario Northland Railway line (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 2' overburden 2' -20' grey clay containing sea shells (harder than soft grey clay found in previous pits)

Pit #8

Pit #8 was excavated near the southernmost boundary of claim #1188876 near the Ontario Northland Railway line (see diagram #2). The pit was excavated to a depth of eighteen feet described as follows:

0' - 1' overburden 1' - 3' mixed clay and granular material 3' -18' grey clay 18' white, massive gypsum bed Note: sample taken at 18'

#### Pit #9

Pit #9 was excavated near the southernmost boundary of claim #1188876 south-east of pit #8 (see diagram #2). The pit was excavated to a depth of twenty-six feet described as follows:

0' - 1' overburden 1' -26' grey clay 26' white, massive gypsum bed Note: sample taken at 26'

Pit #10

Pit #10 was excavated in the northwest guarter of claim #1190295 approximately 450' south-east of the Ontario Northland Railway line (see diagram #2). The pit was excavated to a depth of twenty feet described as follows:

0' - 1' overburden 1' -20' grey clay

Pit #11

Pit #11 was excavated approximately 200' southeast of pit #10 (see diagram #2). The pit was excavated to a depth of five feet described as follows:

0' - 8" overburden 8" - 5' grey clay with boulders 5' white, massive gypsum bed

white, massive gypsum bed Note: sample taken at 5'

Pit #12

Pit #12 was excavated approximately 100' north-east of pit #11 (see diagram #2). The pit was excavated to a depth of 1' described as follows:

0' - 1' overburden 1' white, massive gypsum bed Note: sample taken at 1'

Sample Descriptions

Samples taken from pits 8, 9, 11, and 12 were all broken, pieces from a massive white Gypsum bed. a cleaner, white Gypsum could be clearly seen below the dirty upper layers of the gypsum bed. The samples also included some Selenite. An additional sample of cleaner gypsum was scraped from the bottom of pit #8. A sample of very hard grey clay was also taken from pit #3, but was not identified any further. Equipment Hours

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Equipment	Date	hrs.	Rate	Sub-totals	Totals
<b>Bl200 Excavator</b>	10/29/93	16	90	1440	
(Rate includes	10/30/93	22	90	1980	
operator and	10/31/93	22	90	1980	
all fuel)	11/01/93	14	90	1260	
					\$6660.00
Trailer	10/29/93	-	190/day	190	
	10/30/93	-	190/day	190	
	10/31/93	-	190/day	190	
	11/01/93	-	190/day	190	
					\$ 760.00
2 four-wheelers	10/29/93	-	100/day	100	
(\$50/day each)	10/30/93	-	100/day	100	
	10/31/93	-	100/day	100	
	11/01/93	-	100/day	100	
					\$ 400.00
Steel ramp (including frame)	-	-	fabricati	on cost	\$ 350.00
Magellan G.P.S.					
receiver	-	-	rental co	st	\$ 150.00
			<b>Equi</b>	pment total	\$8320.00

# Workers hours

#### Note:

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Kevin Cool (Survey Technician), Chris Wilcox (Survey Technologist), and Mark Kean (Survey Assistant) worked at a fixed daily rate as a three-man Survey crew based on an eight hour day and determined as follows:

	Crew chief Instrument i Assistant Survey Equip Dail:	8 man 8 pment y Rate	hrs. @ 22.9 hrs. @ 19.0 hrs. @ 15.0 - 40.0 \$492	50/hr. 00/hr. 00/hr. 00/day 	
Name	Date	hrs.	Rate	Sub-totals	Totals
Survey Crew	10/29/93	8	492/day	492	
-	10/30/93	8	492/day	492	
	10/31/93	8	492/day	492	
	11/01/93	8	492/day	492	
					\$1968.00

Note:

Rheal Cool and Elmer Moore worked the following hours as excavator operators. No rate is applied as their wages are covered under the excavator rate.

Date	hrs.		
10/29/93	8		
10/30/93	11		
10/31/93	11		
11/01/93	7		
10/29/93	8		
10/30/93	11		
10/31/93	11		
11/01/93	7		
	Date 10/29/93 10/30/93 10/31/93 11/01/93 10/29/93 10/30/93 10/31/93 11/01/93		

Wages total \$1968.00

Additional Costs Gas and Oil (for four-wheelers) \$33.00 Gas and Oil total \$ 33.00 Food 5 men @ \$30/day ea. (\$150/day) x 4 days \$600.00 Food total \$ 600.00 Rail fare (men) 2 return tickets @ \$55 (Moosonee-Moose River) \$109.00 3 return tickets (group rate, Cochrane-Moose River) \$199.00 Fare total \$ 308.00 Rail costs (equipment) Return flat-car rate for "on-line rail car spotting" from Moosonee to Moose River Crossing \$2600.00 \$2600.00 Rail total Equipment loading/unloading at Moosonee 18 man hours @ \$22.50/hr \$405.00 \$180.00 2 hrs. excavator @ \$90/hr Moosonee Loading/Unloading total \$585.00 Additional labour at Moose River Crossing (loading/unloading) \$135.00 6 man hours @ \$22.50/hr Moose River Loading/Unloading total \$ 135.00 Additional costs total \$4261.00 Total operation costs: \$ 8320 Equipment Wages 8 1968 Additional **8 4261** \$14549.00

# Conclusions

Based on the areas excavated, there appears to be massive white Gypsum underlying the Moose River Crossing Property. In places, this gypsum is both close to the Ontario Northland Railway Line and covered by shallow overburden.

### Recommendations

Future work could include drilling to determine overburden depths over a greater area and to determine the thickness of the Gypsum beds.

)	Ministry of Northern Development
/	and ss
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# **Report of Work Conducted After Recording Claim**

IMENDED A.F Transaction Number tel7 y 109360 00200

Mining Act

onal Information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, bury, Ogtario, P3E 6A5, telephone (705) 670-7264.

tructions:	<ul> <li>Please type or print and submit in duplicate</li> <li>Refer to the Mining Act and Regulations fo</li> </ul>
	Recorder.

- A separate copy of this form must be comp
- Technical reports and maps must accompa
- A sketch, showing the claims the work is a



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orded Holder(s) MARY KEAN		Client No.
ress PO BOX ZILO	TIMMINS ONT PHI	17X8 265-35-36
ing Division FCFCはドレモ	Township/Area CARCOLL / CANFIELD	Mor G Plan No. TWIS M-439 +17.436
ates ork From: UCT 2	9/43 To: N	001/93

# rk Performed (Check One Work Group Only)

Work Group	Туре										
Geotechnical Survey											
Physical Work, Including Drilling	DIGGING TEST PITS	BECORDED									
Rehabilitation		ILCONDED									
Other Authorized Work	ONTADIC GLOP MANA DA GIS - ABRESMAENT PH	NOV 1 7 1993									
Assay <del>s</del>	NA LA SAL	Receipt									
Assignment from Reserve		13,895 13,170 Ki									
al Assessment Work	Claimed on the Attached Gratement of Cos	13 \$ 12,385									

te: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

# rsons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address							
EUIN COOL (AUTHOR)								
ENELAL SERVEYS + EXP	190 QUEEN AVE. TIMMING ONT							
	P.4N - 427							

ach a schedule if necessary)

# rtification of Beneficial Interest \* See Note No. 1 on reverse side

certify that at the time the work was performed, the claims covered in this work	Date	Becorded Holder or Agent (Signature)
port were recorded in the current holder's name or held under a beneficial interest y the current recorded holder.	NOU 16/93	mel L

# rtification of Work Report

certify that I have a perso s completion and annexe	onal knowledge of the facts set forth in d report is true.	this Work report, having performed the	e work or witnessed same during and/or after
me and Address of Person	Certifying		
MARK KE	AN PO BOX 2	120 TIMM~s	0.VT P42-788
epone No.	Date	Certified By (Signature)	1
268-3-3	6 1000 16/9	3 tot I	
r Office Use Only		0 0	
otal Value Cr. Recorded	Date Recorded	Mining Regoter	Filles wed State
/	Nov. 17, 1993	Whit	
095	Deemed Approval Date	Date Approved	The (1st Kee d) the
121°	FEB. 15, 1994	FEB. 25, 1994	NOV 17 1993
- 1 (T	Date Notice for Amendiments Sent		$\mathcal{A}$
· · · · · · · · · · · · · · · · · · ·	NAN 11, 1994		
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(1840) 11																		-	Work Report Number for Applying Reserve
of Claims	71 28				1190293	190295	1170586	1170585	H\$ 50211	1170583	1131390	1131389	1131385	1155577	1155576	1153875	4288811	1188872	Claim Number (see Note 2)
	Ì					1					~				۲(	~	1	5	Or Claim Units
То	F					- W					<u> </u>		1	T	test		ر ۲	` _	
al Value Work Done	785 2865	17051			000	,000					000	000			1355 Ja	,000	, oo 0	,000.	Value of Assessment Work Done on this Claim
Total Value Work Applied	- 12,000				0	0	001	400	00+ 00	004	400	400	0 0 1	400	500	001	1,600	6,000	Value Applied to this Claim
Total Assigned From	7,400				1,000	3,000	-HOSK	4002			600	600.			1-13706	600	40C		Value Assigned from this Claim
Total Reserve	235	1895,500 11-7-7-1								•					355	1102			Reserve: Work to be Claimed at a Future Date

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark ( $\nu$ ) one of the following:

1. Credits are to be cut back starting with the claim listed last, working backwards.

2. Credits are to be cut back equally over all claims contained in this report of work.

3.  $\Box$  Credits are to be cut back as priorized on the attached appendix.

n)

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

## Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.	Signature	Date
		······································



Ministry of Northern Development and Mines

**Jinistère du** Développement du Nord et des mines

# Statement of Costs for Assessment Credit

# État des coûts aux fins du crédit d'évaluation

### Mining Act/Loi sur les mines

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

# GADNA No./Nº de transaction ransactio )9360.0CZC

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chel provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4<sup>e</sup> étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

# 2. Indirect Costs/Coûts Indirects

Туре	Description	Amount Montant	Totals Total global	Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work.						
Wages Salaires	Labour Main-d'oeuvre	1808 A	1408	coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.				ravaux		
	Field Supervision Supervision sur le terrain		4968		Туре	Descriptio	n	Amount Montant	Totals Total global	
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert- consell	Туре				Transportation Transport	TYPE TRAIN PHOSENGER	s	308		
						RAIL COS EQUIPMEN	T JT K	,600		
						TRAILER		7606		
Supplies Used Fournitures utilisées	GAS TOIL	FR							36684	ic
	Supplies	193 F	Ë.						2,908	
			1435	2	Food and Lodging Nourriture et hébergement	ForD		600	600	
Equipment Rental	Type FXC-lunt TOR	9,028	233		Mobilization and Demobilization Mobilisation et démobilisation	47.10,06 /11.0-1 - MOD 30.00	040, 56 1 E	1008	1,008	é
Location de matériei	FOUR - WIFFELER	760-	a make		_	Sub Total of Indirect Costs Total partiel des coûts Indirects		5276	R	
	STEEL RAMAS MAGELLAN GAS	150	8320		Amount Allowable ( Montant admissible	nol greater than 2 (n'excédent pas 2	0% of Direc 0 % des co	t Costs) ûts directs)	2316	4
Total Direct Costs $40,321$					Total Value of Assessment Credit Valeur totale du crédit (Total of Direct and Allowable d'évaluation Indirect costs) (Total des coûts directs			12,385		
11,579 rse				-		it Indirects adm	nissibles	13,1701	SC z	
Note: The recorded this statemen verification is all or part of	holder will be required to ve it of costs within 30 days of not made, the Minister may the assessment work subm	rify expenditu a request for reject for ass itted.	ures claimed in verification. If sessment work		Note : Le titulaire en le présent éta effet. Si la vé ou une partie	registré sera tenu d at des coûts dans le rification n <b>parties</b> e des travaus d'arr	e vérilier les 13 30 jours s My Carpon Lution, bis	dépenses de uivant une d invitance pr sentés	+ 3,095 A mandées dans lemande à cet <b>strejele</b> r tout	

### **Filing Discounts**

- 1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
- 2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed					
× 0.50 =						

# **Certification Verifying Statement of Costs**

# I hereby certify:

that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

to make this certification

Valeur totale du crédit d'évaluation **Evaluation totale demandée**  $\times$  0,50 =

2. Les travaux déposés trois, quatre ou cinq ans après leur achév

susmentionné. Voir les calculs ci-dessous.

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1. Les travaux déposés danséles deux ans suivant leur achévément sont remboursés à 100 % de la valeur jetaie susmentionnée du crédit d'éva

sont remboursés à 50 % de la valeur totale du crédit d'évaluation

# Attestation de l'état des coûts

Remises pour dépôt

J'atteste par la présente :

que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de\_\_\_\_\_je suis autorisé (titutaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

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Dete ila 7-1 NOU 14/4

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens

# 1. Direct Costs/Coûts directs

February 22, 1994

Gary White Mining Recororder 60 Wilson Avenue Timmins, Ontario P4N 2S7

Dear Mr. White:

In response to your letter dated January 11, 1994, please find the following information:

- Corrected diagram #2 to amend original diagram #2. Please note that I have used surveyed locations from claim posts, as opposed to locations derived from MNDM claim maps.

- General information obtained regarding seepage rates, local water tables, excavation time, stability of overburden, handling and flotation of equipment.

- A copy of the original "Report of Work Conducted After Recording Claim" with amended figures reflecting changes from direct costs to indirect costs; as well as changes to excavator rates.

	Equipment Hours					
	Equipment	Date	hrs	. Rate	Sub-totals	Totals
<del>تر 1000 -</del>	El200 Excavator	10/29/93	16	122	1952	
	(Rate includes	10/30/93	22	122	2684	
	operator and	10/31/93	22	122	2684	
	all fuel)	11/01/93	14	122	1708	
	Total		*74			\$9028.00
	Trailer	10/29/93		190/day	190	
		10/30/93	-	190/day	190	
		10/31/93	-	190/day	190	
		11/01/93	-	190/day	190	
		,,				\$ 760.00
	2 four-wheelers	10/29/93	-	100/day	100	
	(\$50/day each)	10/30/93	-	100/day	100	
		10/31/93	-	100/day	100	
•		11/01/93	-	100/day	100	
						\$ 400.00
	Steel ramp (including frame)	-	-	fabricatio	on cost	\$ 350.00
	Magellan G.P.S. receiver	-	-	rental cos	st	\$ 150.00

Ammendments to work report ref# W9360.00200

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\* Note: Two operators were on hand in order to work the excavator on a double shift basis as the train scheduling only allowed for 4 days of operating time. The excavator was equipped with lights to operate 24 hours.

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#### SEEPAGE RATES

Pit numbers 1 through 6 were excavated on the north side of the Ontario Northland Railway line. During the excavation process, which varied from one-half hour to two hours; approximately three feet of water appeared at the pit bottoms.

The remaining pits excavated on the south side of the rail, near swampy conditions, filled in more quickly to a depth of approximately three feet.

#### LOCAL WATER TABLES

The above-mentioned seepage rates, due to the local water tables, present logistical problems for the extraction of Gypsum. If Gypsum is to be quarried in the area, this water problem would have to be addressed.

# EXCAVATION TIMES

Excavation times, including removal of samples, varied from onehalf hour to two hours, depending on pit locations. The clay material extracted was free of boulders, and handled easily.

### STABILITY OF OVERBURDEN

In the average pit, the depth of which was twenty feet, there was little or no caving. This shows that the overburden would not pose a problem for quarrying.

#### EQUIPMENT

The CAT EL200 excavator accessed the pit sites adequately. No cutting was necessary. In swampy conditions the excavator floated well.

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NORTHING	UTM	DESCRIPTION	Red OT( D DDDD
5630154	478867	B.M. NORTH END OF MOOSE RIVER BRIDGE	KEF. W3360.00200
5631537	479277	POND A.O.I. #S5	
5631 <u>6</u> 15	479705	PIT #7	
563 <sup>.</sup> 2	479894	PIT #8	
5631745	479921	PIT #9	
5631777	479988	POST #1 OF 1190293	
5631853	480115	PIT #10	
5631804	480151	PITS #11 AND #12	
5632553	480383	PIT #6	
5632792	480629	PIT #5	
5632824	480924	POST #2 OF 1188875	
5633063	480905	PIT #4	
5633339	481187	PIT #3	
5633314	481421	POST #1 OF 1188875	
5633590	481694	POST #1 OF 1170585	
5633725	481583	PIT #2	
5633900	481773	PIT #1	
5633981	482099	POST #1 OF 1131389	

\* NOTE:

THIS IS A PRINT-OUT OF THE G.P.S. SURVEY DATA THAT WAS USED AS CONTROL FOR THE TRANSF SURVEY.

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