IZOK PROJECT FEASIBILITY STUDY MINE SITE GEOTECHNICAL INVESTIGATION

SUBMITTED TO:

Metall Mining Corp.
Edmonton, Alberta
and
Bechtel/CESL Joint Venture
Vancouver, B.C.

PREPARED BY:

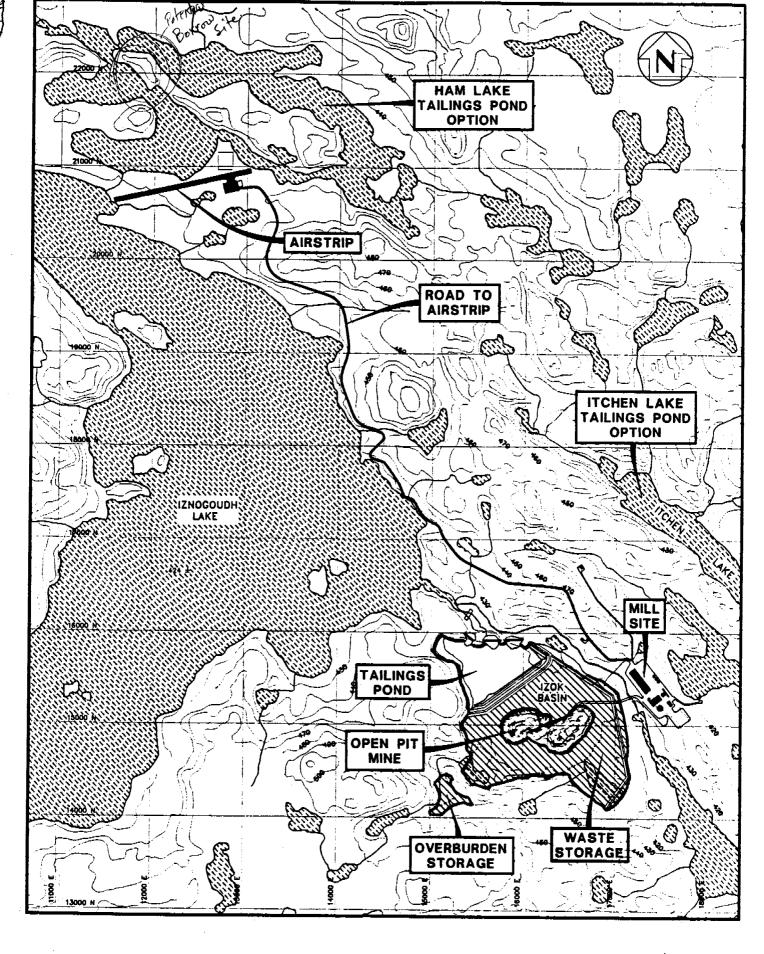
EBA Engineering Consultants Ltd. Edmonton, Alberta

0101-11157

November, 1993







METALL MINING CORPORATION IZOK PROJECT PLANT SITE - AIRSTRIP

APPENDIX B
BOREHOLE LOGS

29 /095



ROJECT: IZOK PROJECT FEASIBILITY STUDY	CLIENT: MINNOVA INC.		BOREHOLE No: 11157 Project No: 0101-1119	
ne/plant/tailings site investigation	DRILL: LONGYEAR 38 DIAMOND		TLEVATION: 427.800 (m	
SB-SOUTH END	UMA COORDINATES: E17500.59		RECOVERY CO	
E LITHOLOGICAL	SPT GROUND ICE	◆ POINT LOAD STRENGTH (MP- 4 8 12 16 ◆ FRACT. FREQ. (per m) € 2 4 6 8	a) 4	
DESCRIPTION	DESCRIPTION	△ RQD (%) △ 20 40 60 80 ■ RECOVERY (%) ■	PLASTIC M.C.	
MOSS AND ORGANIC MATTER — fine fibroi amorphous granular, frozen, (50m	us, Nbn 0.7	70 80 90 100	20 40 60	80 0
thick) SHATTERED BEDROCK - residuum	_			- 1
 boulders, cobbles, oxide stained joints, fractured 	2.15			
3.0 (C) BEDROCK-APHYRIC RHYOLITE — garnet of minor biotite, disseminated	· 111			
4.0				
5.0	Ma			
5.0				
7.0 \(\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\chi}}}}} - foliation at 50 degrees to the exercises	7.35			
8.0 vertical viggy, pitted, weathered				-
9.0				
10.0	10 K			
11.0				
12.0 quartz vein at 50 degrees to the vertical muscovite alteration, crenulations				
13.0 The pyrrhotite - pyrite stringers	95 m			
pyrite stringer foliation at 20 degrees to the vertical				
EBA ENGINEERING CONSUMED EDMONTON, ALBERT	LIANIO LID. REVIE	D BY: RJM WED BY: DWH o: 11157-01	COMPLETE: 93/03/	

. 3

	CT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA INC.	DIALLOND 6	יומי	_					_	_	_					57 <u>-</u> ()1 <u> </u>	
	PLANT/TAILINGS SITE INVESTIGATION SOUTH END		: LONGYEAR 38 COORDINATES: E				20	0.42	29		\dashv	_	•		_	101- 27.80				
	E TYPE SHELBY TUBE DISTURBED	UMA	SPT	Ħ				····		П	ΠN		ECOV					ORE		
	LITHOLOGICAL	TPE	GROUND		• !	4	4	8		NGTI 12 (per	16			■ Bt. 0.0	JLK I	DENSI	TY (N 1.8	1g/m3) 3 2. <u>4</u>		(æ)
DEРТН (m)	DESCRIPTION	SAMPLE	DESCRIPT	ION	F	2	0	40	<u> </u>	%) ▲ 60 Y (%)	<u>8(</u>		T	asti		M.		U	QUID -	ОЕРТН (m)
15.0	BEDROCK-APHYRIC RHYOLITE - (continued	1)		·····	-	7	0	80		90	10	0		20	0	40	60	80		15.0
- - 16.0	6' - foliation is vertical					ļ	ļ													16.0
-		\parallel	1614		ļ							.	-							
- 17.0 -	granite, 0.1m thick, contacts at 20					ļ		• •												+ 17.0 -
18.0	or pyrrhotite stringers												<u>. </u>				ļ .			18.0
19.0	quartz stringers, muscovite alterations pyrrhotite — pyrite stringers																			19.0
- 20.0	END OF BOREHOLE (20.0 metres)	#	۹۶	,	•			· · · · ·					<u></u>							20.0
- 21.0	Thermistor #905 installed at completio	n																		21.0
20.0																				- 22.0
- 22.0 -																				_
- 23.0						ļ											ļļ.			23.0
- 24.0	u .					ļ							-				ļļ.			24.0
- - 25.0																				- 25.0
- - 26.0						ļ	ļ													- 26.0
-	•				ļ	<u></u>	<u></u>			<u>.</u>										_
- 27.0 -						 	 													- 27.0 -
- 28.0 -										<u></u>										28,0
- 29.0																				29.0
ויגו	BA ENGINEERING CONSULT	וא אי	ጥር ፤ ጥ <u>ጉ</u>	LOGGED									_					H: 20.	0 m	
اظ	DA ENGINEEMING CONSOLI EDMONTON, ALBERTA	rin.	יחוח טו.	REVIEWED									CON	/PL	ETE	93,	/03		00.	260
	EDMONION, ALDERIA			Fig. No:	11	13/	(<u>'! </u>											ge z	2 of 2

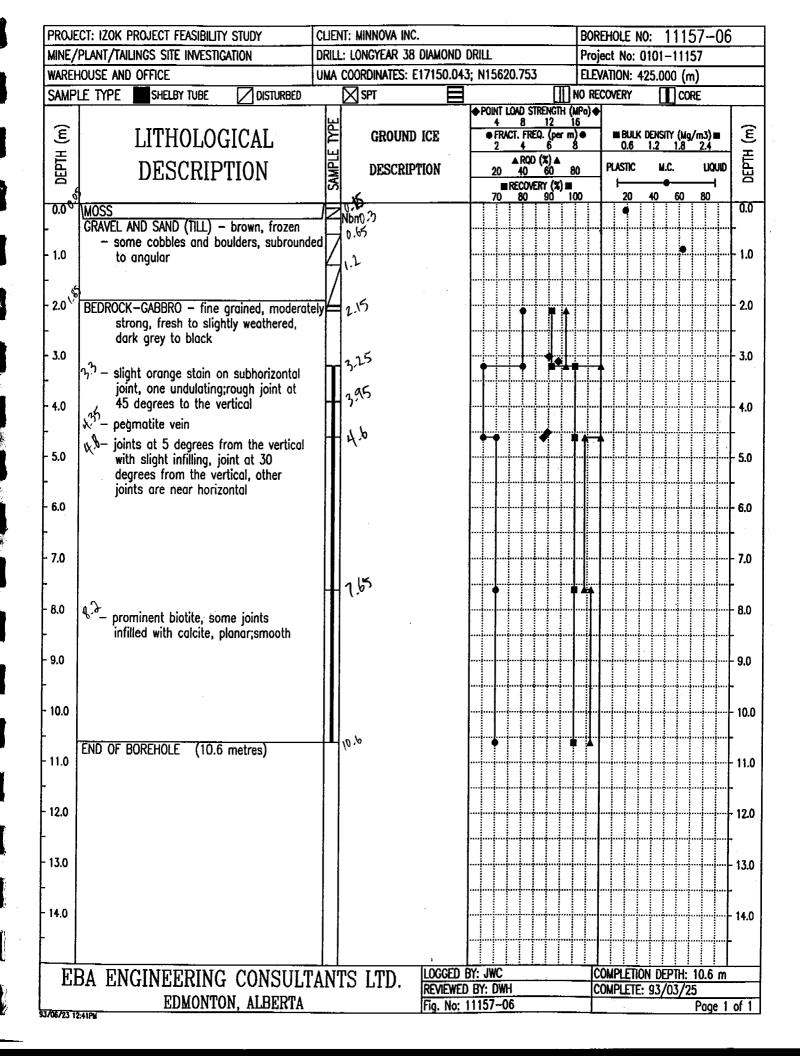
	ect: Izok project feasibility study	CLIE	NT: MINNOVA INC.		BOREH	IOLE No:	1115	7-02	
			L: LONGYEAR 38 DIAMOND				01-111		
		UMA	COORDINATES: E17350.58				7.100 (m		
SAME	PLE TYPE SHELBY TUBE DISTURBED		SPT ■	POINT LOAD STRENGTH (M	IO RECO	VERY	CO	₹E	т
(E) T	LITHOLOGICAL	<u> Y</u>	GROUND ICE	4 8 12 10 • FRACT. FREQ. (per m) 2 4 6 8	3	■BULK D	ENSITY (Mg,	/m3) ≡ 2.4	(E)
DEPTH	DESCRIPTION	SAMPLE	DESCRIPTION	△ RQD (%) △ 20 40 60 80 ■ RECOVERY (%) ■		LASTIC	M.C.	LIQUID	DEPTH
0.0	PEAT - roots, dark brown, frozen	+	Nbn ^{o.7}	70 80 90 10	0	20 4	10 60	80	0.0
-	pn — black organic layer	Z	NDnº ^ 0 5 15			.	ļļļ		A
- 1.0 -	SAND (TILL) — some silt, trace of fine gravel, boulder, rust brown, frozen — fragments	K	0.515 Nbn 5.4 \ル Vs~30%; Icea			•			1.0
- 2.0	√V- siltier lenses		lenses to 2mm 1.0				•		2.0
- 3.0	45- cobbles, boulders, fine to coarse grained, light brown, frozen		Nbn 3,95			•			3.0
- 4.0			3-20 3-4 3-4						4.0
- 5.0 ^{\(\)}	granite boulder — medium grained, disseminated, sulfide, massive,		43						- 5.0
· 6.0	fresh, light grey BEDROCK-DACITE - disseminated sulphide:		5,85						-
7.0	muscovite-biotite, garnet, some oxide staining, light grey highly fractured, angular occasional oxide staining, fractures are subhorizontal, planar;smooth								- 6.0 - 7.0
8.0	APHYRIC RHYOLITE — patchy muscovite, transitional upper contact with		9,0	—	M				- 8.0
9.0	possible fragmentation, contact zone is 0.2m thick § 5 - granite vein, 1.0m thick								- 9.0
10.0	- grounte vem, r.om thick		10.2						- 10.0
11.0			11.2		+				- - 11.0
12.0									- - 12.0
13.0	pegmatite vein, sulfides visible along joints, joints subhorizontal								13.0
14.0	and planar END OF BOREHOLE (14.1 metres)		4.1						14.0
			:						•
EE	BA ENGINEERING CONSULTA	NT	S LTD. LOGGED B				DEPTH: 1	4.1 m	
	EDMONTON, ALBERTA		REVIEWED	BI: UWH	ICOMF	PLETE: 9	3/03/26		

PROJE	CT: IZOK PROJECT FEASIBILITY STUDY	CLIE	NT: MINNOVA INC.					BOR	EHOL	E No	: 11	157-	03	
			.: Longyear 38 Diamond				F	roj	ect N	lo: 0	101-1	1157		
CSB-0	CENTER	JMA	COORDINATES: E17436.86	65; N1	5294.8	375	Ε	Œ	OITAV	N: 43	31.000	(m)		
SAMP	LE TYPE SHELBY TUBE 🖊 DISTURBED		⊠ SPT □						COVE	ìΥ		CORE		
				◆ P0	NT LOAD		IGTH (MPo 2 16)•	1					
\mathbb{E}	LITHOLOGICAL	TPE.	GROUND ICE	•	FRACT.		(perm) ■)	.	BULK (ENSITY	(Mg/m3) .8 2.4)=	Έ
	DITTIOLOGICAL	L		-	2 4	RQD (%)	8		-).6	1.2	.8 2.4	<u> </u>	王
DEPTH	DESCRIPTION	9	DESCRIPTION				0 80		PLAS	TIC	M.C.	U	QUID	DEPTH
^		ि				OVERY			⊦	20	40		_	
0.0	SAND — silty, some fine angular gravel, o	+			70 8	0 9	0 100	:		20	40 (50 80	-	0.0
0,	IL Trozen	11 /	Ice inclusions					ļ	<u> </u>		į į	ļļļ.		
	GRAVEL AND ROCK FRAGMENTS 0x	"1 /	spherical to 1mm; Vx~30%						 					
- 1.0	— fracture 15 degrees to the vertical, ,	V	7,111,17			•••••		•		1				- 1.0
} ,	sand is frozen	1/	Frozen sand and	ļ					ļļ	. .			_	-
- 2.0	_ subrounded to angular gravel		possible ice in rock joint,	7-				<u>.</u>	†					- 2.0
7 2.0	BEDROCK—GABBRO — fine grained, massive garnet alterations	•	15mm wide											2.0
†	- undulating joint 15 degrees to the	Ш						 	 	 	- 	 -		-
- 3.0	vertical	П	3.1					ļ		<u> </u>				- 3.0
5.15	- planar joint 45 degrees to the	Ħ	2'	1	Ĭ				↑					5.0
t	vertical	П			1-1-	•		· ···		11	·†··	†		-
- 4.0		Ш	,					ļ	ļļ	. 		ļļļ.		- 4.0
L	·	Ш	4,65											
	ላ% – thin clay infill on joints, 1−2mm	H	Clay infilling	•	•				1					
- 5.0	thick, occasional oxide staining,		may have been					ļ	ļ					- 5.0
L	undulating and planar;rough joints		frozen. Now					ļ	<u> </u>					
	at 20 degrees to the vertical, few		melted.											
6.0	near horizontal planar;smooth joints	П	,					ļ				•		- 6.0
 				ļļ	ļļļ			ļ	ļļ	ļ		ļļļ.		_
7.0	^	П												
7.0	ベー luecoxene — tiny white specks, weakly	/	ah								******			- 7.0
 -	magnetic .	Ш	りた Possible thawed					ļ <u>.</u>	ļļ		.ļļ			-
- 8.0	 horizontal joints, rust brown 		clay infilling				[T]	IJ	[<u> </u>		<u>.ii</u>			- 8.0
0.0	 healed undulating near vertical 		on joints											- 0.0
†	joints — sulphide minerals in veins,							•	 	<u></u>	 			-
9.0	- dacite contains hornblende, silica,							Ш		<u> </u>	<u> </u>			- 9.0
	plagioclase, biotite and garnet								1					
	 30mm thick pegmatic vein, near 							T			11		111	
10.0	horizontal fractures, planar;smooth				╟╫╢						ļļ			10.0
	. Q		10.6			<u>l.l</u>								
[, , ,]	$^{\text{D}}$ joint at 10 degrees to the vertical	T	/* ·					4	\					
- 11.0	— joint at 45 degrees to the vertical										<u></u>		╬╬	11.0
-					ļļļ						ļļļ			
- 12.0														10.0
'"						ΪÌ							11	12.0
						++							╬╬	•
13.0]]										13.0
	30		13.65											. 5.0
ام	🤼 – planar near horizontal joint	\mathbb{H}	13-07	•		***	•						††	
14.8	- undulating near horizontal joints										ļļļ		 	14.0
L	with oxide staining							١						
	PEGMATITE - prominent biotite, trace of		;			T		"					<u> </u>	
L'I	A ENGINEEDING CONGUE	LILL NTC	LOCGED LOCGED	BY: N	IC.			ᆘ	ONDI	ETION	I DEDT	H: 15.1	<u> </u>	
1 C	BA ENGINEERING CONSULTA	IN.	IS LID. REVIEWE								93/03		- 481	—
	EDMONTON, ALBERTA		Fig. No:					Ť					je 1	of 2

	ect: Izok project feasibility study	CLIE	NT: MINNOVA II	VC.					ĪΒ	ORFI	OLF	No: 1	115	57-(). 3
	PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 3									0101			
	CENTER LE TYPE SHELBY TUBE DISTURBED	UMA	COORDINATES:	E17436.86	5; N	5294	.875		EI	LEVA 1	NON:	431.0	000 (m)	
SAME	LE TYPE SHELBY TUBE DISTURBED		SPT		IA D	NAT LO	AD CTC				VERY		C	ORE	
(E)	LITHOLOGICAL	TYPE	GROUN	D ICE		FRACI	8 FREQ	ENGTH (12). (per n	(MPa) 16 n) ●		≡ BUL	K DENS 1.2	M) YTK	g/m3)	• 3
DEPTH (m)	DESCRIPTION	SAMPLE	DESCRI	PTION		20		60	8 80		0.6 LASTIC		<u>1.8</u> (.C.		מוס ביי
15.0		- 1 1				■Ri 70	ECOVER 80	Y (%) ■ 90 1	00	7	20	40	60	80	1 6
15.0	sulfides, sharp upper contact at 30 degrees to the vertical, extremely				•								I.I.		15
16.0	coarse grained, mottled white to light grey END OF BOREHOLE (15.1 metres)	╢			- -									-	16
17.0	LIND OF BOREHOLE (15.1 metres)				ļļ				-		ļ .	<u> </u>	ļļ	<u></u>	\mathbf{H}
-															17.
- 18.0													ļ .		18.
 						-	.	 							-
19.0							·								19.
- 20.0														<u> </u>	20.0
						ļļ									
- 21.0															21.0
22.0						-									
-															22.0
- 23.0		$\ \cdot\ $	•												23.0
24.0										- -					+
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- 25.0															25.0
- 26.0											-			-	+
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27.0											<u>.</u>	11			27.0
20.0				ŀ						ļ			11.		+
28.0		,		ľ											28.0
29.0							<u> </u>								29.0
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ER	A ENGINEERING CONSULTA	MTTC	מידון ב	LOGGED BY	/: JW(<u> </u>	<u> </u>			OMP	FTIO	N DEP	<u> </u>	51-	<u> </u>
	EDMONTON, ALBERTA	11 1 1	י עו ם כ	REVIEWED	BY: D	WH						93/0	3/27		
	DEMONITOR, ALDERIA			Fig. No: 11	157-	-03							Ī	Page	2 of 2

	ECT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA INC											57-	04	
	PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 38						_				01-1			
		UMA	COORDINATES: 8		3; N1:	5535	.909				_		.100	<u> </u>		
AMP	LE TYPE SHELBY TUBE OISTURBED	-,-	⊠ SPT		1. 00.				NO		VERY			CORE		
_		ابيرا			ŀ	4	8.	RENGTH 12	16	•						
Ξ	l LITHOLOGICAL	Y.	GROUND	ICE	•	FRAC	FRE	Q. (per	m) 🌩	7	■ BU	LK DE	NSITY (Mg/m3 8 2.4) iii	
DEPTH		닏					RQD	<u>(%)</u> ▲	0							1
	DESCRIPTION	A	DESCRIP	TION		20	40	60	80	- ⁵	LASTK	C	M.C.	Ш	iquid	
٠		S			<u> </u>	■K 70	BO BO	RY (%) 90	100		20	44	0 6	0 80	- 1	
	MOSS AND PEAT — fine fibrous, amorphous		Nbn								ΙĪ					7
. 9.	granular, (40mm thick) SAND (TILL) — some silt, occasional gravel, coarse grained, well graded	ᆀ/	ice lenses in		 	f-f	+++				╁					╁
1.0	gravel, coarse grained, well graded,	I	joints, 1mm to		 	ļļ.					<u> </u>					<u>.</u>
	sharp, frozen	忆	2mm thick							-						ļ
	BEDROCK-APHYRIC RHYOLITE	7/	1.8		l		****				·		***			t
2.0	– oxide stained joints	П			ļ						ļļ.					-
		\mathbf{H}	2.4			٠										ı
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3.0						ļķ.	·		++	···[····	-					ŀ
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			4.4		•			7			 				" "	۲
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-																
	49						+-+		╁							F
.0	- stretched amygdules								.		<u> </u>					ļ.,
																Ι
	6.6— thin quartz veins		*	ļ			<u> </u>	*****	11	1		1		77		
.0	√> pegmatite dike - (0.3m thick)						┼ -┼-		- -			.ļļ.	-∔∤-			- 7
	•	HH	15		•	į	<u> </u>			1	<u>j</u>					
	^^- pegmatite, (0.1m thick)											III				
.0	69- amygdules lined with biotite and					••••	† †	++	† -	#			- † -		+	- 8
	filled with quartz/feldspar and].			ļļ	ļļ		 		ļļ.				_
١	locally muscovite, amyadules			İ												
*	stretched parallel to foliation at			ľ			Ī	7				T	11			- 9
	40 degrees to the vertical — undulating joint vertical			ŀ			 -		╬		ļ.	 -			╬	-
0.0	 undulating joint vertical pegmatite – upper contact 40 degrees 			.			<u> </u>	ļi				<u>l</u> .	<u>.ii</u> .	<u>.ii.</u>		- 1
	to the vertical, (0.1m thick)	Ш	\varkappa_{g}						1							•
1	xenolith			ŀ	7	-	TT	111	Ti.4	1			† †		††	-
ا[٥.	- pegmatite			ļ.			 			.		<u> </u>	ļļ.			- 1
[END OF BOREHOLE (10.4 metres)	$ \cdot $					<u>L.j.</u>						1			
				ſ									TT			-
.0				-				† † .	 -	1-1		mh	++		╟╟	1:
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					11								†			
ㅠ	A EMOINEDING CONCUE	<u> </u>	ICI T IND	I OCCED EN	/. D#	<u> </u>			17	<u> </u>) C	<u> </u>	<u> </u>	40	Ц	_
ព្ឋ	A ENGINEERING CONSULTA	NT		Logged by Reviewed I						NIN	<u> 11</u>	UN [EPTH /03/	10.4	m	_
	EDMONTON, ALBERTA			Fig. No: 11						NIN	<u>1510</u>	<u> ყე</u>	/vv/	Z J		

ROJECT: IZOK PROJECT FEASIBILITY STUDY	CLIENT: MINNOVA				11157-0	<u>)5</u>
IINE/PLANT/TAILINGS SITE INVESTIGATION		38 DIAMOND DRILL	<u>-</u>	ect No: 01		
OUTH OF ACCOMODATIONS		S: E17365.029; N15572,896	NO RE	VATION: 430	CORE	
AMPLE TYPE SHELBY TUBE 🖊 D	Sturbed SPT	POINT LOAD S			LLCORE	_1
		4 8	12 16	1		. -
追し LITHOLOGICA	L	JND ICE FRACT. FRE	0. (per m) ● 6 8	0.6 1	NSITY (Mg/m3) 2 1.8 2.4	B B
E DECODEDMICA		A RQC	(%) ▲	PLASTIC	M.C. LIQ	
DESCRIPTION	MA DESC	RIPTION 20 40	<u>60 80</u> ERY (%) ■			ع "
	07	70 80	90 100	20 4	0 60 80	. 0.0
0.00 MOSS AND PEAT - fine fibrous,	morphous					
granular	Vs~40%, Ico				• =	
SILT (TILL) - some sand and granic fibres, frozen	16	mm	!		╂╅┩╗	
- gravel sizes, cobbles	Nbn.					
- grey	\[\big \big \big \big \big			•		
2.0 GRAVEL (TILL) - silty, sandy, co				1-[
grained, well graded, with	cobbles 2.4		 		 ┞╌┋╌┋╌┋╌	
- clay pockets	lce lense 8 thick, clear			1		
3.0 - silt lenses	3,0 2.2 Vs~20%			•		T 3
<u>۷</u>	3 <u>-</u> 4. T Vs~50%	•		1		
BEDROCK-DACITE - contains big	otite, garnet 4,95					4
4.0 and muscovite			■	THH		
\9tite (1.25 thick)	.h.a.su.a.a.s					
λ^{90} – pegmatite, (1.25m thick), contact	snarp upper	<u> </u>	┸	 	}	
Contact					<u> </u>	<u>l</u>
5.0 6.0 sulfide inclusions, shattere	d zone			1	┢┅╆╌╆╌┢╌	
					<u> </u>	
	125					,
7.0	H (y)	" 	1111111111111111111111111111111111111			† † ⁷
<u> </u>					 	
	·					a
B.O ("
- calcite deposits along joint	s.		++		 	1
vertical foliation, possible					ļļjj	g
injection texture; particles						
stretched	$\mathbf{H}_{q,\gamma}$					
10.0 - vertical foliation END OF BOREHOLE (9.7 metre					.	
LIND OF BOILDIOLE (9.7 INChe	³ /				<u> </u>	<u> </u>
1						
11.0		.		1111		<u> </u> 1
					 	
						1 1
12.0						
			+	+++	††††	<u> </u>
13.0				. - - -	<u> </u>	∤₁
						TT
4.0			╅┿┿┿		╂╌╂╌╂╌╂╌┞╌	- 1
[<u> </u>			<u> </u>
		,				
DDA DNONTEDING CO	MOTITURA MORAL TIME	LOGGED BY: RJM	<u>: </u>	COMPLETIO	N DEPTH: 9.7	i i m
EBA ENGINEERING CO		REVIEWED BY: DWH		COMPLETE:	93/03/27	
EDMONTON, A	LBERTA	Fig. No: 11157-05			Poo	ge 1 of



			IT: MINNOVA IN						_					7-07	
			: LONGYEAR 38			100 5	00						<u>-111</u>		
		JMA	COORDINATES:	£17250.879;	N15	426.0	88	1717	_				00 (r		
SAMPL	E TYPE SHELBY TUBE DISTURBED	· 	∑ SPT		► DOIN	T I MAIN	STREN	<u> </u>		COVE	KY	L	CO	RE	-1
(m) H	LITHOLOGICAL	E TYPE	GROUN	<u> </u>	4	RACT. F	12 REO. (₁	! 16 perm) 8	,		BULK 0.6	DENSI	TY (Mg	/m3) ■ 2.4	(E)
DEPTH	DESCRIPTION	SAMPL	DESCRI	PTION		D 40	OVERY (<u>80</u> (%) ■		PLAS		<u> </u>	.c.	LIQUID	DEPTH (m)
0.0°	MOSS - grasses, frozen, (25mm thick)	\boldsymbol{h}	Nbn 0.3		70) 80	90	10	<u>) </u>		20 •	40	60	80	0.0
1.00'	SILI (IIIL) — sandy, gravelly, gravel		Nfo A	-							·				1.0
	BEDROCK—GABBRO — homogeneous, alteratio to garnet and biotite		1.25										,,		"
2.0			2.4		•		•								2.0
3.0							•								3.0
4.0	بربك_ vertical undulating joints		43 ⁵												4.0
5.0			•	-											5.0
6.0].											- 6.0
7.0			7 ⁰⁵												-
,.u			1.4												7.0
8.0				ļ							ļ				8.0
0.0															9.0
0.0	END OF BOREHOLE (10.0 metres)		ØJ												10.0
11.0				 								ļļ			- 11.0
2.0				ļ <u></u> .											- - 12.0
3.0															12.0
3.0	•]											- 13.0 -
4.0															- 14.0 -
	A DIATIONNA GOVERN			li googge gat	<u> </u>										
ĽВ	A ENGINEERING CONSULTA	NT	'S LTD.	LOGGED BY					C	DMPL	ETION	DE	PTH:	10.0 m	
	EDMONTON, ALBERTA			Fig. No: 11					<u> </u>	/MLT	CIE:	3)/ (03/20	Page 1	

LITHOLOGICAL GROUND ICE PINT LOAD STRENGTH (MPo) + 4 8 12 16	0 (m) CORE Y (Mg/m3) = 1.8 2.4
SAMPLE TYPE SHELBY TUBE DISTURBED SPT MORECOVERY TO STRENGTH (LIPPO) 4 8 12 16 16 16 12 16 16 16 12 16 16 16 16 16 16 16 16 16 16 16 16 16	CORE Y (Mg/m3) 1.8 2.4 LIQUID 60 80 0
COLLUVIUM - gravel, cobbles and boulders, subrounded to angular, loose - stratified with coarse grained sands, angular to rounded Sand layers Sand lay	Y (Mg/m3) 18 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.4 2.5 1.8 2.5 1.8 2.4 2.5 1.8 2
LITHOLOGICAL DESCRIPTION Stratified layers to 500mm Stratified layers Stratifie	60 80 0
DESCRIPTION DESCR	60 80 0
70 COLLUVIUM — gravel, cobbles and boulders, subrounded to angular, loose — stratified with coarse grained sands, angular to rounded -2.0 -4.0 -5.0 -5.0 -5.0 -5.0 -5.0 -5.0 -5.0 -5	60 80 0
subrounded to angular, loose - stratified with coarse grained sands, angular to rounded -2.0 -3.0 -4.0 -4.0 -5.0 -5.0 -5.0 -5.0 -5.0 -5.0 -5.0 -5	1
- 3.0 sands, angular to rounded - 3.0 stratified layers to 500mm - 4.0 sand layers - 5.0 sand layers - 5.0 sand layers END OF BOREHOLE (5.5 metres)	2
- 3.0 - 4.0 - 5.0 - 5.0 - 5.0 - 5.0 - 5.0 - 5.0 - 5.0 - 5.5 - 5.0 - 5.5 - 5.0 - 5.5 - 5.0 - 5.5 - 5.0 - 5.5 - 5.0 - 5.5 - 5.0 - 5.5 - 5.0 - 5.5 -	
- 3.0 - 4.0 - 4.0 - 5.0 -	
-4.0 -5.0 Signature Signat	3
- 5.0 5.25 BEDROCK END OF BOREHOLE (5.5 metres)	1 1 1 1 1
- sand layers - 5.0 5.25 BEDROCK END OF BOREHOLE (5.5 metres)	
BEDROCK S.5 metres)	4,
END OF BOREHOLE (5.5 metres)	5.
	6.
- 7.0	7.
	8.0
- 9.0	9.0
	10
- 11.0	11
	12
- 13.0	13.
	14.
EDA ENGINERDING CONCILIONANTO ETTE HOCCED DV. BIN LONG CTON CETON	The F.S.
EBA ENGINEERING CONSULTANTS LTD. LOGGED BY: RJM COMPLETION DEPTOR REVIEWED BY: DWH COMPLETE: 93/03	IH: 5.5 M
EDMONTON, ALBERTA Fig. No: 11157-08	Page 1 of

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ACCOM			L: LONGYEAR 3	GROMAIG 8	DRIL	ı –					_					<u>'-09</u>	
SAMPL	1	UMA	00000000			-				Lit	pject	. No	: 010	ו – וע	1115	7	
	E TYPE SHELBY TUBE DISTURBED		COORDINATES:	E17340.17	6; N1	156	45.5	65			_	_		.100			
DEPTH (m)			⊠ SPT							NO R		/ERY			COR	E	
	LITHOLOGICAL	E TYPE	GROUN	D ICE	1	4		3	NGTH (12 (per n 6	16	i	■ BUI 0.6	LK DE	nsity 2	(Mg/	'm3) ≡ 2.4	<u>E</u>
	DESCRIPTION	SAMPL	DESCRI	PTION	\vdash	20 70	REC	OVERY		<u>80</u>	PL	ASTIC	4	M.C.	50	LIQU (80	EPIH DE
- 1.0	COLLUVIUM — bouldery, oxide staining along joints, shattered, angular with sand infill — coarse grained, sharp, frozen	<i>Z</i>	ice lenses along joints ⁰ <1mm	b							•						0.0
- 2.0	nozen		Nbn 2-05								•				****		1.0
- 3.0			Vs, ^{2.} √c~30%								•						
- 4.0	4.4	1/	みか Nbn みつ														4.0
	BEDROCK—APHYRIC RHYOUTE — disseminated sulfides, fresh to slightly weathered with oxide staining, calcite infill along joints, highly		4.7 4.4														5.0
6.0	fractured from 4.4-4.7m, undulating subvertical joints at 15 degrees to the vertical, horizontal joints at 65-70 degrees to the vertical, some						•		•								6.0
7.0	near vertical, very dark grey — patchy muscovite — occasional healed undulating vertical joints, dark grey		13%														7.0
9.0	Joints, dark grey		. •														8.0
10.0	0 ·																9.0
	ND OF BOREHOLE (10.4 metres)		10 .k														10.0
12.0].													11.0
13.0				-													- 12.0 - - 13.0
14.0] 													- 14.0
मा १	A ENGINEEDING GONGUE) TITE	O TEN	,	4 0"						Di 10						-
rr\	A ENGINEERING CONSULTA	N'I'	S LTD.	REVIEWED							OMPL OMPI	FIL FII()N D	EPTH /03/	: 10	.4 m	
	EDMONTON, ALBERTA			Fig. No: 11						┪	-ini L	<u> </u>	. 3 3/	, UJ/	_	age 1	of 1

	CT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA INC.		_		11157-10	
	PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 38 DIAMOND		Projec	ct No: 01	D1-11157	
	WN YARD	UMA	COORDINATES: E17574.26	3; N15295.788	ELEVA	ΠΟΝ: 430	.600 (m)	
SAMPL	LE TYPE SHELBY TUBE 🖊 DISTURBED		⊠ SPT 📃		NO RECO	OVERY	CORE	
(E)	LITHOLOGICAL	TYPE	GROUND ICE	◆POINT LOAD STRENGTH (4 8 12 ● FRACT. FREQ. (per m 2 4 6	6 I	■BULK DE	NSITY (Mg/m3) = 2 1.8 2.4	
DEPTH	DESCRIPTION	SAMPLE	DESCRIPTION	△ RQD (%) △ 20 40 60 8 ■ RECOVERY (%) ■		PLASTIC I	M.C. LIQUID	
0.0, 3	PEAT - fine fibrous, frozen	+		70 80 90 10	0	20 4	0 60 80	4 0
	SILT (TILL) — some sand, fine gravel, dark brown, frozen		Non Ice lenses to 1mm; Vs~30%				•	Ţ
1.0	light brown - cobble gravel and rock fragments b	`. 5	lce lenses to 2mm; Vs~40%					† 1.
2.0	light brown - cobble, gravel and rock fragments, subrounded to angular - sandier, fine to medium grained		lce lenses to 3mm Ice lenses <1mm			•		- 2
3.0	gravel, light grey brown, frozen brown, frozen		Vs~20%					}
	BEDROCK-GABBRO — fine grained, massive fresh to slightly weathered APHYRIC RHYOLITE (possible dacite) —]	3.4		4			- 3.
4.0	muscovite, biotite, siliceous matrix, very fine grained							4.
5.0	 joints inclined at 20-40 degrees to the vertical, slight alteration on undulating to planar joints 							- 5.
6.0	and a plant							6.
	END OF BOREHOLE (6.4 metres)	╫	b-4					- 0.1
7.0								- 7.0 -
3.0								- 8.0
0.0								-
								- 9.(-
0.0								- 10
1.0								- 11
2.0								12
								12
5.0			ļ					13.
.0								14.
	A Divolve		·					
EB/	A ENGINEERING CONSULTA	NT	S LTD. LOGGED BY		COM	PLETION D	PTH: 6.4 m	_
	EDMONTON, ALBERTA		REVIEWED	BY: DWH	TCOME	LETE: 93 ,	/03 /07	

	ECT: IZOK PROJECT FEASIBILITY STUDY	CLIE	NT: MINNOVA INC.		BOREHOLE No: 11157-	11
	/PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 38 DIAMONE		Project No: 0101-11157	11
	RSION CHANNEL-DAM	UMA	COORDINATES: E15343.9	26; N16157.765	ELEVATION: 422.200 (m)	
SAMI	PLE TYPE SHELBY TUBE DISTURBED		⊠ SPT E		NO RECOVERY CORE	
(E)	LITHOLOGICAL	TYPE	GROUND ICE	◆POINT LOAD STRENGTH (1 4 8 12 1	16) = (E
ОЕРТН	DESCRIPTION	SAMPLE	DESCRIPTION	■ RECOVERY (%) ■	BO PLASTIC M.C. L	konio HEPE
0.0	BEDROCK-GABBRO		Ice lenses in	70 80 90 10		0.0
- 1.0	√% — fine grained, fresh, massive, moderately strong, undulating;rough to smooth near vertical joints with		joints 3 to 4mm thick			1.0
- 2.0	slight oxide staining, numerous very thin near vertical white stringers					2.0
- 3.0	norizontal planar joints, near vertical undulating;smooth joints with oxide staining, planar;smooth joint at 35 degrees to the vertical		25mm thick ice lense in joint, clear, at 20 degrees to the			3.0
- 4.0	joint of 30 disgrees to the vertical 7		vertical			4.0
- 5.0	:					- 5.0
- 5.0 - 7.0	7° - near vertical quartz filled fractures		، ۲			6.0
- 8.0	2-5mm thick					7.0
- 9.0						8.0
- 10.0	two vertical to near vertical joints, undulating;rough	l o	. 1		<u>**</u>	
- 11.0						11.0
- 12.0	undulating joint filled with silt/	1/1	_5			12.0
14.00	√P - near horizontal planar;rough joints with oxide staining					13.0
	ND OF BOREHOLE (14.7 metres) Thermistor #910 installed at completion		(A) .	1	<u> </u>	
ED.	A ENGINEERING CONSULTA	NTS	S LTD. LOGGED B' REVIEWED	Y: RJM JWC BY: DWH	COMPLETION DEPTH: 14.7 COMPLETE: 93/04/06	m
	EDMONTON, ALBERTA		Fig. No: 1		100m/LETE: 93/04/06	Í

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INE/	CT: IZOK PROJECT FEASIBILITY STUDY PLANT/TAILINGS SITE INVESTIGATION	DRIL	NT: MINNOVA INC. .: LONGYEAR 38 DIAM		Pro		0101-11	_	
	SION CHANNEL-EAST END	UMA	COORDINATES: E1724				129.700 (
SAMPI	LE TYPE SHELBY TUBE DISTURBED		⊠ SPT			COVERY		JRE .	• •
DEPTH (m)	LITHOLOGICAL DESCRIPTION	AMPLE TYPE	GROUND ICE DESCRIPTION		6 } ● 3		DENSITY (M 1.2 1.8 M.C.	lg/m3)≡ 2.4 ∢UQUID	
		S		## RECOVERY (%) ## 70 80 90 10		20	40 60	80	;
0.0	PEAT — roots, coarse fibrous, brown, frozen	\mathcal{L}	Nbn ⁶⁻³						Γ
1.0	 silty, gravel and cobble fragments, rootlets, frozen 	K	1,4			•			Ţ,
	SILT (TILL) - trace of gravel, cobbles, sand and organics, very dark brown,	<u>-</u> _	\b ce lenses <2mm			•			+
2.0	frozen — sandy, rock fragments, oxide		thick 1.7 Vs, Vr~25%			•			†;
ر 3.0	staining, light grey — cobbles, silt lenses — rock fragments		29			.			 - -
	BEDROCK-GABBRO - trace of disseminated sulfides, fresh to slightly								+
4. 0	weathered, moderately strong, horizontal planar joint — rehealed joints filled with quartz	\parallel	4.15						<u>'</u>
5.0	1-2mm thick, undulating near vertical joints, numerous thin healed undulating vertical joints		щ, 5 5						ļ.
۰.o	6 sulfide minerals on joint surface, fine grained								- (
'.o	DACITE								Ţ,
Į	η» – occasional gabbroic veinlets η» – garnet metacrysts, near horizontal		4.7						 - -
	planar;smooth joints, planar;rough joints at 45 degrees to the vertical 4 %— abundant garnet metacrysts		,						}
.0	to abundant gamet metacrysts							ļļļ	- 9 -
0.0									1
1.0	" undulating;rough joints at 30 degrees		10.75						- 1
	to the vertical with oxide staining								
2.0									1:
5.0			~.						1)
.0	o hour undulating;rough joint at 30 degrees to the vertical, planar;rough joint		13.4						- 1
	at 70 degrees to the vertical		<u> </u>						- <i>:</i>
EE	BA ENGINEERING CONSULT.	AN'		GED BY: JWC EWED BY: DWH			N DEPTH: 93/04/0		·
	EDMONTON, ALBERTA			No: 11157-12	<u> </u>	VINIT LETE	. 3J/U4/L		of

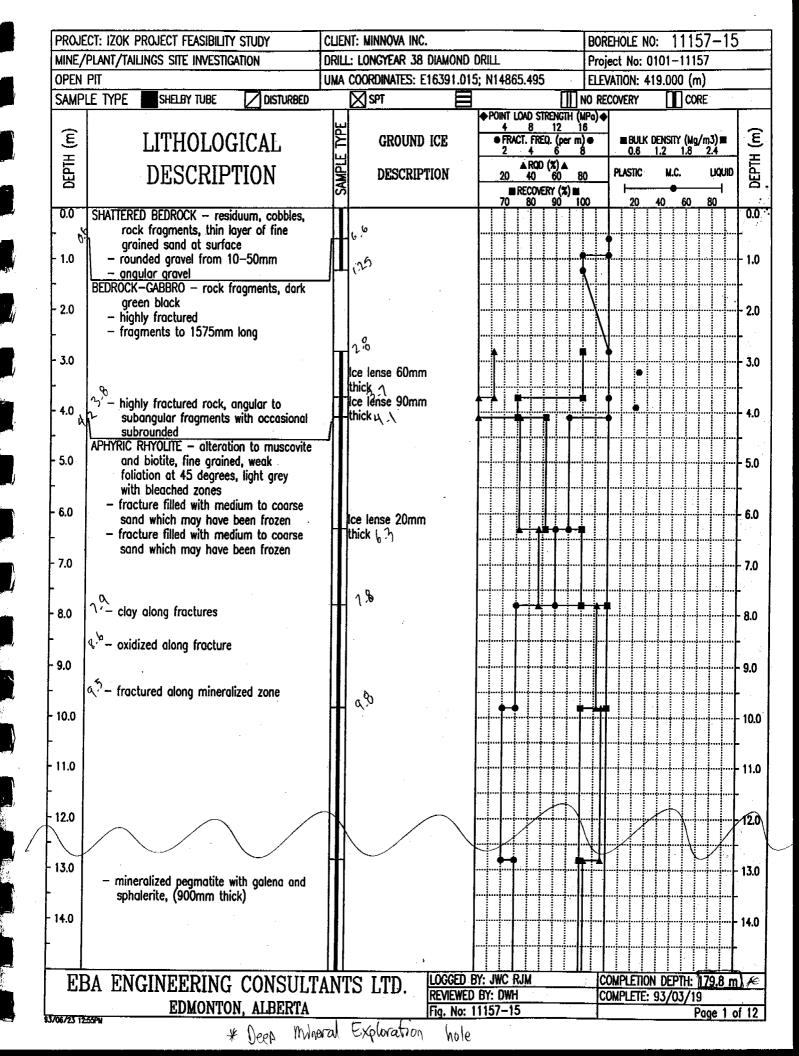
	JECT: IZOK PROJECT FEASIBILITY STUDY	CLIE	NT: N	AVONNIN	NC.							B	ORE	HOLE	NO	: 1	115	7-	12
	/PLANT/TAILINGS SITE INVESTIGATION	DRIL	L: LC	NGYEAR	38 DIAM	OND (RILI	_				-	_			01-1			
	rsion Channel—East end	UMA		RDINATES	: E1724	9.299	; N1	577	9.39	2		Ð	EVA	TION	42	9.700	(m))	
SAM	PLE TYPE SHELBY TUBE DISTURBED		M	SPT		且	r							OVERY			COR	E	
5 ا	I Imilot o creat							4	<u>8</u>	STREN 1:	2	16	•						
E	LITHOLOGICAL	≥		GROU	ND ICE		•	FRAC 2	CT. FI 4	ŒQ. (per n	n) • 8	7	₩ BU 0.6	LK DE	ensity .2	(Mg/	m3) ≡ 2.4	ı 3
DEPTH	DESCRIPTION	SAMPLE		DESCR	IPTION			20	▲ RQ	D (%)	, A	DA.	٦,	PLASTK		M.C.		LIQU	
	DEDOMIN TION	B		DUDOI	II IION				<u>40</u> Reco	VERY	(%) =	80	┨	<u>—</u>		-	,	<u> </u>	"
15.0	DACITE - (continued)	+	┢				\vdash_{Γ}	<u>70</u>	80	90	<u>) 1</u>	00 :	+	20	<u> </u>	10 (60	80	15
├ `	 numerous gabbro dykes in dacite from 				٠.					-∔∔		 		14		ļļ	<u>.</u>		
- 16.0	15.2-15.8m, (30-50mm thick)					·			.	<u>.</u> ļ	<u></u>								16.
-			Ι,						į				-						"
1.70	undulating;rough joint at 20 degrees	╂	16	1		-	•		<u>-</u>	1			•		-	<u> </u>		7	" .
- 17.0	to the vertical, planar;smooth joint				•			╅		††	<u> </u>	 	 -	11			╁╌╁╴	-	17.
 	at 50 degrees to the vertical							-	<u>.</u>	╁╁		-		╬		<u> </u>	!		
- 18.0					,					<u>.</u>			 	11		<u></u>	<u>ļ.</u> ļ.		18.
-			1							<u> </u>	<u>.</u>								
- 19.0	WD								į										1.
	MASSIVE SULFIDE STRINGER — sharp inclined contact, framboidal texture, silica																		
[(q.	h with pyrite and pyrrhotite	H					·	11	<u> </u>				-				m	***	+
20.0	END OF BOREHOLE (19.7 metres)	11						1		╁┈╁	·	╟╬					 - -	-	20.
†	·							╂		╀┼		-					 		
- 21.0								ļļ.		<u> ļ</u> .	<u> </u>			<u></u>			<u> </u>		21.1
+								<u> </u>		<u></u>				L.L.					
22.0													ı						Τ
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23.0						ŀ		-			+				╫			-	
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- 24.0						ļ.,					.jj				1.1				24.0
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- 25.0															Π				T
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27.0	•						-		 ļ			[↓		.	27.0
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- 28.0																			
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- 29.0	•						\blacksquare		╫			-	-			╁╬.			- 29.0
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7.77	A DMCINEEDING CONCERN				11000		1 1		Ш					╝					
rt	BA ENGINEERING CONSULTA	NΤ	S]	LTD.	REVIE	D BY: WED B						4	OMF	1 <u>11</u>	<u> </u>)EPTH /04/	: 19 /07	.7 m	
3/06/23 12	EDMONTON, ALBERTA				Fig. N							Ĭ	(m)			<u>/ </u>		age 2	of 2

	ECT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA INC.	000		IOLE NO:	11157-1
	PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 38 DIAMOND			t No: 010	
	SION CHANNEL-WEST END	UMA	COORDINATES: E15600.00			110N: 425.	
SAMP	LE TYPE SHELBY TUBE OISTURBED	_	SPT <u></u>		O RECO	VERY	CORE
(m)	LITHOLOGICAL	ТУР	GROUND ICE	◆POINT LOAD STRENGTH (I 4 8 12 1 ● FRACT. FREQ. (per m 2 4 6	6 I	■ BULK DEN: 0,6 1,2	SITY (Mg/m3) 2. 1.8 2.4
DEPTH	DESCRIPTION	SAMPI	DESCRIPTION	△ RQD (%) △ 20 40 60 8 ■ RECOVERY (%) ■) P	LASTIC I	vi.c, Liqui
0.0	PEAT - roots, coarse fibrous, frozen	1	Nbn 0.0	70 80 90 10	0	20 40	60 80
- 1.0 ⁶	SILT (TILL) — trace of sand, gravel and cobbles, angular cobbles fragments,		0.95 1,95			•	
- 2.0	frozen — dark brown		Ice lenses 1 to 3mm thick \ 95 Vs. Vr. 30%				
· · 3.0	√ - boulders, cobbles, inclined joint 10mm wide filled with frozen sand and gravel, frozen	Z	Nbn 2.55 3.15				
4.0		\ _ /	3.8				
5.0	BEDROCK-DACITE - fresh, dark grey		4,65				
6.0	oxide stained, joint at 60 degrees to the vertical infilled with silt and gravel, occasional layers of sulphide minerals inclined 30		6.7				
7.0	degrees to the vertical - slightly weathered, more prominent coarse muscovite, very dark brown						
8.0	END OF BOREHOLE (6.1 metres)	1	•. •				
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
EB	BA ENGINEERING CONSULTA		S LTD. LOGGED				PTH: 6.1 m
	EDMONTON, ALBERTA		iREVIEWED	BY: DWH	ICOM	PLETE: 93/	04/00

DDO IE	CT: IZOK PROJECT FEASIBILITY STUDY	CLIEN	IT: MINNOVA INC.									Te	OR	EHO	OLE	- N	o: ·	11	157	7-1	4	
	PLANT/TAILINGS SITE INVESTIGATION		LONGYEAR 38 DIAMO)ND D	RIL	Ī											010			_	<u> </u>	
OPEN		UMA	COORDINATES: E16018	3.570;	N	14	94	5.9	09			_		_			17.					
	E TYPE SHELBY TUBE DISTURBED	L	⊠ SPT			•						NO	RE	COV	ÆR'	Y			COF	₹E		
0, 0,					₽P	OII	NT I	LOAL		REN 12	STH	(MPc	a) •									
(E)	LITHOLOGICAL	TP	GROUND ICE	Ī		•	FRA					m) ●)	1	m Bi	ŲLΚ	DEN	SITY	(Mg/	/m3) I 2.4	•	ОЕРТН (m)
		띨		ł		_	<u> </u>	<u></u>	ROD	(%)	<u> </u>	0_		Т					.0			툿
ОЕРТН (m)	DESCRIPTION	SAMP	DESCRIPTION	ŀ		2	20_	4	0	60 Ry (80		۱"	ast —	IIC		M.C.		ЦQI 	ן עוט	
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ر) 1.0		⊣			••••	••••	ļ	•			1	-	·[···	· ····			••••		*****			- 1.0
-	WATER		•.			••••	ļ	·	-	-			<u> </u>	· ····					·	-	-	-
2.0							ļ	ļ	ļ				ļ	.				ļ			-	- 2.0
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4.0							ļ	ļ	ļ	}			<u>.</u>	.[- 4.0
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							İ							<u>.</u>								- 5.0
- 5.0														<u> </u>								- 3.0
 							<u> </u>	†		1			<u> </u>	·								-
- 6.0							ļ	ļ	ļ				-	·							-	- 6,0
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- 7.0	•						ļ	Ĺ	ļ				ļ	<u> </u>								- 7.0
7.0														ł								7.0
T							1	Ĭ		1			1	1				•	•		1	-
- 8.0				Ī	••••	••••	ļ		ļ	}			-	 								- 8.0
-							ļ	ļ	ļ				-	 					-			-
- 9.0							ļ	ļ	ļ	<u> </u>			ļ	ļ		<u></u>	Į.		ļļ			- 9.0
																- 12	İ					
F.				ĺ		••••								T'''				Ī				
- 10.0	10.4		10.4				<u>.</u>	-		H	.	+	-	 	-	 		-			╬┪	- 10.0
-	SILT — trace fine grained sand and clay,		Not Frozen			••••	-	-					-	-	-	-			╂		-	-
- 11.0	well consolidated, sensitive, grey to brown	А	1/20				ļ	ļ	<u>.</u>	ļļ.	-	<u></u>	<u> </u>	ļ	ļļ	•	<u>.</u>	ļ	ļļ			- 11.0
	√⁄o – gravel	Д	11.4				ļ			L.J.	<u>ļ.</u> ,		ļ	<u> </u>		•	<u> </u>	<u>.</u>	<u> </u>		<u> </u>	-
- 12.0	- some clay, trace of fine grained sand, dense, non plastic		11.55																			120
[12.0	BOULDERS - plagioclase crystals, sulfide	╜	2-15		****	••••						Ī		ļ			Ï	Ī				- 12.0
	minerals					••••	ļ				+							-	1		†	- :
- 13.0	soft drilling for 150 to 200mm					••••	ļ			 			ļ	ļ				- ¦	 		╬╌	- 13.0
+ 1	gy rounded, weathered	H	13.4	J.			ļ	-		<u>. ļ</u> .	<u>.</u>		<u> </u>	ļ	ļļ		ļ.	ļ	ļļ			-
- 14.0			·				ļ				ļ		ļ					<u>.</u>	ļļ			14.0
	ریار بیر ^۲ sand or silt layer, very soft																					
	sultu or silt tuyer, very soft		•	ľ						Ī	Ť	1	<u> </u>				ĺ	Ţ	T			•
 	BA ENGINEERING CONSULT	ווו <u>ו</u> יזא אי	TO TAID 1000	GED B	<u>Y:</u>	R	<u>:</u> JM	JW	C		<u>:</u>			COV	APL.	ETI	ON	DEP	TH:	174.	- 1 4 п	1*
انا		. AIN	נס דו חיי EEAI	EWED	B١	/ :	DW	ΛΉ					1	COV	IPL	ΕŢΕ	: 9.	3/0	3/2			. 11
L	EDMONTON, ALBERTA	oral	Fig.	No: 1	11	57	<u> </u>	14								- 1			- 1	rage	1 (of 12

* Deep Mineral Exploration hole

1	CT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA INC.	10.000	_	EHOLE No: 11157		
	PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 38 DIAMON			ect No: 0101-1115		
OPEN		UMA	COORDINATES: E16018.			/ATION: 417.000 (m		_
SAMP	E TYPE SHELBY TUBE OISTURBED		<u> </u>	POINT LOAD STRENGTH (Т
(E)	LITHOLOGICAL		GROUND ICE	4 8 12 ● FRACT. FREQ. (per n	16 <u> </u>	■ BULK DENSITY (Mg/ 0.6 1.2 1.8	m3) =	
) H				2 4 6 ARQD (%) A	8			-
ОЕРТН (m)	DESCRIPTION	8	DESCRIPTION	20 40 60	BO	PLASTIC M.C.	TIĞNID	1
-		S	<u> </u>	■ RECOVERY (%) ■ 70 80 90 1		20 40 60	80	
15.0	BOULDERS - (continued)							
(5)	BEDROCK-GABBRO - medium to coarse grain	ied,	K.8					
- 16.0	massive, numerous thin quartz/ carbonate veinlets, dark green	▕┸	- I 11. /					
-	black, speckled intrusions - pegmatitic stringer, orange stained	П	16.45		1			••
- 17.0	- pegindude stringer, ordinge stanzed							
-								
- 18.0								
ļ								
19.0	1	Ш	45					1
- 20.0	AND STORY OF THE STORY		L /		H			·
- \					$ \cdot $			•
- 21/0							_ __	
	. A		·					
- 22.0								
		Ц						
- 23.0			,					-
-		i i i						
- 24.0								ı
<u> </u>							-	ł
- 25.0	- pegmatite stringers, numerous quartz/							l
-	feldspar stringers, mineral ateration on joints							
- 26.0	 trace of polymetallic sulfide minerals, joint at 20 degrees to the 							
	vertical							I
- 27.0								İ
- 27.0								t
-								ł
28.0								ŀ
-	- minor iron staining on joints, joints	H						ŀ
- 29.0	 minor iron staining on joints, joints at 35 degrees and 50 degrees to the vertical 							-
.								L
			,					ĺ
EF	BA ENGINEERING CONSUL	TAN'	TS LTD. LOGGE	D BY: RJM JWC	C	OMPLETION DEPTH: 1 OMPLETE: 93/03/21	74.4 n	n
	EDMONTON, ALBERTA		II/LASL*	VED BY: DWH o: 11157-14	<u> </u>		ige 2 d	_



MORTH DAM-MORTH ABUNENT UMA COORDINATES: £12377.243; N22361.178 ELEVATION: 434.600 (n)	PROJECT: IZOK PROJECT FEASIBILITY STUDY	CLIENT: MINNOV		ADII I		REHOLE N		7-16	,
SAMPLE TYPE SMELET TURE DISTURBED STUDIES LITTHOLOGICAL DESCRIPTION DESCRIPTION	MINE/PLANT/TAILINGS SITE INVESTIGATION NORTH DAM—NORTH ABUTMENT				 _				
ELITHOLOGICAL DESCRIPTION DESC									
SAND (IIIL) — sity, gravelly, coarse grained, well graded, gravel rounded to angular, frozen to angular, fro		ابيا	OUND ICE	4 8 12 ● FRACT. FREQ. (per 2 4 6 △ RQD (%) △ 20 40 60 ■ RECOVERY (%)	16 m) Φ 8	BULK 0.6 PLASTIC	M.C.		DEPTH (m)
to angular, frozen boulders boulders boulders in sand and silt (till) motify BERDOCK-PEGNATITE - biolite, coarse grained, weathered zones, soft - weathered, fractured 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	jointo (iint), gravoily, course	Nbn ⁰ , 3		/U 8U 9U	100	• 20	40 60	80	0.0
benoticy Benotics Ben	to angular, frozen	(1/5	·						1.0
zones, soft weathered, fractured 4.0 5.0 6.0 7.0 - vuggy, weathered, oxide stained joints DACITE 8.0 9.0 - weathered, polished joints 0, - vertical joints, undulating calcite build up in fractures 11.0 12.0 END OF BOREHOLE (14.4 metres)	matrix	72		•					- 2.0 -
5.0 6.0 7.0 the vuggy, weathered, oxide stained joints DACITE 8.0 9.0 A.— weathered, polished joints (\(\infty \) - vertical joints, undulating calcite build up in fractures 11.0 12.0 END OF BOREHOLE (14.4 metres)	3.0 – biotite, coarse grained, weathered zones, soft]							- 3.0 -
11.0 END OF BOREHOLE (14.4 metres)	,	¥.4							4. 0
DACITE DACITE 10.0 No. — weathered, polished joints No. — vertical joints, undulating calcite build up in fractures 11.0 12.0 END OF BOREHOLE (14.4 metres)	6.0								- 5.0 - 6.0
10.0 (No - vertical joints, undulating calcite build up in fractures)	DACITE	<u> </u>							- 7.(- - 8.(-
11.0 12.0 13.0 14.0 END OF BOREHOLE (14.4 metres)	weathered, points joints (x)0 - vertical joints, undulating calcite								- 9.0 -
12.0 13.0 14.0 END OF BOREHOLE (14.4 metres)		10,45							· 10. · · 11.
END OF BOREHOLE (14.4 metres)	12.0	11,45							12.
END OF BOREHOLE (14.4 metres)	3.0								13.0
		W. M.							14.0
THE TAXABLE PROPERTY OF THE PARTY EBA ENGINEERING CONSULT	ANTS LTD	LOGGED BY							
EDMONTON, ALBERTA Fig. No: 11157-16 COMPLETE: 93/03/30 Page 1 of		תווח חוויי	WEALCHED !		C	OMPLETE:			

the vertical, undulating;rough with								. 11
the vertical		6 8						- - 11
near horizontal undulating;rough joints with oxide staining, one								- - 10
αν – quartz pegmatite, milky white	╢	q.2		1				- 9. -
 trace of sulfides 								- 8
rock, fine to medium grained, moderately strong, medium to coarse		1.9						-
	\mathcal{H}	1,05						-
gravel clasts in contact with one another	3							<u> </u>
5,0 gravelly, well graded	ζ ι Η							ŀ
h	5,4							-
cobbles, rock fragments, gap graded								-
fine sand and silt, thin inclined bedding, grey, frozen	کار	lense,3mm thick clear			•			-
25	4/	layer.			•			-
ルー rust brown		ൂ.0 Ice lenses~2mm						ļ
black organic laminae trace of coarse grained sand, very	17	in						+
- fine gravel, horizontally stratified, frozen	Z	Nbn O · /						+
	<i>₹</i>	4	■ RECOVERY (%) ■ 70 80 90 to	10	20	40 60	80	-
	MPLE	DESCRIPTION	2 4 6 8 ▲ RQD (%) ▲ 20 40 60 8	0 1		1.2 1.8 M.C.	2.4 LIQUID	1
LITHOLOGICAL	TYPE	GROUND ICE	<u>4 8 12 1</u>	6	≡ BULK 0	ENSITY (Mg/	m3) ≡	
LE TYPE SHELBY TUBE DISTURBED	UMA	SPT E		NO RECO				_
	LITHOLOGICAL DESCRIPTION SAND — silty, fine grained, grey, frozen — fine gravel, horizontally stratified, frozen — black organic laminae — trace of coarse grained sand, very thin bedding — rust brown — 25mm thick silt layer fine sand and silt, thin inclined bedding, grey, frozen — some silt and gravel, trace of cobbles, rock fragments, gap graded — gravel clasts in contact with one another — cobbles BEDROCK—DACITE — shattered and fractured rock, fine to medium grained, moderately strong, medium to coarse grained sand on horizontal joints — trace of sulfides — granite pegmatite vein — quartz pegmatite, milky white GRANITE — coarse grained to pegmatitic, near horizontal undulating;rough joints with oxide staining, one planar;rough joints at 25–30 degrees to the vertical, undulating;rough with slight alteration	PLANT/TAILINGS SITE INVESTIGATION IDAM—CENTRE OF DAM LE TYPE SHELBY TUBE DISTURBED LITHOLOGICAL DESCRIPTION SAND — silty, fine grained, grey, frozen — fine gravel, horizontally stratified, frozen — black organic laminae — trace of coarse grained sand, very thin bedding — rust brown — 25mm thick silt layer — fine sand and silt, thin inclined bedding, grey, frozen — some silt and gravel, trace of cobbles, rock fragments, gap graded — gravel clasts in contact with one another — cobbles BEDROCK—DACITE — shattered and fractured rock, fine to medium grained, moderately strong, medium to coarse grained sand on horizontal joints — trace of sulfides — granite pegmatite vein — quartz pegmatite, milky white GRANITE — coarse grained to pegmatitic, near horizontal undulating;rough joints with oxide staining, one planar;rough joints at 40 degrees to the vertical — numerous joints at 25—30 degrees to the vertical, undulating;rough with slight alteration — numerous near horizontal planar;rough joints — highly fractured from 12.25—12.4m,	PLANT/TAILINGS SITE INVESTIGATION IDAM-CENTRE OF DAM LE TYPE SHELBY TUBE DESCRIPTION SAND — silty, fine grained, grey, frozen — fine grovel, horizontally stratified, frozen — black organic laminae — trace of coarse grained sand, very thin bedding — rust brown — 25mm thick silt layer — some silt and gravel, trace of cobbles, rock fragments, gap graded SPT SONT of silt ayer. Vertical ice lenses-2mm yes-50% of silt ayer. Vertical ice lenses ~1mm SPT BEDROCK-DACITE — shattered and fractured rock, fine to medium grained, moderately strong, medium to coarse grained sand on horizontal joints — quartz pegmatite, milky white GRANITE — coarse grained to pegmatitic, near horizontal undulating, one planar, rough joint at 40 degrees to the vertical, undulating; rough with slight alteration — numerous near horizontal planar; rough joints — highly fractured from 12.25—12.4m,	PLANT/TAILINGS SITE INVESTIGATION IDAM—CENTRE OF DAM LITTHOLOGICAL DESCRIPTION SAFLEY TUBE LITHOLOGICAL DESCRIPTION SAND — silty, fine grained, grey, frozen—fine gravel, horizontally stratified, frozen—lokak organic laminae—trace of coarse grained sand, very thin bedding This sand and silt, thin inclined bedding, grey, frozen—some silt and gravel, trace of cobbles, rock fragments, gap graded SAND—gravelly, well graded To gravelly, well graded To	PLANT/TAILINGS SITE INVESTIGATION IDAM—CENTRE OF DAM LITTHOLOGICAL DESCRIPTION SAND - sithy, fine grained, grey, frozen - fine gravel, horizontally stratified, frozen - black organic laminae - trace of coarse grained sand, very thin bedding, grey, frozen - some silt and gravel, trace of cobbles, rock fragments, gap graded """ gravelly, well graded """ gravelly, well graded """ gravelly, well graded """ gravelly, well graded """ gravel clasts in contact with one another - cobbles - provided to the permatitic, need and no horizontal joints - trace of sulfides - gravel clasts in contact with one another - gravel clasts in contact with one another - quart pegmatitic vein - quart pegmatiti	PLANT/TAILINGS SITE INVESTIGATION IDAM—CENTRE OF DAM LITYPE SPELBY TUBE DESCRIPTION DESCRIPTION SAND — sitty, fine grained, grey, frozen—fine grovel, horizontally stratified, frozen—black organic laminae—trace of coarse grained sand, very thin bedding — nast brown—25mm thick sitt layer — some sitt and gravel, trace of cobbles, rock fragments, gap graded — gravel closts in contact with one another rock, fine to medium grained, moderately strong, medium to coarse grained sand on horizontal undulating; rough joints with oxide staining, one planar; rough joints at 04 degrees to the vertical, undulating; rough with sight afteration—numerous near horizontal planar; rough joints — injuly fractured from 12.25—12.4m, IDANG CORONANCES: £12081.240; 121968.830 EFLYATION: 43 SPT FORMT LING STRENCH (LIPO) & PASTIC PROWIT LING STRENCH (LIPO) & BESCRIPTION DESCRIPTION DESCRIPTION DESCRIPTION PROWIT LING STRENCH (LIPO) & BESCRIPTION PROW	PLANT/TAILINGS SITE INVESTIGATION IDMA—CENTRE OF DAM LITHOLOGICAL DESCRIPTION SAND—sitly, fine grained, grey, frozen—fine gravel, horizontally stratified, frozen et urace of coarse grained sand, very thin bedding - unst brown - z5mm thick sitt layer - some sitt and gravel, trace of copbles, rock fragments, gap graded - "gravelly, well graded - "gravelly, well graded - "gravelly, well graded - "gravelly, well graded - "gravelly, well graded - "gravelly, well graded - "gravel clasts in contact with one another - quartz pegmatite vein - quartz pegmatite vein - quartz pegmatite, milky white GRANITE—coarse grained to pegmatitic, near horizontal undulating/rough joints with oxide staining, one planar/rough joints with oxide staining, one planaryough joints with oxide staining one planaryough	PLANT/TALINGS SITE INVESTICATION IDMA—CENTRE OF DAM LITHOLOGICAL DESCRIPTION SAND — sitty, fine grained, grey, frozen — fine gravel, horizontally stratified, frozen — black organic laminae — trace of coarse grained sand, very thin bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt, thin inclined bedding, grey, frozen — some sitt and gravel, trace of cobbles, rack fragments, gop graded **Operation of the sand and sitt and began and the sand and sitt and degrees of the vertical inclined stabiling, one planarrough joints with oxide stabiling, one planarrough joints with oxide stabiling, one planarrough joints at 40 degrees to the vertical inclined stabiling, one planarrough joints at 5–30 degrees to the vertical inclined inclined planarrough joints — light/fractured from 12.25–12.4m,

ROJECT: IZOK PROJECT FEASIBILITY STUDY NE/PLANT/TAILINGS SITE INVESTIGATION		nt: Minnova Inc. L: LongyEar 38 Diamond) DRILL		OLE NO: 111 No: 0101-111	<u>57-17</u> 57	
DRTH DAM-CENTRE OF DAM		COORDINATES: E12081.2			ION: 430.200 (r		
AMPLE TYPE SHELBY TUBE DISTURBE		⊠ SPT		O RECOV	<u></u>		
LITHOLOGICAL DESCRIPTION	SAMPLE TYPE	GROUND ICE DESCRIPTION	◆ POINT LOAD STRENGTH (M 4 8 12 16 ● FRACT. FREQ. (per m) 2 4 6 8 ▲ RQD (%) ▲ 20 40 60 80 ■ RECOVERY (%) ■	PL	BULK DENSITY (MG 0.6 1.2 1.8	I Danid	DEPTH (m)
GRANITE — (continued) — occasional felsic stringer, black		n	70 80 90 10		20 40 60	80	15.0
6.0 highly fractured from 15.5-15.8m		\ ₁ < %					- 16.0
DACITE – fine grained, massive, fresh,		16 95					17.0
moderately strong, oxide staining all joints, undulating joints at 25 degrees to the vertical, rough; planar joints at 40 degrees to the vertical, alignment of biotite with		481					- 18.0 -
foliation 50 degrees to the vertical, black — minor mineralization on planar;roug joint, healed subvertical undulating fractures	jh	A.9.		1			- 19.0 - - 20.0
- minor sulphide mineralization on joint surfaces 2.0 - parallel joints at 35 degrees to the vertical, planar;smooth with thin		2235					- 21.0 - - - 22.0
clay filling		,					- 23.0 -
quartz pegmatite vein, highly fractured at 25.2m undulating;slickensided joint at 70		35- ¹⁴					- 24.0 - - 25.0
degrees to the vertical, oxide staining - numerous joints at 20-30 degrees the vertical	to						- - 26.0 - - 27.0
.0 76.5 - occasional thin clay in joints,		_J 4.3					28.0
planar joints at 50 degrees to the vertical, near horizontal undulating;slickensided joint							29.0
EBA ENGINEERING CONSU	<u>.</u> ΤΔΝη	TS LTD LOGGED			PLETION DEPTH:		
EDMONTON, ALBERT		KEVIEWE	D BY: DWH 11157-17		PLETE: 93/03/3		

MINE_PLANT/FAULNOS SIE INVESTIGATION DRILL: LONGTER 3B DIMMODD DRILL Project in No. (1011-1115) MORTH DAM-CENTRE OF DAM UNA COORDINATES: E12081 240, N21968.830 ELEVATION: 430,200 (m) MORTH DAM-CENTRE OF DAM UNA COORDINATES: E12081 240, N21968.830 ELEVATION: 430,200 (m) MORTH DAM-CENTRE OF DAM MUNICIPAL OF DESCRIPTION MORTH DAM-CENTRE OF DAM-CENTRE OF DAM-CENTRE OF		11157-		IOLE		-	_						DI: :	INC.	_		CT: IZOK PROJECT FEASIBILITY STUDY	
SAMPLE TYPE			***				$\overline{}$			170	20.2							
Continued Cont								7-111		SSU	0.00	96	NZI		_	UMA		
E LITHOLOGICAL DESCRIPTION DESCRIPTION E DESCRIPTION DESCRIPTION DESCRIPTION DESC		∐ CORE	r L	VERY							منم	NT -	A DO!		×		E TYPE SHELBY TUBE DISTURBED	SAMP
DESCRIPTION DESCRIPTION DESCRIPT	3) ■	IY (Mg/m3) 1.8 2.4	JLK DENS 6 1.2	■ BUL 0.6	- 1	6	16	2	12	3	8	4		UND ICE		Ę	LITHOLOGICAL	Œ
30.0 DACITE — (continued) END OF BOREHOLE (30.3 metres) Thermistor #907 installed at completion 31.0 33.0 34.0 35.0 36.0 37.0 38.0 39.0 40.0 40.0 41.0 42.0 43.0 44.0	LIQUID				-	0)	60	0	40		2	RIPTION		3 IGNV	DESCRIPTION	DEPTH
- END of BORHOLE (30.3 metres) - 31.0 Thermistor #907 installed at completion - 32.0 - 33.0 - 34.0 - 35.0 - 36.0 - 37.0 - 38.0 - 39.0 - 40.0 - 41.0 - 42.0 - 43.0	0	<u>60 80</u>	40	20	1	0							<u>, 7</u>		L			70.0
32.0 33.0 34.0 35.0 36.0 37.0 38.0 39.0 41.0				<u></u>		ļ		•	<u> </u>		ė į				ን	∤╹	DACITE - (continued)	. 30.0
33.0 34.0 35.0 36.0 37.0 38.0 39.0 40.0 41.0				<u>.</u>					 							, ;	Thermistor #907 installed at completion	31.0
33.0 34.0 35.0 36.0 37.0 38.0 39.0 30.0 40.0				-					ļļ					-				
34.0 35.0 36.0 37.0 38.0 9.0 1.0 2.0 3.0									ļļ									32.0
34.0 35.0 36.0 37.0 38.0 39.0 30.0 4.0									ļļ								,	
55.0 56.0 57.0 9.0 1.0 2.0 5.0			-				-	<u>!</u>		!								33.0
55.0 66.0 77.0 8.0 9.0 1.0 1.0 1.0 1.0 1.0 1.0 1	.				-													
66.0 77.0 88.0 9.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1											 							54.0
6.0 7.0 8.0 9.0 1.0 1.0 1.0 1.0											m							5 A
7.0 8.0 9.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1																		J.V
B.0 9.0 1.0 1.0 1.0 1.0	3									<u></u>								6.0
B.0 D.0 D.0 D.0 D.0 D.0 D.0 D.0				 							ļļ							
9.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1																		7.0
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0.0	3													•				J.V
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EBA ENGINEERING CONSULTANTS LTD. LOGGED BY: JWC COMPLETION DEPTH: 30	3 m	'TH: 30.3	ION DE	PLETIC	OMF	IC		<u> </u>				<u>;</u> 2	jw(יכי	וויי אין	A ENGINEERING CONSULT	EF
EDMONTON, ALBERTA EDMONTON, ALBERTA EDMONTON, ALBERTA EDMONTON, ALBERTA EDMONTON, ALBERTA EDMONTON, ALBERTA Fig. No: 11157-17 Po								_			L			REVIEWED	U	. MIN		

	JECT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA INC.		BOF	REHOLE NO:	11157-18	3
	PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 38 DIAMONE		Pro	ject No: 010	1-11157	
	TH DAM-SOUTH ABUTMENT	UMA	COORDINATES: E11924.3			VATION: 437	.500 (m)	
SAM	PLE TYPE SHELBY TUBE DISTURBED		⊠ SPT <u></u>			COVERY	CORE	
DEPTH (m)		IE TPPE	GROUND ICE	◆ POINT LOAD STRENGTH (1 4 8 12 1 1	6	ŀ	ISITY (Mg/m3) m 2 1.8 2.4	(E) E
1	DESCRIPTION	SAMF	DESCRIPTION	20 40 60 8 ■ RECOVERY (%) ■ 70 80 90 10	0 m	PLASTIC 1————————————————————————————————————	M.C. LIQUID 60 80	DEPTH
0.0	PEAT — fine fibrous, amorphous granular, frozen	\mathbb{Z}	Nbng					0.0
1.0	SILT AND SAND — gravelly, medium grained, coarse gravel sizes, frozen SAND — silty, gravel inclusions, coarse	-1/	Nbe (ハ					1.0
- 2.0	grained, well graded, frozen — fine grained, uniform, brown		NDE ()					2.0
3.0	カップ - medium grained		2.b					- 3.0
4.0	GRAVEL — sandy, bouldery, clean, coarse, rounded		Nbn O					- 4.0
- 5 .0	5.7- rock fragments and sand		4.6					- 5.0
- 6.0		Ш	5,3 ⁵					- - 6.0
- 7.0 -	へ ^ル — well graded		t 8 ce lense, 75mm hick 7					- - 7.0
- 8.0 -	곡성 ICE - white		7의 왕가 장도 ce — white					- 8.0
· 9.0 ·	ICL - winte		q,b					9.0
10.0			9.90					10.0
11.0		X Ic	re — white					11.0
12.0			12.55 e — clear					12.0
13.0		M	13.7					13.0
14.0	END OF BOREHOLE (14.0 metres) Thermistor #908 installed at completion Note: Borehole continued with 11157-18A		4D				1	14.0
EI	BA ENGINEERING CONSULTA	NTT	S ITD LOGGED E	BY: RJM JWC	ICO	MBI ETIUM UE	PTH: 14.0 m	_
	EDMONTON ALBREMA	74 T i	INEVILITED	BY: DWH		MPLETE: 93/		
01/23 01	EDMONTON, ALBERTA		Fig. No: 1	1157-18	T		Page 1 o	f 1

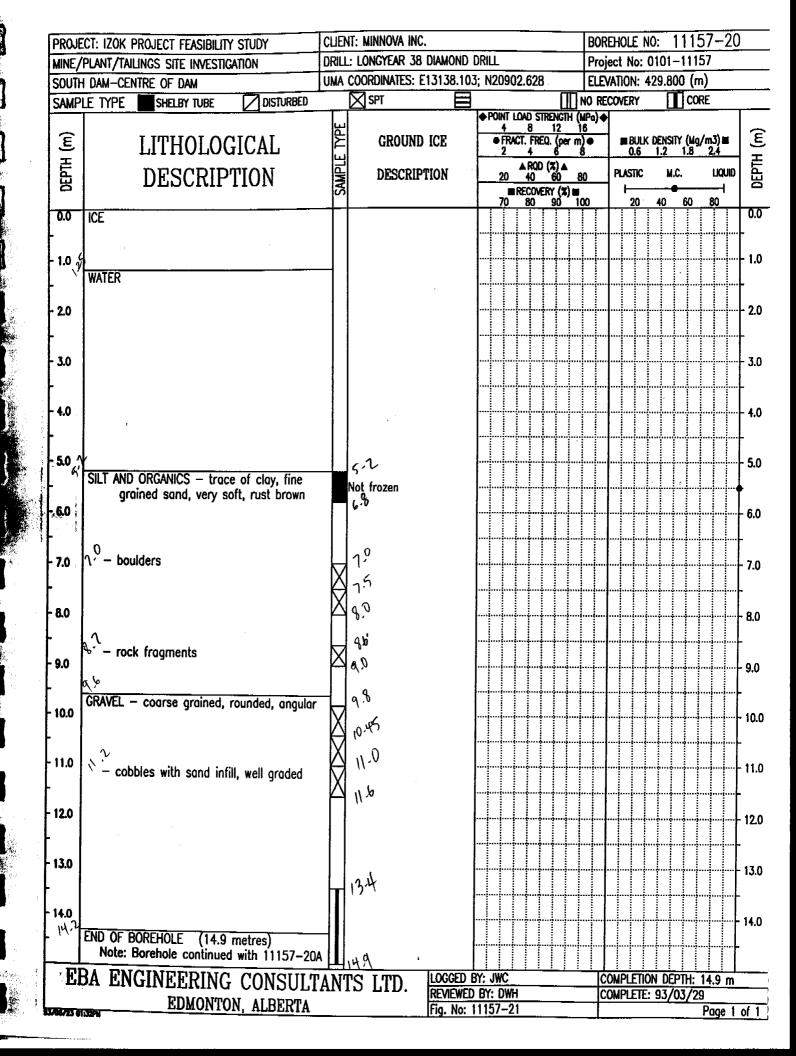
	ect: Izok project feasibility study		NT: MINNOVA INC.								BO	REH	OLE	No	: 1	115	57-	-18	A
	PLANT/TAILINGS SITE INVESTIGATION		.: Longyear 38 Diamo							_		•		o: 0					
	1 DAM-SOUTH ABUTMENT	UMA	COORDINATES: E11920	6.399;	N2	174	7.2	244						: 43	7.70	00 (m)		
SAMP	LE TYPE SHELBY TUBE DISTURBED		⊠ SPT	旦.						∏N			/ER	<u> </u>		[]c	ORE		
ш) н	LITHOLOGICAL	E TYPE	GROUND ICE			FRAI 2	ст. 4	FREC	12). (pe 6	H (MI 16 r m)		H	■ Bl O.	JLK D	ENSI	IY (M	ig/m3 2.	5) =	1 / 124
DEPTH	DESCRIPTION	SAMPLE	DESCRIPTION					OVE)	(%) ▲ 60 ?Y (% 90			PL	ASTI		M.4	C. 60		JQUID 	i
0.0	Not logged — borehole drilled as a continuation for borehole #11157-18									100					Ĭļ				0
1.0				-						ļļ									 1
2.0															-				† - 2
3.0									ļ								-		+_
J.U							\$								•		-		† 3 †
4.0	,			ŀ							•				ļļ				-
5.0].															- 5
5.0,.											ļ								
				-															- 6 -
7.0				ļ															7.
3.0				-															- 8.
0.0																			- - 9.
0.0									-										- -
J.U	:						·‡	<u>.</u>	†			.							- 10 -
1.0																		-	- 11
2.0																			12
5.0																		-	. 47
	40																		13.
·" [ī	CE - clear		E14 b	ļ			<u></u>								<u> </u>			ŀ	14.
EB	A ENGINEERING CONSULTA	1111	S I TID LOGGE				VC_			<u>!</u>	CC)MP	LETI	ON	DEP	TH:	22.3	m	
	EDMONTON, ALBERTA		REVIEW	NEU B	/. N	LINE					IAC	V. (C)		E: 9.	, /^	. /~			

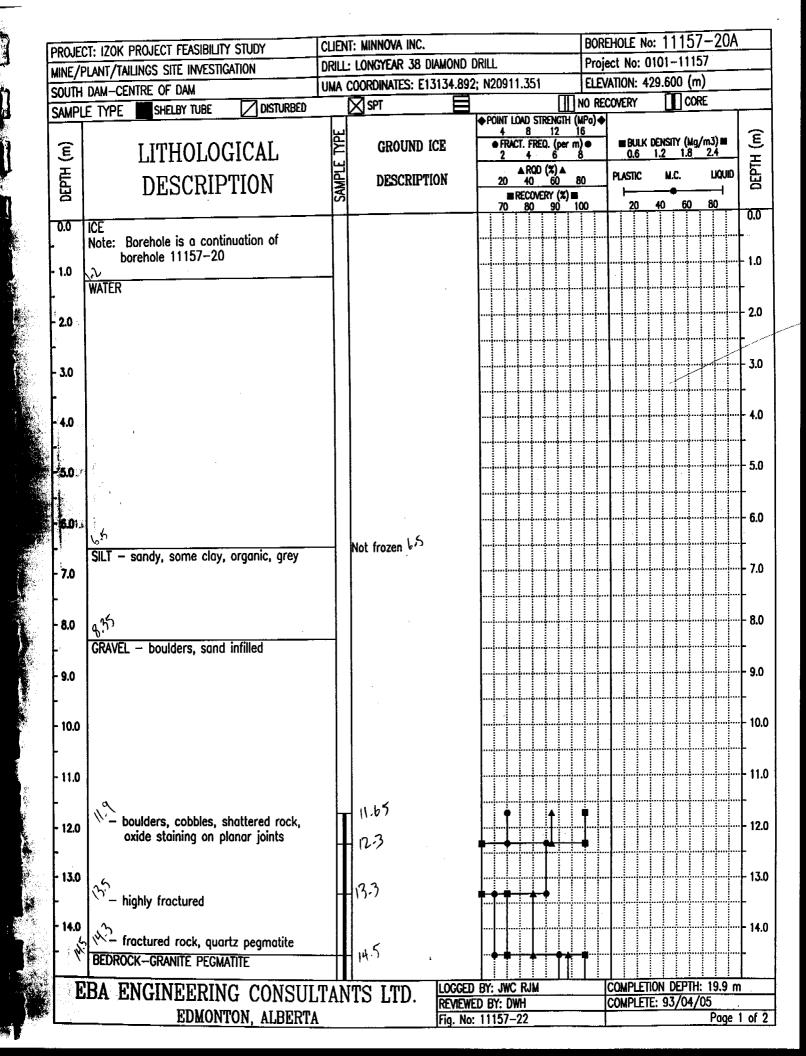
PROJE	CT: IZOK	PROJECT FEASIBILIT	Y STUDY	ÇUE	NT: MINNOVA INC.					_	В	OREHO	DLE N	o: 11	157	-1 <u>8</u> /	Ā
		LINGS SITE INVESTIG		DRIL	L: LONGYEAR 38 (CINOMAIC	DRILL				_		No: (
		UTH ABUTMENT		UMA	COORDINATES: E1	1926.399); N21	747	.244		EI	EVATI	ON: 4	37.70	0 (m) .	
SAMP	LE TYPE	SHELBY TUBE	DISTURBED		⊠ SPT			ï			NO	RECOV	ERY		COR	E	
	<u> </u>			Τ.,			◆ POI	ŅT LO	AD STR	ENCTI	(MPa	•					
(m)		LITHOLOG	GICAL	TYPE	GROUND	ICE	•	FRACI 2	. FREQ). (per 6	m) •		BULK 0.6	DENSIT 1.2	Y (Mg/ 1.8	m3) ■ 2.4	٤
DEPTH		DESCRIP	TION	SAMPLE	DESCRIPT	ION		20		60	80	PL	ASTIC	M.C) .	LIQUID	DEPTH
Δ		DIDOM		S				■ R 70	COVER 80	Y (%) 90	100		20	40	60	 80	
15.0	ICE - (c	continued)						ļļ.									15.0
- 16.0 _{\(\)}					16.2		<u> </u>		<u>.</u>								16.0
16.0	SAND -	trace of gravel an	d silt, medium to	- "	1Nbn					,,							
- 17.0	co	arse grained, brow	n, frozen	<i>\</i>	8. ds	T.										<u></u>	17.0
- '{};				Κ,	17.4				.įį.]]					
	I CH T	race of fine grains	d sand in thin	7	Vs~5% 2mm ice lense	O.			<u>.</u>								18.0
- 18.00	\ <u>ho</u> ICE − ci	<u>rizontal beds, lighl</u> ear	grey, frozen	4/	several discontinuous												
- 19.0	,02 0.	.		17	lenses to 4mm												19.0
13.07		gravelly, medium		1/	thick 19.7 Vx~10% ,4.45												13.0
- 20.0	gre – bo	ovel is angular, fra	zen en inclined	\mathcal{L}	20mm clear ice												20.0
- 20.0	co	alders, granite, ste ntact with sand, ic	e and sand	\mathbb{Z}	inclusion 20べち												7 20.0
	- 500	izen in 15mm wide ik fragments, gravi		$\parallel \parallel$													T
21.0° V	REDROCK	(-GRANITE - medi		$\!$	21.4 21.b												21.0
2/9	gro	ained, fresh, strong	1	1	21.20				1		T						†
- 22.0	sul	. – massive, fresh fides, mottled <u>dar</u>	grey to black	\coprod	33.3									11			22.0
	END OF	BOREHOLE (22.3	metres)	_	d ^a				T					1	1		-
- 23.0									† †								- 23.0
									1								-
24.0									·‡···†··						1		- 24.0
									·			+	T	1			-
25.0									 	$\dagger \dagger$							- 25.0
									 	$\dagger \dagger$			- -		++		-
26.0									ļļ	1							- 26.0
							l -		 	11	- -	1		11	\top		-
27.0									<u> </u>	$\dagger \dagger$		-	-	††	+		- 27.0
										+		1-1-		11			-
28.0												+					- 28.0
												-	++	1			-
29.0									<u> </u>	11				<u> </u>			- 29.0
									<u> </u>	╂-∦.	╬	+		<u> </u>			-
<u> </u>	RA FN	GINEERING	CONCLIT	A NTr	וים ניווים ו	LOGGED E	Y: RJ	<u>.</u> M JW	<u> </u> C	<u> </u>	<u> </u>	COME	LETIO	N DFF	<u>.</u> ∏H: 2	2.3 m	
-11	אט הי			. VIA	į.	REVIEWED	BY: C)WH					LETE:		4/02		
		TDWON IO	N, ALBERTA		[!	Fig. No: 1	1157	-19							Ī	age 2	of 2

PROJE	CT: IZOK PROJECT FEASIBILITY STUDY	СПЕ	NT: MINNOVA INC.		BOREHOLE No: 11157-19
MINE/	Butty muchtos she have shown in the		: Longyear 38 Diamond		Project No: 0101-11157
ESKER	NORTH OF SEEPAGE DAM	UMA	COORDINATES: E12541.833		ELEVATION: 456.500 (m)
SAMPI	LE TYPE SHELBY TUBE 🖊 DISTURBED		SPT 🗏		D RECOVERY
l (m)	LITHOLOGICAL	E TYPE	GROUND ICE	◆POINT LOAD STRENGTH (MF 4 8 12 16 ◆ FRACT. FREQ. (per m) 0 2 4 6 8	-
DEPTI	DESCRIPTION		DESCRIPTION	ARQD (%) A 20 40 60 80 ■ RECOVERY (%) ■ 70 80 90 100	20 40 60 80
0.0	GRAVEL AND SAND (FILL) — cobbles, rounded to angular, well graded Note: Fill placed for drill pad.	Z	0-4		
1.0 / j.k	GRAVEL — sandy, cobbles, silt stringers, clean, coarse, rounded and	-	Nbg \ \\of		
2.0 ^^	subangular, frozen GRAVEL AND SAND — clean, coarse grained,		Nbn ² 75		2
- 3.0 -	well graded, frozen		Vs~50% 3,4 lenses of clear		3
· 4.0 ·			ice ц.0 ця		4
5,0	か' >- boulders				
6.0	্ৰে – boulders		6.2		6
7.0			1.7		7.
8.0			8.35		
	~ rounded to angular cobbles		9.45 9.55		
10.0	$6^{\frac{1}{2}}$ rock fragments intermixed with medium	, 	10-75		
11.0	grained sand				11
12.0					1'
13,0	*		13-6		1:
14.0					14
	DA ENGINEEPING	Ш			
التاري	BA ENGINEERING CONSULT	AN	TS LTD. LOGGED		COMPLETION DEPTH: 15.3 m
网络爱 木	EDMONTON, ALBERTA	•	Fig. No:	BY: DWH	COMPLETE: 93/04/01

BOREHOLE No: 11157-19 CLIENT: MINNOVA INC. PROJECT: IZOK PROJECT FEASIBILITY STUDY DRILL: LONGYEAR 38 DIAMOND DRILL Project No: 0101-11157 MINE/PLANT/TAILINGS SITE INVESTIGATION ELEVATION: 456.500 (m) UMA COORDINATES: E12541.833; N21359.063 ESKER NORTH OF SEEPAGE DAM CORE **⊠** SPT NO RECOVERY DISTURBED SAMPLE TYPE SHELBY TUBE ◆POINT LOAD STRENGTH (MPa)◆

4 8 12 16 12 BULK DENSITY (Mg/m3) 0.6 1.2 1.8 2.4 ● FRACT. FREQ. (per m) ● Ξ LITHOLOGICAL **GROUND ICE** DEPTH DEPTH ▲ RQD (%) ▲ 40 60 DESCRIPTION M.C. LIQUID PLASTIC DESCRIPTION ■ RECOVERY (%) ■ 15.0 11 15.2 GRAVEL AND SAND - (continued) END OF BOREHOLE (15.3 metres) 16.0 16.0 17.0 17.0 18.0 18.0 19.0 19.0 20.0 20.0 21.0 21.0 22.0 22.0 23.0 23.0 24.0 25.0 25.0 26.0 26.0 27.0 27.0 28.0 28.0 29.0 29.0 EBA ENGINEERING CONSULTANTS LTD. LOGGED BY: RJM COMPLETION DEPTH: 15.3 m COMPLETE: 93/04/01 reviewed by: DWH EDMONTON, ALBERTA Fig. No: 11157-20 Page 2 of 2





	DDO IS	CT: IZOK PROJECT FEASIBILITY ST	inv (c	TIEN	it: Minnova in	<u>.</u>				BOR	FHOLE N	lo: 111;	57 <u>-</u> 20	λ Δ	
					: LONGYEAR 3		ORILL								
	MINE/PLANT/TAILINGS SITE INVESTIGATION SOUTH DAM—CENTRE OF DAM				COORDINATES:			11.351		Project No: 0101-11157 ELEVATION: 429.600 (m)					
A.		LE TYPE SHELBY TUBE	DISTURBED		SPT	Ħ			Ш		COVERY	По	<u> </u>		
	51411	L THE MONETON TODE V			<u>K</u>		◆ POINT	LOAD STRE	NGTH (N	(Po)◆				1	
	Œ H	LITHOLOGIC	CAL	E TYPE	GROUN	ICE	•FR/ 2	VCT. FREQ.	<u>6 8</u>		■ BULK 0.6	DENSITY (I	ig/m3) ≡ 1 2.4	DEPTH (m)	
	DEPTH	DESCRIPTION	N	呈	DESCRI	PTION	20	▲ RQD (7 40 6	()▲ 60 80	0	PLASTIC	M.C.	LIQU		
		DEDOMI II	<i>J</i> 1 1	2				RECOVERY	(X) III	•		40 00			
	15.0	BEDROCK-GRANITE PEGMATITE	(continued)		15.5		70	80 9	10		20	40 60	80	15.0	
		- extremely coarse grained			·										
	- 16.0 -				16.5									··· 16.0 ···	
	17.0	· 		\mathbb{H}	16.9			Ţ <u>i</u>			١			···	
2	× 2	Sight oxide staining, plan	ar;smooth												
	18.0	slight oxide staining, plan joint at 30 degrees to th	e vertical											18.0	
	19.0	· ·						····						19.0	
	~ ~	a?													
** **	200	 undulating;rough joint near horizontal 	1	Щ	P. P.									20.0	
10.37		END OF BOREHOLE (19.8 met Thermistor #915 installed on	res)												
	مز	THE MISSON #313 MSCOME OF	г Арпго.											21.0	
	22.0	· ·												22.0	
	·												╬╬		
	23.0					ļ							.		
						[.								+	
	24.0	1										- .		24.0	
						J.						.ļļļ			
-	25.0		İ	İ].						<u>. į. į. į.</u>		25.0	
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	26.0													Τ	
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	28.0					ŀ								†	
		•										 		28.0	
	29.0		İ							-				t	
						-			-					- 29.0	
						, -		111	+-	-	++			}	
,	EB	A ENGINEERING CO	NSIII TAI	VТ	מדו פ	LOGGED BY			<u> </u>	CO	MPLETIO	N DEPTH:	19.9 m	<u> </u>	
		EDMONTON, A	J.RERTA	. 7 1	D LID.	REVIEWED I	BY: DWH			co	MPLETE:	93/04/0)5		
1.17			TOURIN			Fig. No: 11	13/-22	<u> </u>		_			Page 2	of 2	

PRO.I	ect: IZOK Project Feasibility Study	CLIENT: MINNOVA INC	,	BOREHOLE No: 11157-21
	PLANT/TAILINGS SITE INVESTIGATION	DRILL: LONGYEAR 38	DIAMOND DRILL	Project No: 0101-11157
AIRST	rip-west end		11739.045; N20730.167	ELEVATION: 439.100 (m)
SAMF	PLE TYPE SHELBY TUBE DISTURBED	SPT	—	NO RECOVERY CORE
(m)	LITHOLOGICAL	GROUND	ICE FRACT, FREQ. (per m 2 4 6	6
DEPTH	DESCRIPTION	DESCRIP	m RECOVERY (%) m	00 PLASTIC M.C. LIQUID 00 20 40 60 80
0.00	PEAT - roots, coarse fibres intermixed	Nhn	70 80 S0 F	0.0
- 1.0	with fine fibres SAND (TILL) — silty, gravelly, trace of clay — sand pocket — gravelly, medium to	Nbn 0 -6		1.0
2.0	coarse grained, poorly graded, frozen — coarse grained sand, gravel	Vr~5% 2.05		2.0
- 3.0	inclusions - boulders, granite pegmatite - brown	=silt pockets ²⁻¹		3.0
- 4.0	べた boulders and cobbles	Vc~1%		4.0
- 5.0 - 5.0	く ^{、当} gravel sizes	Silt layers with 1 to 2mm ice lenses; .9		5.0
- 7.0		6.4		7.0
- 8.0	sand lense - silty, medium grained, poorly graded, frozen	Nbn		8.0
- 9.0	BEDROCK	a M		9.0
10.0	END OF BOREHOLE (9.4 metres)	W. T.		10.0
- 11.0				11.0
- 12.0				12.0
13.0				13.0
14.0				14.0
E	BA ENGINEERING CONSULT	מידו פידואלי	LOGGED BY: RJM	COMPLETION DEPTH: 9.4 m
5 (A) (B)		ANIO LID.	REVIEWED BY: DWH	COMPLETE: 93/04/05
34->-	EDMONTON, ALBERTA		Fig. No: 11157-23	Page 1 of 1

	CT: IZOK PROJECT FEASIBILIT			nt: Minnova in L: Longyear 3		DDH (0: 111		<u> 22</u>
	plant/tailings site investi ip—east end			COORDINATES:			/AA AQ1				0101-11		
		DISTURBED		SPT	E12/39.04	1; NZU/	1 80.00	Ш.		AIIUN: 4 OVERY	39.400 (—
AMI	E TYPE SHELBY TUBE	N DISTORDED				◆ POINT	LOAD STRE	NGTH (M		OVERT	Ши	JKE	\neg
Ξ	T IMILOT O	ata i t	YPE	GROUN	ח ורק	4		12 10	5	= Riik	UCINCITY (M	- /n ₹\ =	.
<u>ٿ</u>	LITHOLO	GICAL	L L	GUOOM) ICE	2	44	<u>68</u>		0.6	DENSITY (M 1.2 1.8	2.4	_
DEPTH	DESCRIF	PTION	Ē	DESCRI	PTION	20		<u>60 80</u>		PLASTIC	M.C.	LIQUI	OIL
ے ر		1101,	ক্ষ			70	RECOVER 80	/ (な) ■ 90 10	^	20	40 60	80	
0.0	MOSS — rootlets over san	id, fine grained	17	Nf			T	30 , <u>.</u>			10 %		
ξ.	GRAVEL AND SAND - trac	e of cobbles, coars	e [l o .b				+				1-1-1	
1.0	grained sand, fine t well rounded, frozen	.o coarse gravei, 1		۱. م.				<u> </u>				444	ļ
	· · · · · · · · · · · · · · · · · · ·	•	Ш	11.5			<u>.ļ.</u> .ļļ						Ĺ
2.0			Щ	1,8									
2.0	2,14			Nbe ² -4									
	SAND — trace to some sil			HDE 2			111						•••
3.0	layer, fine to mediu platelets throughout	m grainea, mica inclined		,				1-1		•			•••
ેકું	bedding, occasional	silty bed 5-30mm	<i>h</i>	34			. ļļ. .ļ	<u> </u>					
4.0	thick, frozen		Ц	40			<u>. į. į. į.</u>			•			
Aris.	<i>i</i>		I	Nbe						i	, [[[•	
	in the second se		И	4.0						•			•••
10			N	Nbe J							•	1111	•••
			17	6.4		-		╂┈╂┈╂					
11			H	59		<u> </u>	. ļļ ļ	 			<u> </u>	1	
, S		•	И	NDe 6						•		.	
10			И	69									
30 ag	*		И	Nbe \			1 1 1 1 1 1			•		•	
	19		\square	7.9			╁┼┼	 -		111		-	
LQ.	END OF BOREHOLE (7.9	metres)	\dagger	1.1		 						 -	
		-				<u> </u>	ļļļ			<u></u>			
9.0 e													
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· E'i	A CINTINERRING	ניניוווסואנטט:	/ Klit	מיחין טין	LOGGED E	iy: R.IM			ICO	ADI ETIM	n depth:	70 m	_

PRO	DJECT: IZOK PROJECT FEASIBILITY STUDY	CLIE	NT: MINNOVA INC.		BOF	REHOL	E NO:	11157	-23	
	E/PLANT/TAILINGS SITE INVESTIGATION		: Longyear 38 Diamond					1-11157		
SEE	PAGE DAM-SOUTH SIDE	UMA	COORDINATES: E12539.640					.300 (m)		
SAN	APLE TYPE SHELBY TUBE DISTURBED		SPT ■	POINT LOAD STRENGTH (COVE	₹Y	CORE		
(E)	LITHOLOGICAL	LE TYPE	GROUND ICE	4 8 12 1 ● FRACT. FREQ. (per m 2 4 6 ▲ RQD (%) ▲	6 '	- -		ISITY (Mg/m3 2 1.8 2.		DEPTH (m)
DEPTH	DESCRIPTION	SAMPLE	DESCRIPTION	20 40 60 8 ■ RECOVERY (%) ■ 70 80 90 1	0 00	PLAS	20 40	•	,QUID). 	130
0.0			Nf v 3							0.0
•	well graded, frozen	V	0,9				•			-
- 1.0		17	_				•			- 1.0
ŀ	New York Control of the Control of t		\5			1	1-1-1			_
<u> </u>	Mark Control	K	ン			╫				- 2.0
	(# 1)		2.8				<u> </u>			-
- 3.0	<i>a</i> ,	17	1							- 3.0
i i	== silty, fine grained, frozen	E	Vs. Vr~30% , 4 Ice lenses < Pmm			 	ļļļ			-
4:0	silty sand with medium grained well graded sand, fine fibres and wood		3.6			<u> </u>	<u> </u>			- 4.0
	graded sand, fine fibres and wood		4.V							_ ''-
	pieces, organic silt streaks, black	K	435							- ΓΛ
	ר gravelly, interbedded with silty	E	Note 1/2							- 5.0
	sand beds to 30mm thick, medium to	17	5.55							•
	coarse grained sand, subrounded to subangular gravel, dark brownish	V	6 445			•				- 6.0
	grey — cobble		637				╟╟			-
- 7.0	- 15mm thick silty sand bed	K	1.05			ļ	╟╫╫			- 7.0
+		-1/				ļ		444		-
- 8.0		<u> </u>	4.0				ļļļ.			- 8.0
-	·	$\parallel \mid /$	•							-
- 9.0		- /								- 9.0
	İ	\vdash	٩-2							3.0
- 10.0									1	
10.0	- rock fragments	\vdash	(O.)		_					10.0
		\angle	Nbn, Nf vo:^							•
11.0)	/	•							11.0
†	$V_{\mathcal{D}}$. 0.			 		++++		
12.0	boulder, pegmatitic		11-9							12.0
ŀ		/	Nbn					<u> </u>		•
13.0		$\bot\!$	12 de							13.0
-	BEDROCK-QUARTZ PEGMATITE - coarse grained moderately strong, milky white to	J,	1,00	11	1					
- 14.0	l pinkich arev								T	
										14.0
	<u> </u>		ı						† †	
]	EBA ENGINEERING CONSULT	AN'	IS LTD LOGGED E	BY: RJM JWC				DEPTH: 17.	4 m	
	EDMONTON, ALBERTA	T #T 1	REVIEWED Fig. No: 1		_{	OMPL	ETE: 9.	3/03/28 Pa	ge 1	of 2
93/06/2	Joines Special Control of Manual Control		jily. NO.	11107 20			·		ye I	UI Z

SAMPLE TIPE SPEED TO BE DISCOVERY (2) SAMPLE TIPE SPEED TO BE DISCOVERY (2) POINT LOAD STRENG 4 8 12 FRACT. FRED. (p) A ROD (X) A DESCRIPTION 20 40 60 PRECOVERY (2)	16 er m) ● ■BULK DENSITY (Mg/m3) ■ 0.6 1.2 1.8 2.4 ■ BO PLASTIC M.C. LIQUID
SAMPLE TYPE SHELBY TUBE DISTURBED SPT POINT LOAD STRENG (P) 4 8 12 PRACT. FREQ. (P) 2 4 8 12 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 2 40 60 PRACT. FREQ. (P) 3 40 60 PRACT. FREQ. (P)	NO RECOVERY CORE
Continued Cont	BULK DENSITY (Mg/m3) = 0.6 1.2 1.8 2.4 80 PLASTIC M.C. LIQUID 20 40 60 80 15.
INTHOLOGICAL DESCRIPTION BEDROCK-QUARTZ PEGMATITE - (continued) DIORITE - fine to medium grained, weakly foliated at 55 degrees to the vertical, slickensides visible, mottled black/white, planar; slickensided joints at 55 degrees to the vertical END OF BOREHOLE (17.4 metres) Thermistor \$909\$ installed at completion GROUND ICE DESCRIPTION AROD (%) AROD (%) AROD (%) PROCOK-QUARTZ PEGMATITE - (continued) DIORITE - fine to medium grained, weakly vertical, slickensides visible, mottled black/white, planar; slickensided joints at 55 degrees to the vertical Thermistor \$909\$ installed at completion	16 er m) 8 BULK DENSITY (Mg/m3) 0.6 1.2 1.8 2.4 80 PLASTIC M.C. LIQUID 20 40 60 80 15.
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DIORITE — fine to medium grained, weakly foliated at 55 degrees to the vertical, slickensides visible, mottled black/white, planar; slickensided joints at 55 degrees to the vertical END OF BOREHOLE (17.4 metres) Thermistor \$909\$ installed at completion	16.
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EBA ENGINEERING CONSULTANTS LTD. LOGGED BY: RJM JWC REVIEWED BY: DWH	
EDMONTON, ALBERTA Fig. No: 11157-25	COMPLETION DEPTH: 17.4 m

A COLUMN TO A STREET		ALIEN	IT. MINIMAVA IN	r							0/	<u>יסכר</u>	JOI I	E NA	. 1	115	7′	7 <i>1</i>	
	PROJECT: FEASIBILITY: STUDY				וומר	1					_						_	<u> </u>	
	LANT/TAILINGS SITE INVESTIGATION						252	57/				<u> </u>							
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PINSTE	SHELBY TUBE DISTURBED		J SCI		ΔP	VIIN.	TIO	n c	TREM				JYEN	. T		Псо	KE_	_	Т
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	CE	DRILL: LONGTEN AS DUMACHO DRILL																	
16 3 4	SAND — some silt, trace of fine gravel,	DRILL LONGYEAR 38 DAMOND DRILL	ľ																
J D&	organics, fine fibres, dark grey,	\mathcal{L}	1.37		-				•						****		ff		1.0
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	- gravelly, grey to rust brown							<u>.</u>	<u> </u>				.İ		<u>.</u>				20
203 	- gravelly, grey to rust brown - trace of fine gravel END OF BOREHOLE (1.2 metres)	-				į													
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11.0												Project No: 0101-11157 □ EVATION: 429.400 (rn) □ RECOVERY □ CORE □ BULK DENSITY (Mg/m3) ■ □ 0.6 1.2 1.8 2.4 □ PLASTIC M.C. LIQUID □ 20 40 60 80 □ 0.6 1.2 1.8 2.4 □ 1.8 2							
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12.0								ļļ	Project No: 0101-11157	- 12.0									
			RIL: LONGYEAR 38 DIAMOND DRILL MA COORDINATES: E12544-585; N21252.536 ELEVATION: 429.400 (m) SPT GROUND ICE PROVIT LIOU STEMSTIN (MP) 4 8 12 15 0 4 12 16 0 80 80 PLASTIC MC. LIDUUD PROVIT FEO. (FOR m) 6 0 80 PLASTIC MC. LIDUUD NITS LTD. LOGGED BY: JWC REVIEWED BY: DWC R																
.				S DIAMOND DRILL															
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$\mathbb{CD}P$		AN'	IS LID.															m	
	EDMONTON, ALBERTA			Fig. No: 1								<u> </u>			<u> / `</u>			e 1	of 1

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		CT: IZOK PROJECT FEASIBILITY STUDY		NT: MINNOVA II		000	 	o: 11157–25)
		PLANT/TAILINGS SITE INVESTIGATION		L: LONGYEAR 3		DRILL 3; N21927.680	Project No: 0		
		ITIAL BORROW ON ESKER LE TYPE SHELBY TUBE DISTURBED	UMA	SPT	. E11097.87.		ELEVATION: 4 NO RECOVERY	40.100 (m)	
	SAMP	LE TYPE SHELBY TUBE DISTURBED	Т.			◆POINT LOAD STRENGTH ()		TH COME	Т
	(E)	LITHOLOGICAL	E TYPE	GROUN	AD ICE	4 8 12 1 ◆ FRACT. FREQ. (per m 2 4 6	ВІ	DENSITY (Mg/m3) = 1.2 1.8 2.4	(E)
	DEPTH 1	DESCRIPTION	SAMP	DESCR	IPTION	■ RECOVERY (%) ■		M.C. LIQUIE	DEPIH
	0.00	MOSS, ROOTS AND GRASSES - frozen	+	 		70 80 90 10	00 20	40 60 80	0.0
	ره ا	SILT — sandy, some clay, trace of rootlets and gravel, dark brown	- - -	Nbn 9 .6			•		
	1.0	SAND — silty, fine to medium grained, brown	_K	1.2					1.0
	- 2.0 ^{2,8}	<u> </u>	-\	(%)				_	2.0
		- gravelly, rounded to subangular	h	1.A					
	- 3.0		Щ	33					3.0
77.5	40	. 1	H	3.0					1
		☆~- cobbles		4.2					
	5.0,0	SAND (SP) AND GRAVEL - trace of silt	<u> </u>	5.\					5.0
		becoming medium to coarse grained		5.7			•		+
	3	α.		6.35	•				6.0
	- 7.0	SAND (SP) - trace of gravel and silt	+	695					7.0
	- 8.0	- silt beds - inclined 60 degrees to the vertical, (10-15mm thick)		79					- 8.0
	- 9.0			9.25					9.0
	- - 10.0	boulder and rock fragments	\mathbb{H}	a_b	ĺ				10.0
				10.6	·				
	11.0	- clear ice and sand within 10mm thicl		11.1					11.0
	12.0	horizontal joint - trace of silt, fine gravel sizes,	` /	Nbn L			•		12.0
j.	13.0	coarse grained CE - clear	1	ICE					
	13.0								13.0
	14.0			139					14.0
*	EB	A ENGINEERING CONSULTA	INA	IS LTD		Y: JWC RJM		DEPTH: 23.1 m	
		EDMONTON, ALBERTA		-~ HID.	REVIEWED Fig. No: 1		COMPLETE:		
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PROJE	CT: IZOK PROJECT FEASIBILITY STUDY	СПЕ	NT: MINNOVA INC	·.				_	BOI	REHO	LE N	o: 11	1157	-25	<u> </u>
	PLANT/TAILINGS SITE INVESTIGATION	DRIL	L: LONGYEAR 38	DIAMOND D)RILL								-1115		
	TIAL BORROW ON ESKER	UMA	COORDINATES:	E11697.873	; N21	927.	680		ELE	VATIO)N: 4	40.10	0 (m))	
	E TYPE SHELBY TUBE DISTURBED	•	SPT				-		NO RE				COR		
		Ī.,,			◆ PÖİ	NT LO		ENGTH (MPa)∢						Т
<u>E</u>	LITHOLOGICAL	IAP	GROUND	ICE	•	2	4	. (per n	16 1) • 8		BULK 0.6	DENSIT	Y (Mg/i 1.8	n3) ≡ 2.4	
EPTH	DESCRIPTION	AMPLI	DESCRIP	TION	2	20	ROD (%) ▲ 60 (30	PLA	STIC	М.С). 	LIQUI	D
		S			7	_■K£	CUVER 80	Y (%) = 90 1	00	'	20	40	60	80	
15.0	ICE — (continued)														
(4)		- 11	,				· ††	·†		╬╬		+++		-hh	-+
16.0		- 11				ļļ	ļļ	.ļļ	ļļ	ļļ.					
			0.6/												ı
	" rock fragments, gravel sizes	H	10.	·				1111							T
7.0	rook fragmonta, gravor oizoo						╁╌╁┈	·		╂╌╂╴	╬	╅┪			
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8.0	18.3 The same same same same same same same sam		A1L _			 	†	1	<u> </u>	· -	1				··· -
	SAND - coarse grained	71	Nbn			ļļ	ļļ		 	ļļ.					
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	No boulders		مام	İ							T	11			"†
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10	gravel is rounded to subangular, we graded, frozen	# 					ļļ	<u> </u>	ļļ					<u></u>	
	graded, rrozen														
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CD	A ENGINEERING CONSULT	ANI	S LTD.	LOGGED BY			<u> </u>						TH: 23	3.1 m	_
Š.	EDMONTON, ALBERTA			REVIEWED ! Fig. No: 11	א: ט'	WH			[C	UMPL	ETE:	93/0	4/02		

	CT: IZOK PROJECT FEASIBILITY STUDY		nt: Minnova in L: Longyear 3		DRILL								1 <u>57-</u> 11157	
	PLANT/TAILINGS SITE INVESTIGATION F MILL BUILDING		COORDINATES:			587.1	67					7.900		
	E TYPE SHELBY TUBE DISTURBED	1	⊠ SPT		•			∏ N					CORE	
		PE	GROUN	n ree	◆ POIN	. 8	12	GTH (M	Pa)◆					
DEPTH (m)	LITHOLOGICAL	<u> </u>			- 2	4	QD (%)	<u>8</u>	_				(Mg/m. 1.8 2	
B	DESCRIPTION	West.	DESCRI	PTION	7	D 44 ■ REC	OVERY	80		PLAS		M.C.		0 HQU
15.0	BEDROCK-GABBRO - (continued)						, 30	, IO			20	<u>N (</u>	<i>N</i> 0	<u> </u>
16.0			1, 2										,	
	END OF BOREHOLE (16.2 metres) Thermistor #911 installed at completion		16.2				-	•		<u> </u>	<u> </u>	<u>.</u>		
17.0	Inermistor #911 installed at completion						-		_					
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	EDMONTON, ALBERTA	1	4.D.	REVIEWED Fig. No: 1	BY: DY	VH_			CO	MPLE	TE: 9	3/04/	/07 Pag	

BOREHOLE 11157-27

DELETED FROM DRILLING PROGRAM

PROJE	CT: IZOK PROJECT FEASIBILITY	STUDY		NT: MINNOVA INC.										157-		
MINE/	PLANT/TAILINGS SITE INVESTIG	ATION		: LONGYEAR 38 D						_	*			11157		
OPEN	PIT-WASTE ROCK DUMP			COORDINATES: E1		2; N152	243.4	151	-) (m)		_
SAMP	LE TYPE SHELBY TUBE	DISTURBED		SPT		A DOWN	7 1 040	· cmc			COVE	RY		CORE		т
·			밆			◆POINT		3 1	2 1	5	1					١
\mathbf{E}	LITHOLOG	HCAL	Σ	GROUND I	CE	● FI 2	RACT.	FREQ. ((per m)	•	-	Bulk i 0.6	DENSITY 1.2	(Mg/m 1.8	ı3)≡ 2.4	
OEPTH (m)	DESCRIP	תור∧ו	PLE	DESCRIPTI	ON	20		000 (% 0 6)▲ 0 80	١ .	PLAS	STIC	M.C.	,	LIQUID	1
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	ರ್) sandy, dilatant, com	pact	\overline{M}	ા .												1
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	GRAVEL - coarse grained		\dashv	7.4			-					╫	+	╁-╁		
- 8.0											ļļ	- 		<u> </u>	 	ŀ
- }	8. ⁴ − cobbles											<u>l.</u>		ļļ	<u> </u>	l
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3,	43/2 boulder															Į
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10.0	SHATTERED BEDROCK-GAB - broken, shattered	BRO .	111						-			╢	++	╫		ŀ
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	END OF BOREHOLE (12.0) metres)	$\neg \uparrow \lnot$	16												ſ
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- 13.0	,									-	<u></u>					F
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- 14.0							. ļļ.		<u>. </u> .			<u> </u>	<u> </u>			Ļ
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EF	BA ENGINEERING	CONSULT	'AN'	CT.I ST	OGGED I									H: 12	.0 m	_
		N, ALBERTA		יי חידי, ע	REVIEWED	BY: DV	VH "			C	OMPL	FTF:	93/04	1/07		

	CT: IZOK PROJECT FEASIBILITY STUDY		T: MINNOVA INC		D		•		_					57-2	29
	PLANT/TAILINGS SITE INVESTIGATION		: LONGYEAR 38				000	-					1-11		
	PIT-WASTE ROCK DUMP	UMA	COORDINATES: E	.15924.13/	, N1:	35/.	068	CIT.				416.	900 (
AMPI	LE TYPE SHELBY TUBE DISTURBED	-	⊠ SPT	=	▲ 00°	MT I A	U		NO E		VERY		C	JKE	
DEPTH (m)	LITHOLOGICAL	TYPE	GROUND	ŀ		4	8	12 12). (per 6	(MPo) 16 m) ● 8		■ BUI 0.6	K DEN	SITY (M	g/m3) ≡ 2.4	
₹		F	DESCRIP	TION		<u> </u>	RQD (LASTIC		M.C.	LIQU	
	DESCRIPTION	SAM	DEDCKIF	HON		■RE	40 COVER 80	60 (%) (90	80 100	┤"		40	•		
0.0	ICE														
14.15	١.١٢														
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	3.6 SILT		3.B				TŤ			"					``` †
.0	SILT — some fine grained sand and clay, grey		Not Frozen 식보				77	****	1		•		77		
	dilatant, loose, olive grey					╟╟	╁╌╁╴	╬				1-1		1	
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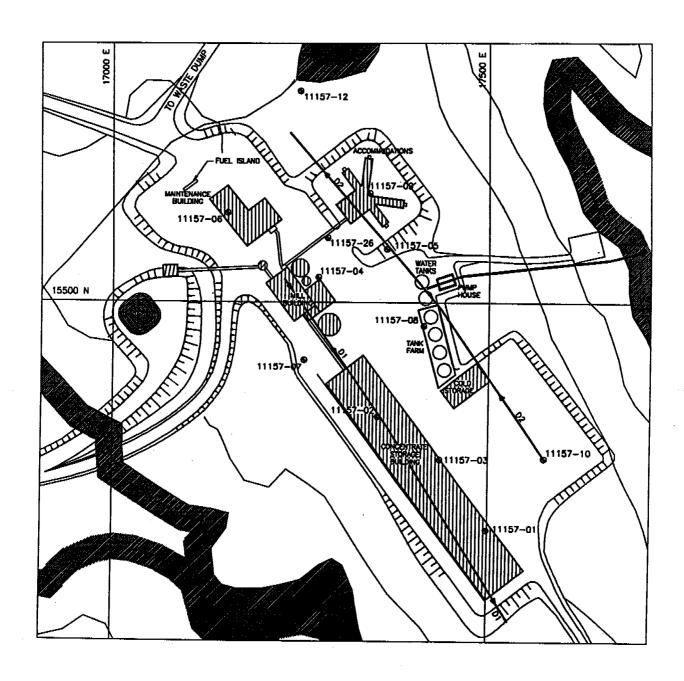
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97	ECT: IZOK PROJECT FEASIBILITY STUDY		L: LONGYEAR 38		RILL				_			01-1		<u>-</u>
	PLANT/TAILINGS SITE INVESTIGATION		COORDINATES: E			5587	167		_			7.900		
	OF MILL BUILDING LE TYPE SHELBY TUBE DISTURBED	O.W.	SPT	8				ПП		COVE		П	·	
SAME	LE TIPE SHELBY TUBE DISTORDED	T	1	<u> </u>	POI	NT LO	D STR	Ength (··	<u> </u>		
E	LITHOLOGICAL	F TYPE	GROUND	ICE	•	2	4	. (рег п 6	16 1) • 8		BULK DE	NSITY (Mg/m3) ■ 8 2.4	
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1 2,	SILT (TILL) — some organics, trace of	اند	lce lense 1-3m Vs, Vr 60%	m .										
1.0	fine gravel and coarse grained sand, dark brown					ļ					•			1.0
200	some gravel		Vr, Vx~50% 1 −2mm ice lens Vr, Vx~70%	se		ļļ					•			2.0
185°	interlayered sand beds to 10mm thick	T 1 /	Vs, Vx~50% in inclined lenses								•			3.0
1 m	trace of fine gravel	\mathbb{A}	from 1-4mm Vs, Vr~40% Vx, Vs~20%		-	ļļ								
	sandy, some clay, coarse grained sand particles] 	Nbn uk_b			ļļ				•		····		4.0
	SHATTERED BEDROCK — weathered jointing infilled with silts and sands,	1	ς.ν ς.λ			ļķ				1				
	frozen													6.0
			b.\							1				
7.0	BEDROCK-GABBRO - foliation at 30 degrees		7.4						4.					7.0
- 8.0	to the vertical													- 8.0
9.0	م و garnet alterations			ļ 										9.0
10.0			,											 10.0
- 11.0	pegmatite, sharp upper contact at 50		10.4]	•									+
- 11.5	degrees to the vertical						<u> </u>							
- 12.0														12.0
13.0	foliation at 45 degrees		13-4											13.0
- 14.0	Tondadii di 40 degrees		\ J · I							١				
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<u> </u>	EDMONTON, ALDERIA			Fig. No: 11	157-	-28							Page	1 of 2

APPENDIX D EM31 GEOPHYSICAL RESULTS



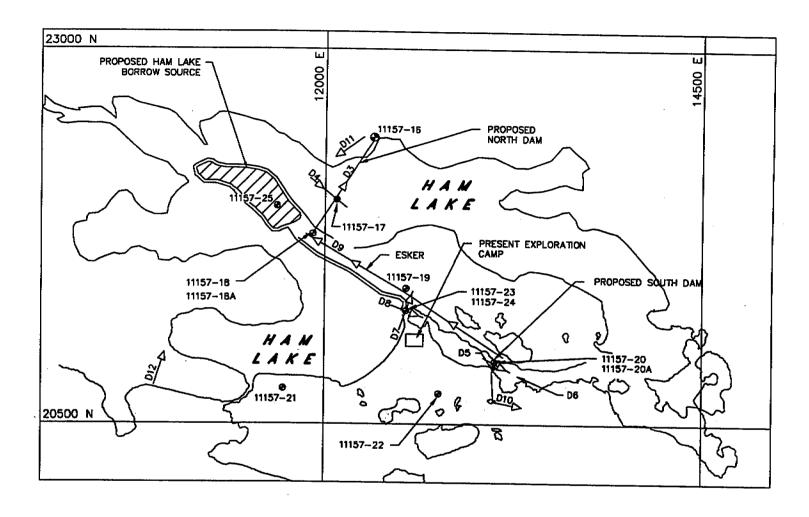


NOTE: BASED ON DIGITAL MAP PROVIDED BY BECHTEL/CESL. (1993-05-11) **LEGEND**

● - BOREHOLE LOCATION -- - EM-31 PROFILE

11157-D1

FIGURE D.1 PLANT AREA SITE PLAN SHOWING BOREHOLE AND EM-31 PROFILE LOCATIONS



- NOTES: 1. BASED ON DIGITAL MAP PROVIDED BY METALL MINING CORPORATION.
 - 2. GRID SYSTEM BASED ON COORDINATE GRID FROM ORTHOPHOTOS AS SUPPLIED BY METALL MINING CORPORATION.

LEGEND

- → BOREHOLE LOCATIONS
- -- EM-31 PROFILE LINE

11157-D2

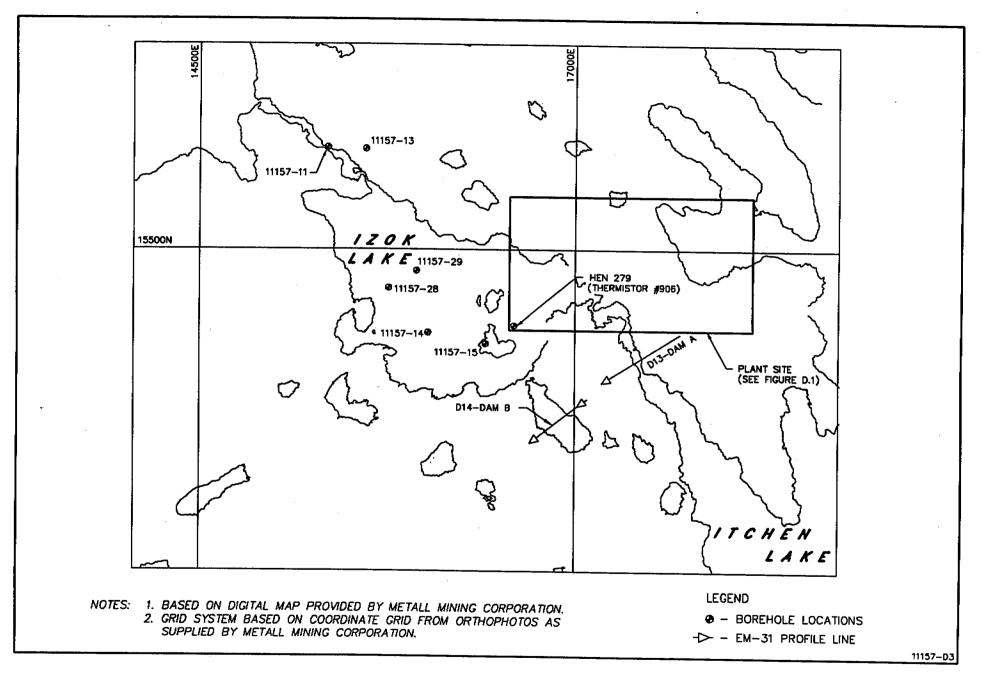


FIGURE D.3 IZOK LAKE SITE PLAN, BOREHOLE AND EM-31 PROFILE LOCATIONS

APPENDIX E LABORATORY TEST RESULTS

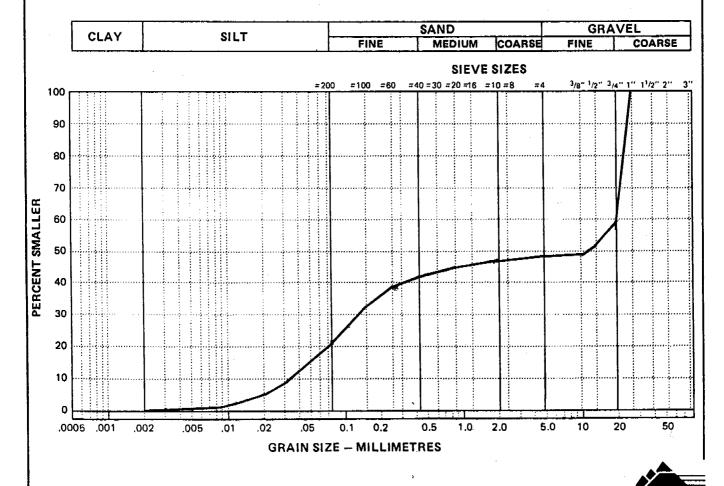


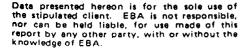
GRAIN SIZE CURVES FOR SOIL SAMPLES OBTAINED FROM DRILLING



PARTICLE - SIZE ANALYSIS OF SOILS

Project:Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
Plant Site	3″	
Project Number: 0101-11157	2"	
Date Tested: April 29, 1993	11/2"	
Borehole Number: BH-2	1"	100.0
Depth: 2.4 - 3.0 m	3/4"	100.0 58.9 49.2 48.0 46.7 44.9 42.1 37.7 31.5
Soil Description: GRAVEL, sandy, silty	3" 2" 11/2" 1" 100.0 3/4" 58.9 3/8" 49.2 No. 4 48.0 No. 10 46.7 No. 20 44.9 No. 40 42.1 No. 60 37.7 No. 100 31.5	
Cu:		
Cq:	No. 10	46.7
16.2	No. 20	44.9
Remarks:	No. 40	42.1
	No. 60	37.7
	SIEVE PASSING 3" 2" 11/2" 100.0 3/4" 58.9 3/8" 49.2 10.4 48.0 10.5 46.7 10.5 46.7 10.5 40.5	





PARTICLE - SIZE ANALYSIS OF SOILS

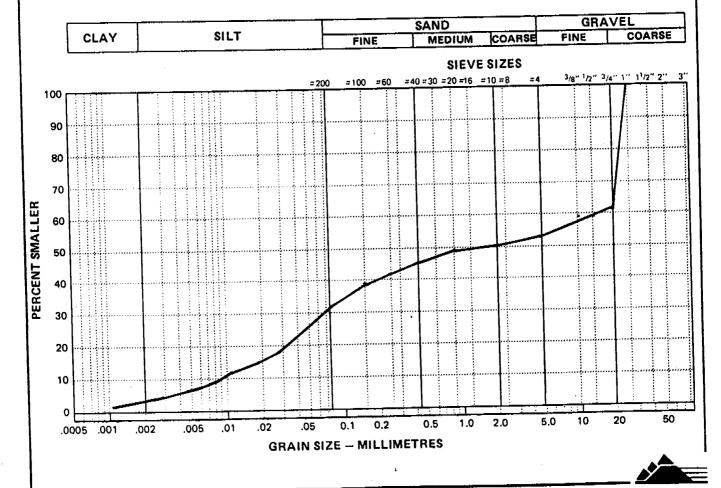
Project: Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
Plant Site	3″	
Project Number: 0101-11157	2"	
Date Tested: April 29, 1993	11/2"	
Borehole Number: BH-5	1"	100.0
Depth: 0.6 - 019 m	3/4"	90.1
Soil Description: SILT, some sand, some gravel	y	
Cu:	No. 4	83.1
Cc:	No. 10	81.3
Natural Moisture Content: 56.9	% No. 20	79.4
Remarks:		100.0 90.1 84.6 83.1 81.3 79.4 77.5 75.3 72.4
	No. 60	75.3
	No. 100	72.4
	No. 200	65.4

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PARTICLE - SIZE ANALYSIS OF SOILS

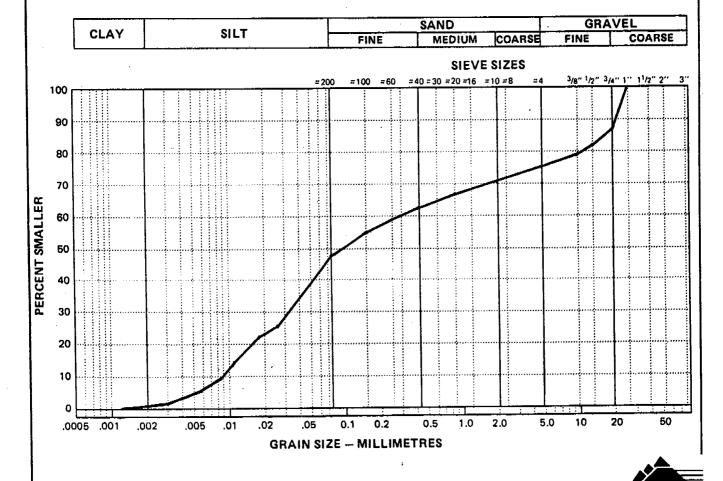
Project:	zok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
	Plant Site	3″	
O	0101-11157	2"	
Project Number Date Tested:		11/2"	
Date Tested:	ber: BH-5	1"	100.0
Borehole Num	1.3 - 1.5 m	3/4"	61.0
	LINAVEL. SILLV. SOLIUV	3/8"	58.9
Soil Description	on:	No. 4	52.6
	Cu:	No. 10	50.2
	Cc:	No. 20	48.7
	ure Content:	No. 40	44.7
Remarks:		No. 60	41.7
		No. 100	38.1
		No. 200	31.2



Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA.

PARTICLE - SIZE ANALYSIS OF SOILS

Project:	Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
	Plant Site	3″	
Project Nu	mber:0101-11157	2"	
Data Tarta	d:	1 ¹ /2"	
	Number:	1"	100.0
D45.	0.3 - 0.6 m	3/4"	86.5
Call Dane	ption: SILT, sandy, gravelly	3/8″	79.3
Soli Descri	The state of the s	No. 4	75.1
	Cu:	No. 10	70.3
	oisture Content:%	No. 20	66.6
		No. 40	63.1
Hemarks:		No. 60	59.3
		No. 100	54.8
		No. 200	47.6



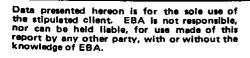
The testing services reported herein have been performed by an EBA technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.

Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA.

PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZDK PRDJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number: 101 -11157	2"	
Date Tested: 93-06-15	1 ¹ /2"	
Borehole Number: 13	1"	
Depth: . 60 90 M	3/4"	100.0
Soil Description: SILT. SANDY . TRACE GRAVEL. TRACE CLAY	3/8"	99.5
Cu: 5. 90	No. 4	97.8
Cc: 1.21	No. 10	95. 4
Natural Moisture Content: %	No. 20	92. 3
Remarks:	No. 40	69. 1
	No. 60	65. 9
	No. 100	81.1
	No. 200	67.9

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PARTICLE - SIZE ANALYSIS OF SOILS

Project: Izok Project, Feasibility Study		SIEVE	PERCENTAGE PASSING
Plant Site		3″	
Project Number: 0101-11157		2"	
Date Tested: April 29, 1993		1 ¹ /2"	
Borehole Number: BH-14		1"	
Depth: 10.7 - 11.1 m		3/4"	
Soil Description: SILT, trace sand		3/8"	
Cu:		No. 4	
Ge:	1	No. 10	
Natural Moisture Content: 30.2	<u>*</u>	No. 20	
		No. 40	·
Remarks:		No. 60	100.0
		No. 100	99.5
		No. 200	98.5

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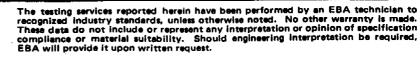
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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number:101 -11157	2"	
Date Tested: 93-05-14	11/2"	100.0
Borehole Number: 16	1"	87.1
Depth: D. DD 3D M	3/4"	85. 2
Soil Description: SAND- GRAVEL, TRACE SILT	3/8"	73.9
Cu: 36. 41	No. 4	63.0
. 53	No. 10	50.2
Natural Moisture Content: 2.8 %	No. 20	39. 5
Natural Moisture Content.	No. 40	28. 5
Remarks:	No. 60	19. 4
	No. 100	13.7
	No. 200	6.0

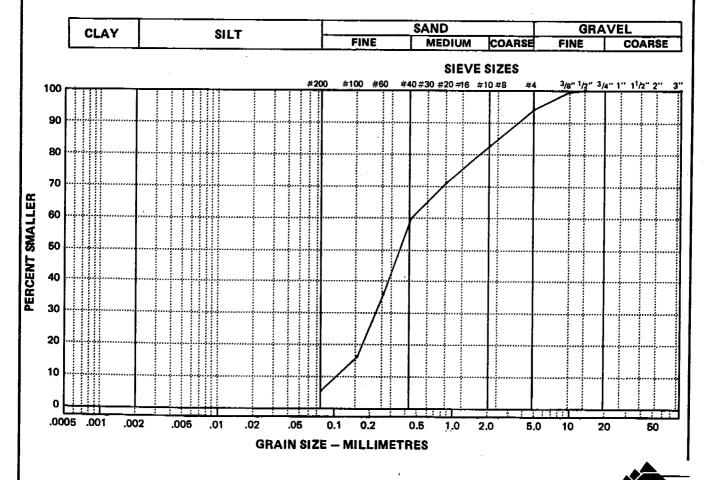
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PARTICLE - SIZE ANALYSIS OF SOILS

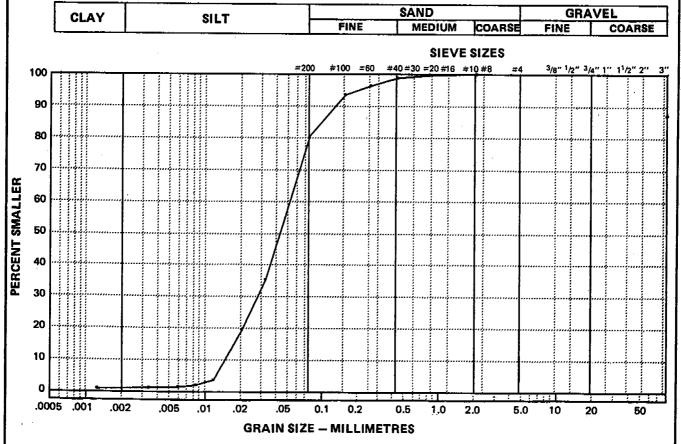
Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number: 101 -11157	2"	
Date Tested: 93-05-15	1 ¹ /2"	
Borehole Number: 17	1"	
Depth: . 30 80 M	3/4"	100.0
Soil Description: SAND. TRACE GRAVEL, TRACE SILT	3/8"	99. 5
Cu: 4. 33	No. 4	94.0
Cc: 1. D3	No. 10	82. 4
Natural Moisture Content: 18.3 %	No. 20	70.6
Remarks: Trace Organics < 1%	No. 40	59. 3
· ·	No. 60	35. 8
	No. 100	15.8
	No. 200	5. 1



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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number:101 -11157	2"	
Date Tested: 93-06-1	11/2"	
Borehole Number: 17	1"	
Depth: . 60 1.20 M	3/4"	
Soil Description: SILT, SOME SAND, TRACE CLAY	3/8"	
Cu:3. 48	No. 4	
Cc: 1. D1	No. 10	180.0
Natural Moisture Content:	No. 20	99. 6
Remarks:	No. 40	98. 6
	No. 60	96. 2
	No. 100	93. 4
	No. 200	80. 2





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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	ŞIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3"	
Project Number: 101 -11157	2"	
Date Tested: 93-06-15	11/2"	
Borehole Number: 17	1″	
Depth: 3.10 - 3.70 M	3/4"	
Soil Description: SILT- SAND. TRACE CLAY	³ /8"	
Cu: 5. D3	No. 4	
Cc: 1.13	No. 10	
Natural Moisture Content:	No. 20	100.0
Remarks:	No. 40	99. 8
	No. 60	96. 3
	No. 100	83. 6
	No. 200	51.2

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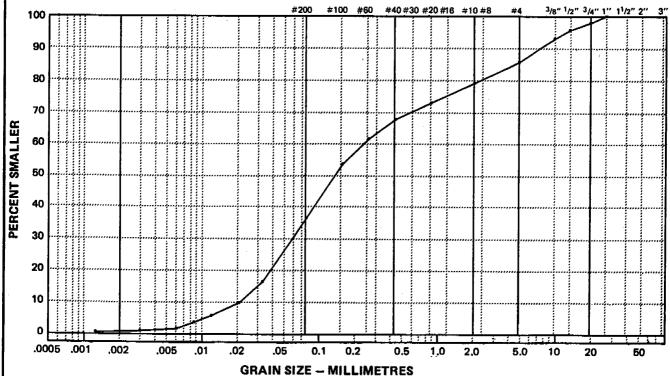
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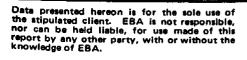
PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZDK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3"	
Project Number: 101 -11157	2"	
Date Tested: 93-06-10	1 ¹ /2"	
Borehole Number: 17	1″	100.0
Depth: 5. 10 - 5. 40 M	3/4"	97. 9
Soil Description: SAND- SILT, SONE GRAVEL, TRACE CLAY	3/8"	92.7
Cu: 11.18	No. 4	65. 5
Cc: 67	No. 10	78.8
Natural Moisture Content:	No. 20	72.7
Remarks:	No. 40	67.4
	No. 60	61.3
	No. 100	53. 3
	No. 200	36.3

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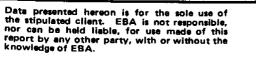




PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3"	
Project Number: 101 11157	2"	
Date Tested: 93-06-15	11/2"	
Borehole Number: 18	1"	
Depth: 1.40 - 1.80 M	3/4"	100.0
Soil Description: SILT- SAND, TRACE CLAY, TRACE GRAVEL	3/8"	99. 4
Cu: 4. 27	No. 4	99. 1
Co: 1. DO	No. 10	98. 5
Natural Moisture Content:	No. 20	97.8
Remarks:	No. 40	96. 4
	No. 60	90. 3
	No. 100	78.7
	No. 200	55. 1

CLAY SILT FINE MEDIUM COARSE FINE	" 3/4" 1" 1 ¹ /2" 2" 3
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GRAIN SIZE — MILLIMETRES	



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PARTICLE - SIZE ANALYSIS OF SOILS

Project:IZDK PRDJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	100.0
Project Number: 101 -11157	2"	84.6
Date Tested: 93-06-11	1 ¹ /2"	76,5
Borehole Number: 18	1"	55. 8
Depth: 4. 00 - 4. 50 M	3/4"	42. 0
Soil Description: GRAVEL. SOME SAND. TRACE SILT	³ /8"	21.7
Cu:34. 93	No. 4	16.6
Cc: 8. 75	No. 10	12.9
Natural Moisture Content:	No. 20	10.2
Remarks:	No. 40	8.3
	No. 60	5. 8
·	No. 100	3, 1
	No. 200	1.6

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GRAIN SIZE - MILLIMETRES



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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3"	
Project Number:10111157	2"	
Date Tested: 93-06-11	11/2"	
Borehole Number: 18	1"	
Depth: 16.80 - 17.40 M	3/4"	
Soil Description: SAND. TRACE SILT. TRACE GRAVEL	3/8"	100.0
Cu: 4. 54	No. 4	98. 5
Cc: 1. 24	No. 10	75.7
Natural Moisture Content: 18.8 %	No. 20	33. 4
Remarks:	No. 40	14.1
	No. 60	7. 0
	No. 100	5.0
	No. 200	3.5

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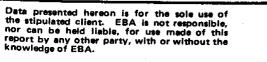


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PARTICLE - SIZE ANALYSIS OF SOILS

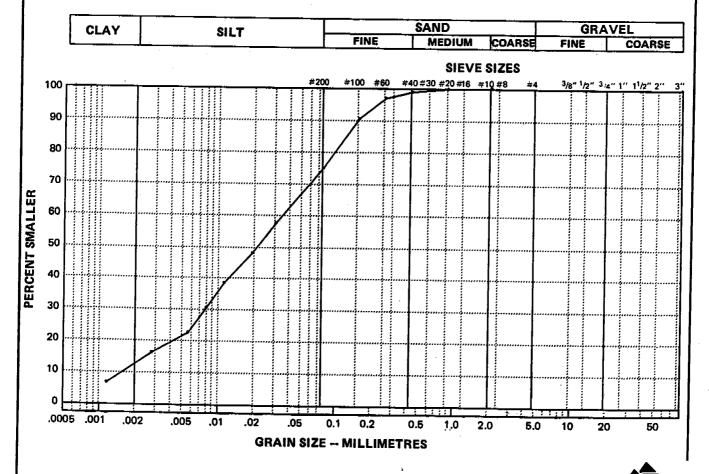
Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	100.0
Project Number: 101 -11157	2"	71.5
Date Tested: 93-06-11	11/2"	48. 6
Borehole Number: 20	1"	37.5
Depth: 1.80 - 2.10 M	3/4"	30.8
Soil Description:	3/8″	6.7
Cu: 3.84	No. 4	. 9
Cc: 69	No. 10	. 3
Natural Moisture Content: %	No. 20	. 1
Remarks:	No. 40	- 1
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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3"	
Project Number: 101 -11157	2"	
Date Tested: 93-06-07	11/2"	
Borehole Number: 20	1"	
Depth: 5. 20 - 5. 80 M	3/4"	
Soil Description: SILT. SANDY SOME CLAY	3/8"	
Cu: 22. 29	No. 4	
Cc: 1. DB	No. 10	100. 🗅
Natural Moisture Content:	No. 20	99. 6
Remarks:	No. 40	98. 8
	No. 60	96. 8
	No. 100	90.4
	No. 200	74.6



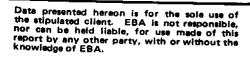
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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZDK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number:101 -11157	2"	
Date Tested: 93-06-14	11/2"	
Borehole Number: 20	1"	
Depth: 9.10 - 9.10 M	3/4"	
Soil Description: SAND, SOME SILT	3/8"	
Cu:	No. 4	100.0
Cc:	No. 10	99. 9
Natural Moisture Content:	No. 20	99. 0
Remarks: Troce Rootlets < 1%	No. 40	77. 6
	No. 60	49. 3
	No. 100	31.0
	No. 200	12.5

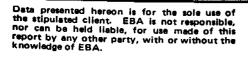
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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZDK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number:101 -11157	2"	
Date Tested: 93-06-15	11/2"	100.0
Borehole Number: 20	1"	64.3
Depth: 11.00 - 11.50 M	3/4"	38. 5
Soil Description: GRAVEL. SOME SAND, TRACE SILT	3/8″	26, 4
Cu: 8. 53	No. 4	13.8
Cc: 1.82	No. 10	7.4
Natural Moisture Content: %	No. 20	4. 5
Remarks:	No. 40	3. 4
	No. 60	2. 6
	No. 100	1.9
	No. 200	1.3

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PARTICLE - SIZE ANALYSIS OF SOILS

Project: Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
Plant Site	3"	
Project Number: 0101-11157	2"	
Date Tested: April 29, 1993	11/2"	
Borehole Number: BH-21	1"	
Depth: 1.2 - 1.5 m	3/4"	87.2
Soil Description: SAND, silty, gravelly	3/8″	78.8
Cu:	No. 4	71.5
Cc:	No. 10	64.4
Natural Moisture Content: 11.8 %	No. 20	58.6
Remarks:	No. 40	51.2
	No. 60	45.9
	No. 100	40.8
	No. 200	31.9

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PARTICLE - SIZE ANALYSIS OF SOILS

Project: Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
Plant Site	3"	
Project Number: 0101-11157	2"	
Date Tested: April 30, 1993	11/2"	
Borehole Number: BH-22	1"	
Depth: 3.4 - 4.0 m	3/4"	
Soil Description: SAND, fine, trace silt	3/8"	
Cu:	No. 4	
Cc:	No. 10	
Natural Moisture Content: 26.4 %	No. 20	100.0
Remarks:	No. 40	82.6
	No. 60	28.4
	No. 100	8.4
	No. 200	1.4

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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number: 101 -11157	2"	
Date Tested: 93-06-11	1 ¹ /2"	
Borehole Number: 23	1"	
Depth: .6080 M	3/4"	
Soil Description: SAND, TRACE SILT	3/8"	
Cu: 2. 18	No. 4	100.0
Cc: 84	No. 10	97. 8
Natural Moisture Content:%	No. 20	83.4
Remarks:	No. 40	40. 6
	No. 60	5.7
	No. 100	2.6
	No. 200	1.9

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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZOK PROJ FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number:1\(\Omega1 - 1 \) 1 1 57	2"	
Date Tested: 93-05-11	1 ¹ /2"	
Borehole Number: 23	1"	
Depth: 90 - 1.20 M	3/4"	
Soil Description: SAND, TRACE SILT	3/8"	
Cu: 2.27	No. 4	100.0
Cc:	No. 10	97.4
Natural Moisture Content: %	No. 20	78. 6
Remarks:	No. 40	35. 3
Tiving Nat	No. 60	3.7
	No. 100	1.4
	No. 200	9

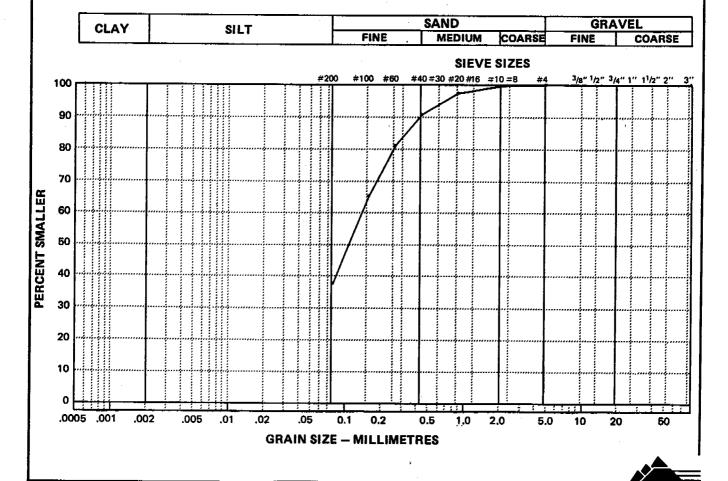
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PARTICLE - SIZE ANALYSIS OF SOILS

Project: IZDK PROJ. FEASIBILITY STUDY	SIEVE	PERCENTAGE PASSING
PLANT SITE INVESTIGATION	3″	
Project Number: 101 -11157	2"	
Date Tested: 93-06-16	11/2"	
Borehole Number: 23	1"	
Depth: 2.40 - 2.70 M	3/4"	
Soil Description: SAND- SILT	3/8"	
Cu:	No. 4	100.0
Ce:	No. 10	99. 5
Natural Moisture Content:%	No. 20	97. 2
Remarks: Rootlets (17.5% of original	No. 40	90.6
washed wt.) removed prior to te	5t. No. 60	80. 8
	No. 100	65. D
	No. 200	37.4



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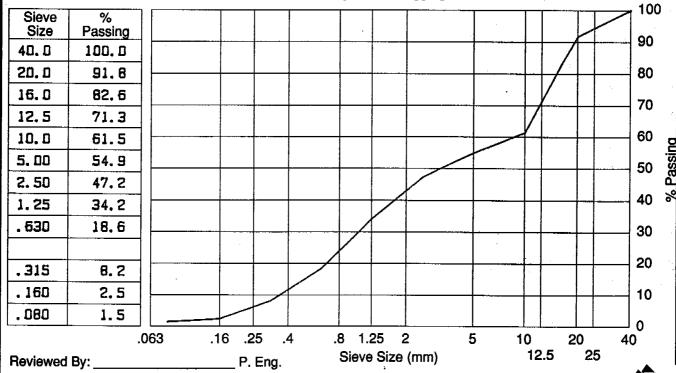
Project: 1	ZOK PROJECT FEA	SIBILITY	STUDY	Sample I	Number:	25			
-	Plant Site Area				_ocation: _				
Project Nu	ımber: <u>101 -1</u>	1157					Trans o a		
Date Sam	pled:	By:							
Client:	<u>Metall Mining Co</u>	rporatio	n						
				_	sted: <u>93-</u>				
				_	by: DV				
			· 		Moisture Co				
				•	Faces:				
Soil Descr	ription: <u>SAND</u> (SP	<u>) – grave</u>	elly ·	<u>.</u>			,		
	4.9							<u> </u>	
	0.8 BH-25						., .		
				• .					
	1.8-2.4m			<u> </u>					
			_	dt	- 6 A	_			
			Gra	SOUT CHAIR					
			1		of Aggregate	э -	, , , , , , , , , , , , , , , , , , , 	1	100
Sieve Size	% Passing			ading Odive (or Aggregate	э 			
	% Passing 100.0			ading outve	or Aggregate	3			100 90
Size	Passing			ading out ve	or Aggregat	•		g	
Size 40. 0 20. 0 16. 0	Passing 100.0 95.6 93.6			ading ourve	or Aggregate	•		9	90
Size 40.0 20.0 16.0 12.5	Passing 100.0 96.6 93.6 90.4			ading ourve	or Aggregate	•		8	90 30 70
Size 40. 0 20. 0 16. 0 12. 5	Passing 100.0 96.6 93.6 90.4 84.9				or Aggregate	•		\$ 8 7 6	90 30 70
Size 40.0 20.0 16.0 12.5 10.0 5.00	Passing 100. 0 95. 6 93. 6 90. 4 84. 9 74. 3				or Aggregate	•		\$ 8 7 6	90 30 70
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50	Passing 100.0 96.6 93.6 90.4 84.9 74.3 65.1				or Aggregate	•		5 	90 30 70
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50	Passing 100.0 95.6 93.6 90.4 84.9 74.3 65.1				or Aggregate	3		5 	30 70 30 50
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50	Passing 100.0 96.6 93.6 90.4 84.9 74.3 65.1				or Aggregate	3		5 	30 30 70 30 50 40
Size 40. 0 20. 0 16. 0 12. 5 10. 0 5. 00 2. 50 1. 25	Passing 100.0 95.6 93.6 90.4 84.9 74.3 65.1				or Aggregate	3		5 	30 70 30 50
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50 1.25 .630	Passing 100.0 96.6 93.6 90.4 84.9 74.3 65.1 54.3				or Aggregate	3		5 	30 30 70 30 50 40

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AGGREGATE ANALYSIS REPORT

Project: IZOK PROJECT FEASIBILITY STUDY Address: Plant Site Area Investigation Project Number: 101 -11157	Sample Location:		
Date Sampled: By:			
Client:By		Temp.: _ 5-25	
	Natural Moisture Cont		• • • •
Attention:			
Soil Description:SAND (SP) and CRAVEL - 1			
Cu:24			
Cc:0, 35			
Remarks: BH-25			
•			

Grading Curve of Aggregate



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Project:	IZOK PROJE	CT FEASIB	ILITY	STU	DY	Sample	Number: _	27			
Address:	Plant Sit	e Area In	vesti	gati	on.	Sample	Location:				
Project Nu	ımber:1	01 -1115	7								
Date Sam	pled:		By:							 	
Client:	Metall Min	ing Corpo	ratio	n		Time:		T	emp.: _		°C
						Date Te	sted: <u>93</u>	-05-25			
						Tested E	3y: <u>□ν</u>				
	·					Natural I	Moisture C	ontent: _	19.6		
Attention:						Crushed	Faces:		□ 1	 	□ 2
Soil Desci	ription: SAN	D (SP) -	trace	gra	vel, t	race si	lt ·	~		 	
							-			 	
Cu:	4.0										
	1 - 0								•		
	8H25										
	6.9-7.8m									 	
			ı				:			 	
			'		Grad	ing Curve	of Aggrega	ate			_ 100
Sieve	%				Grad	ing Curve	of Aggrega	ate		 	100
Sieve Size					Grad	ing Curve	of Aggrega	ate			100
Size	% Passing				Grad	ing Curve	of Aggrega	ate			
Size 40. D	% Passing 100.0				Grad	ing Curve	of Aggrega	ate			90
Size 40. 0 20. 0	% Passing 100.0 98.5				Grad	ing Curve	of Aggrega	ate			90 80 70
Size 40. 0 20. 0 16. 0	% Passing 100.0 98.5 96.5				Grad	ing Curve	of Aggrega	ate			90
Size 40. 0 20. 0 16. 0 12. 5	% Passing 100.0 98.5 96.5				Grad	ing Curve	of Aggrega	ate			90 80 70
Size 40.0 20.0 16.0 12.5	% Passing 100.0 98.5 96.5 96.2 95.8				Grad	ing Curve	of Aggrega	ate			90 80 70 60 50
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50 1.25	% Passing 100. 0 98. 5 96. 5 96. 2 95. 8 92. 7				Grad	ing Curve	of Aggrega	ate			90 80 70 60 50
Size 40. 0 20. 0 16. 0 12. 5 10. 0 5. 00 2. 50	% Passing 100.0 98.5 96.5 96.2 95.8 92.7 85.3				Grad	ing Curve	of Aggrega	ate			90 - 80 - 70 - 60 - 50
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50 1.25 .630	% Passing 100.0 98.5 96.5 96.2 95.8 92.7 85.3 68.0 40.3				Grad	ing Curve	of Aggrega	ate			90 80 70 60 50 40
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50 1.25 .630	% Passing 100.0 98.5 96.5 96.2 95.8 92.7 85.3 68.0 40.3				Grad	ing Curve	of Aggrega	ate			90 80 70 60 50 40 30 20
Size 40.0 20.0 16.0 12.5 10.0 5.00 2.50 1.25 .630	% Passing 100.0 98.5 96.5 96.2 95.8 92.7 85.3 68.0 40.3				Grad	ing Curve	of Aggrega	ate			90 80 70 60 50 40

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Reviewed By:

The testing services reported herein have been performed by an EBA technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.

Sieve Size (mm)

P. Eng.

25

12.5

PARTICLE - SIZE ANALYSIS OF SOILS

Project: Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
Plant Site	3″	
Project Number: 0101-11157	2"	
Data Testad: April 30, 1993	11/2"	
Borehole Number: BH-26	1"	
Depth: 1.8 - 2.1 m	3/4"	
Soil Description: SILT, trace sand	3/8"	·
Cu:	No. 4	·
Cc:	No. 10	100.0
Natural Moisture Content:	No. 20	99.8
Remarks:	No. 40	99.4
nemarks:	No. 60	99.1
	No. 100	98.6
	No. 200	96.4

	CLAY			CILT						SAN					AVE		
	CLAY	<u> </u>		SILT			F	NE		ME	DIUM	COARS	E	FINE	<u> </u>	COARS	SE
												E SIZES					
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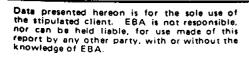


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PARTICLE - SIZE ANALYSIS OF SOILS

Project:	Izok Project, Feasibility Study	SIEVE	PERCENTAGE PASSING
-	Plant Site	3″	
Project Nun	nber:0101-11157	2"	
	e April 30, 1993	1 ¹ /2"	
	umber: BH-26	1″	
Denth:	2.4 - 2.8 m	3/4"	
Soil Descrip	otion: SILT, trace sand	3/8"	
	Cu:	No. 4	
	Cc:	No. 10	100.0
Natural Mo	isture Content: 34.3 %	No. 20	99.9
		No. 40	99.9
		No. 60	99.8
		No. 100	98.7
		No. 200	99.2

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PARTICLE - SIZE ANALYSIS OF SOILS

SIEVE	PERCENTAGE PASSING
3″	
2"	
11/2"	
1"	
3/4"	
3/8"	
No. 4	
No. 10	
No. 20	100.0
No. 40	99. 8
No. 60	99. 6
No. 100	99. 0
No. 200	95. 6
	3" 2" 11/2" 1" 3/4" 3/8" No. 4 No. 10 No. 20 No. 40 No. 60 No. 100

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