Minto Mine

Mill Operations Plan

Prepared by:

Minto Explorations Ltd.

Minto Mine

June 2014

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

The Mill Operations Plan (MOP) is a requirement of Quartz Mining Licence QML-0001 (QML), which requires "*A plan that details the activities for the operation and monitoring of the mill.*" The content of this MOP is derived from the *Plan Requirement Guidance for Quartz Mining Projects* (Yukon Government, 2013).

The purpose of the MOP is to summarize mill design, milling and production rates, plans for and identification of stockpiles, details on reagent use and storage and the requirements for load-out and trucking. Typically the MOP would include the development and construction details of the mill; however, as Minto Mine has been operating since 2007, this plan will only describe the operations and as-constructed details for the mill and associated facilities.

1.1 Project Description

Minto Mine is a high-grade copper and gold mine that is located 240 km north of Whitehorse, Yukon. Operations are ongoing at this time and began in October 2007. Minto processes both open-pit and underground ore using conventional crushing, grinding, and flotation to produce copper concentrates with significant gold and silver credits. Since commencement of commercial production in 2007, processing plant design throughput has increased from 1,563 tonnes per day (tpd) to the present throughput of 4,200 tpd. Concentrates are exported internationally via the Port of Skagway, Alaska for smelting and sale.

In July 2013, the Phase V/VI expansion project proposal was submitted to the Yukon Environmental and Socio-Economic Assessment Board (YESAB), which includes three new open pits and expansion of an existing, and additional underground reserves (Figure 1-1). As part of the Phase V/VI expansion, Minto intends to continue operating the mill as it is currently being operated for Phase IV mining.

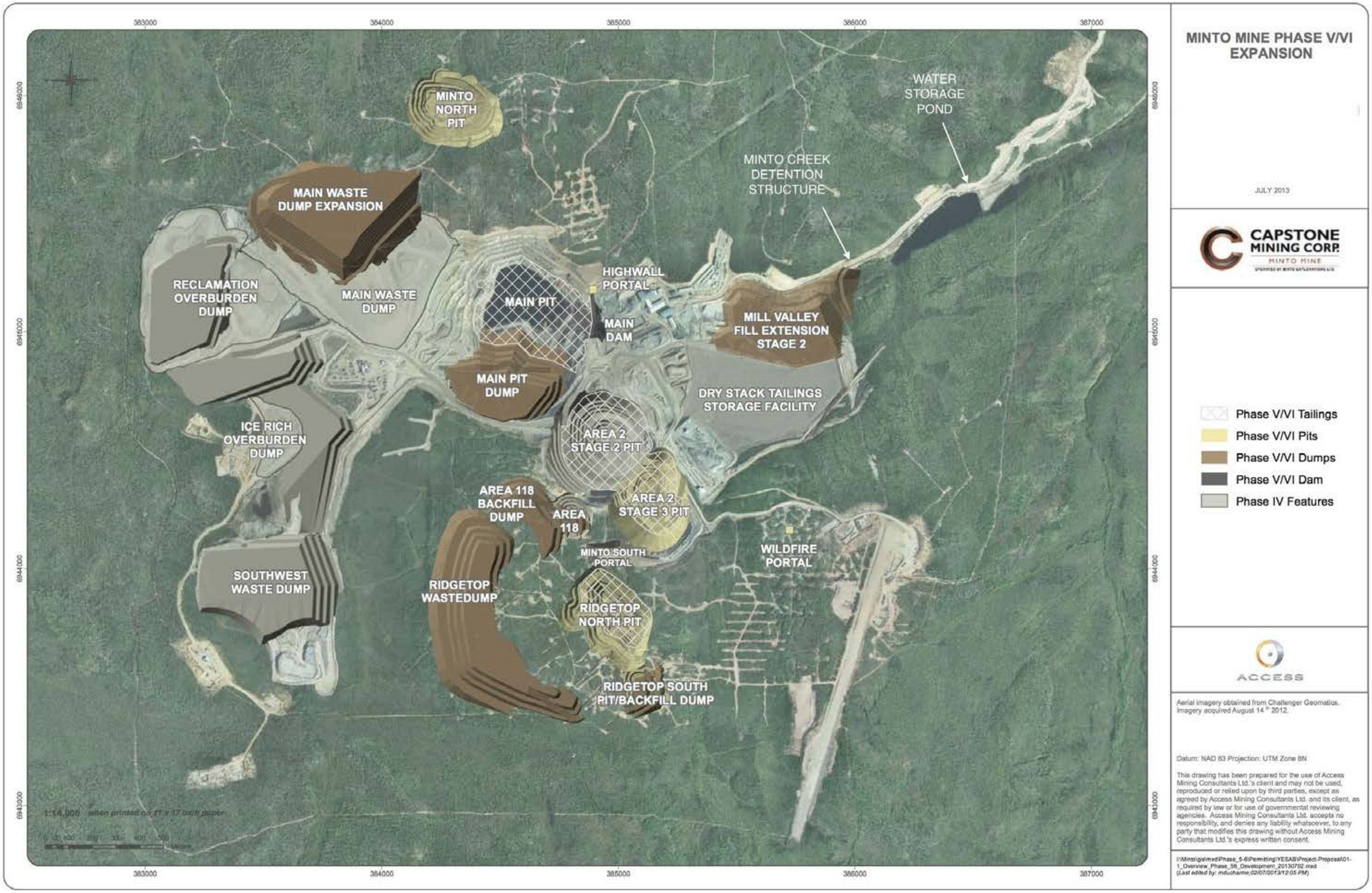


Figure 1-1: Minto Mine Area Overview with Phase V/VI Expansion Facilities

2 Mill and Ancillary Facilities

The process plant at Minto has been operating since 2007 and has undergone several significant upgrades that have increased throughput and recoveries. Minto was authorized to process 1,800 tpd of ore containing copper, gold and silver to produce a copper concentrate in its Phase 1 plant design. In Phase 2, changes were made to the plant layout and design to accommodate the increased throughput to 2,400 tpd. The main changes included a new building extension to contain a second ball mill circuit, three additional rougher flotation cells, and also the use of the new re-cleaner cells in the main mill building. Other equipment initially installed in Phase 1 was sized to handle both Phase 1 and 2 tonnages; only minor modifications to the grinding circuit were required to increase the milling rate in Phase 2 to 2,400 tpd and then in Phase 3 to 3,200 tpd, involving grate sizes inside the SAG mill and trommel screen size. Minto is currently authorized to mill ore at a rate of up to 4,200 tpd.

2.1 Mill Facilities

The processing plant consists of the following main unit operations, a detailed arrangement of which provided in Appendix B:

- Two-stage grinding circuit comprised of a single SAG (semi-autogenous grinding) mill and two ball mills.
- Bulk flotation in rougher and scavenger stages, followed by cleaner flotation.
- Centrifugal gravity concentration of coarse gold.
- Concentrate thickening and pumping.
- Concentrate filtration.
- Concentrate storage (on-site).
- Tailings thickening and pumping to an in-pit deposition location. and,
- Water reclamation.

The primary crusher was originally designed to operate six hours per day, 365 days per year at 75% availability but, due to increased throughput, now operates 24 hours per day, 365 days per year at an availability of 75%. The mill circuit operates 24 hours per day, 365 days per year at an availability of approximately 93%. Availability is defined as the operating hours in a 24-hour day.

2.2 Ore Stockpiles

Several ore stockpiles exist on the property. Southeast of the mill complex are four adjacent stockpile pads, three of which are generally used for sulfide ore and the fourth for partially oxidized ore. West of the Main pit, adjacent to the Main Waste Dump, are two additional stockpile pads used to store low-grade and partially oxidized ore. A map of stockpile areas is presented in Figure 2-1.

Ore is segregated according to copper grade and percentage of acid-soluble copper as shown in Table 2-1 below.

DESCRIPTION:	Ore Stockpiles
	August 2013 Aerial Orthophoto
DATE PLOTTED:	2014/06/08

Figure 2-1: Minto Mine Area Overview with ore stockpiles

Table 2-1: Ore Stockpiles

Material Type	Copper Grade Range	Soluble Copper
Blue Ore	0.50 – 1.00% Cu	<15.0%
Green Ore	1.00 – 2.00% Cu	<15.0%
Yellow Ore	2.00 – 4.00% Cu	<15.0%
Red Ore	>4.00% Cu	<15.0%
Partially Oxidized Ore	>1.00% Cu	>15.0%
Low-Grade Partially Oxidized Ore	0.50 – 1.00% Cu	>15.0%

The higher-grade ores are fed to the mill as they are mined in order to maintain the highest possible head grade while mining ore. The lower-grade and partially oxidized stockpiles are depleted gradually and are used to supplement mill feed during periods of waste stripping.

2.3 Tailings Facilities

Tailings produced in Phases I – III were filtered and dry-stacked in the Dry Stack Tailings Storage Facility (Figure 1-1). Tailings produced in Phase IV are thickened and then discharged as slurry to the Main pit; the use of the Area 2 pit is also licensed but has not yet begun. Phase V/VI will continue to use the Main Pit, the expanded Area 2 pit, and add the Ridgetop North pit. Tailings may also be used for underground backfill in selected areas depending on the outcome of future engineering evaluations. There will be sufficient storage capacity in the in-pit facilities for all Phase V/VI tailings should tailings backfill not be required for underground support.

As discussed in the *2014 Minto Mine Tailings Management Plan*, waste rock with NP:AP<3 will be co-disposed with tailings in locations that will be saturated post-closure. Additional storage volume beyond the natural capacity of the existing and future pits is required. To increase the available storage capacity in the Main Pit, Minto intends construct a dam on the east side of the existing pit. Details of the tailings management facilities and processes are contained within the *2014 Minto Mine Tailings Management Plan*.

2.4 Water Management System

Water used for grinding and flotation is currently sourced from the Main Pit (**Error! Reference source ot found.**). After flotation is complete, water is returned to the Area 2 pit as part of the slurry tailings stream or discharged to the mill pond to be recycled. A small amount of water remains as moisture content in concentrate.

Water from the Main Pit has been treated through the Water Treatment Plant for discharge to the receiving environment during the freshet periods in 2012, 2013 and in 2014. Treatment of water from the Area 2 pit is also likely to occur as that pit becomes a water and tailings management facility.

The Water Treatment Plant accepts feed water from the Main Pit or WSP and discharges treated water to the Main Pit, WSP or Minto Creek. Sludge and the reverse osmosis plant concentrate stream produced in the treatment process are pumped to the Main Pit. The first stage of the water treatment plant at Minto was constructed in 2010. The water treatment process included a ballasted lamella clarifier unit (Actiflo®) system for removal of TSS, total metals and dissolved copper.

In 2012, two reverse osmosis (RO) trains were added to the treatment process downstream of the existing clarification and filtration units to treat nitrate and selenium, based on water quality limits received in the Water Use Licence Amendment 7. Treated effluent from the RO units may also be amended, when necessary, with sodium bicarbonate to adjust the pH and add salinity and alkalinity.

The RO process removes 95–99% of all constituents in the feed water. The feed water for the RO unit is the effluent from clarification and filtration unit, which is operated as a pre-treatment step. The RO unit produces a clean effluent stream that consists of approximately 75% of the feed water (the RO permeate). The by-product of the process is a brine stream, which consists of about 25% of the feed water and 95–99% of constituent loadings. The brine stream is pumped to the Main Pit Tailings Management Facility or will be pumped to the Area 2 Pit Tailings Management Facility. Because of this brine by-product, RO cannot be considered a true water treatment process but is rather a process that concentrates mine water into a smaller volume with higher constituent concentrations.

A schematic of the water treatment plant is provided in Appendix A. More detail about the water management at the Minto mine is provided in the *2014 Minto Mine Water Management Plan.*

3 Milling Methods

The Minto Mine process plant design incorporates standard crushing, grinding, flotation, and dewatering circuits to produce a final copper concentrate product. Ore from the Phase V/VI deposits will be processed through the process plant as it currently operates.

The process schematic for the current Minto process plant is shown in Figure 3-1.

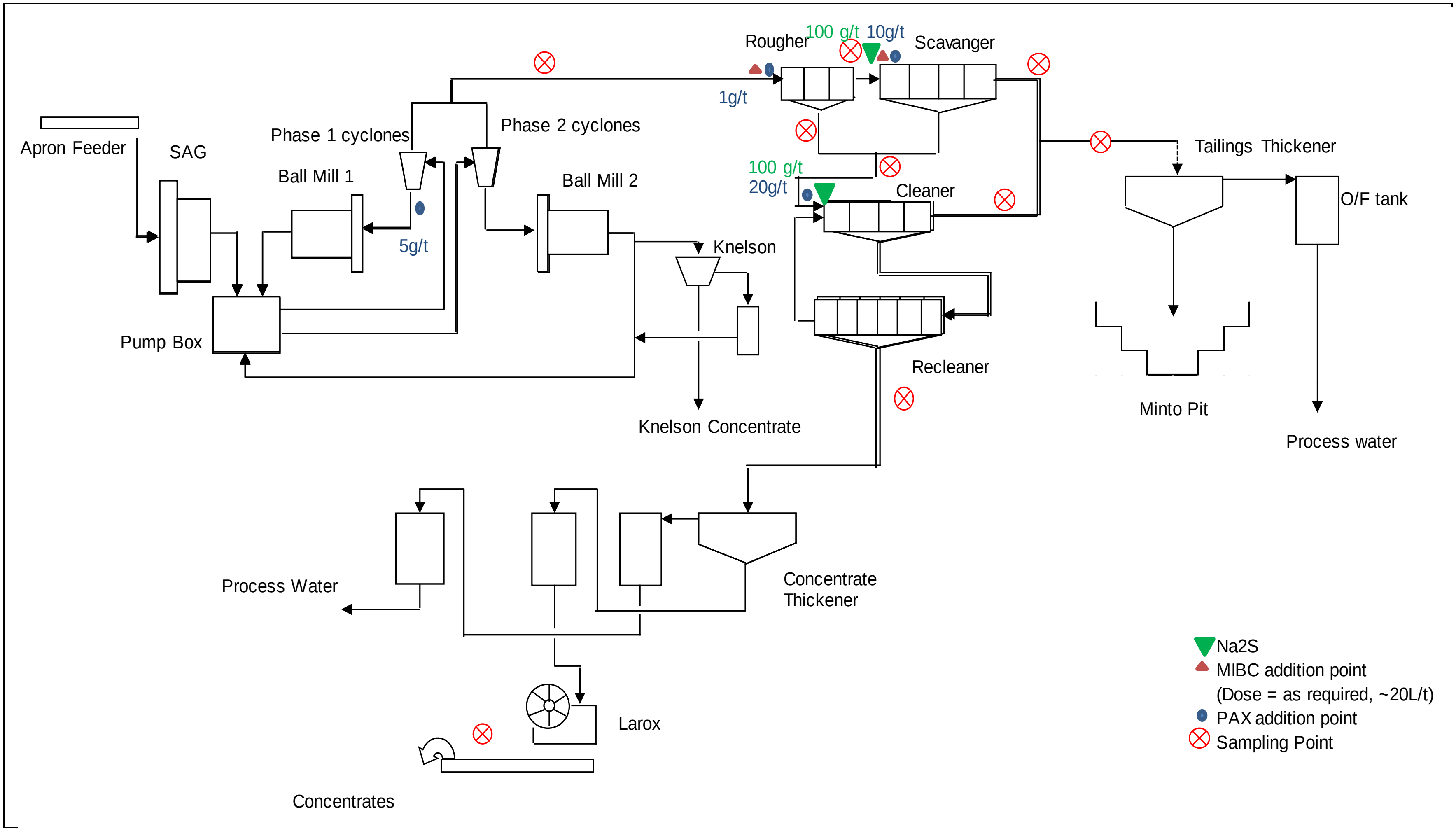


Figure 3-1: Minto Mill General Flow Sheet with Slurry Tailings

3.1 Plant Design

The plant design is well proven from historical operational data. Details of the crushing, grinding, flotation, concentrate, tailings and reagent circuits are provided below and process flowsheets are provided in Appendix B. The flow sheet incorporates the following unit process operations:

- Ore from the open pit and underground is crushed using the existing primary jaw crusher to a crushed product size of nominally 80% passing (P80) 115 mm. The jaw crusher product is fed to a gyratory crusher that reduces the ore down to P100 60 mm, P80 32 mm. A contract crusher supplements the ore feed to increase throughput. The jaw crusher discharge is screened and the oversize sent to the gyratory crusher. The crusher product is returned to the screen, putting the gyratory crusher in closed circuit with the screen.
- Crushing generates a P100 of 45mm to support the SAG mill feed rate of 177 dmt/hr. Crushed ore is conveyed to a conical stockpile, which feeds the mill via a single reclaim apron feeder.
- 670 kW SAG mill, 5.03 m diameter with 1.52 m EGL.
- Twin 670 kW ball mills each 3.20 m diameter with 3.66 m EGL, in closed circuit with hydrocyclones, grinding to a product size of nominally 80% passing (P80) 250 µm.
- Ball Mill 2 feeds a Knelson concentrator to concentrate any free gold.
- Bulk rougher/scavenger flotation consisting of three 40 mÑ forced air tank flotation cells and four 15 m^3 cells retrofitted of tank cell 20 mechanisms.
- A rougher concentrate bypass system is available to divert a portion of the concentrate from the cleaner/scavenger cells to the concentrate thickener, thus increasing the capacity of the cleaner/scavenger cells and improving recovery.
- As part of Phase V/VI, a a 220 kW vertical stirred mill rougher/scavenger concentrate regrinding system will be installed, grinding to a product size of nominally 80% passing (P80) 80 µm.
- Cleaner 1 flotation consisting of four 10 m^3 forced air tank flotation cells.
- Cleaner 2 flotation consisting of two 2.8 m^3 mechancial flotation cells.
- Cleaner 3 flotation consisting of four 2.8 m^3 mechancial flotation cells.
- Cleaner 2 flotation consisting of three 10 m^3 tank cells.
- Cleaner 3 flotation consisting of two, 10 m^3 cells to increase capacity.
- Final cleaner concentrate thickening in a 6 m diameter high-rate thickener.
- Concentrate thickened slurry filtration in a ceramic disk filter.
- Flotation tailings thickening in a 9.1 m diameter high-rate thickener to an underflow density of 50% solids.
- Tailings deposition, from the tailings thickener underflow, to the Main (subsequently Area 2) pit.

- Plant reagent preparation and distribution systems.
- Raw process plant water supply from the existing site water storage facility reticulated throughout the plant as required.
- Process water dam and distribution system for reticulation of process water throughout the plant as required per the existing facilities. Process water is supplied from water reclaimed from tailings deposition in the Minto Main pit, from process operations and site run-off with raw water used as make-up water as required.
- Plant, instrument and flotation air services and associated infrastructure.

3.1.1 Crushing Facilities and Sequence

Run-of-mine ore is first passed through a two-stage crushing circuit located outdoors on a pad west of the main process plant. Ore is first loaded into a hopper using a front-end loader. A screen over the hopper rejects boulders larger than the crusher opening; these are moved aside and broken using an excavator-mounted hydraulic rock-breaking tool.

The primary crusher is a 40’ x 50’ jaw crusher. 100% of the jaw crush product is then fed directly to the secondary gyratory crusher and crushed to a nominal 80% passing 32 mm. Undersize from the secondary crusher is fed onto the existing stockpile stacking conveyor.

Crusher performance has a marked effect on the SAG throughput and a fines content of 30-35% is needed to maximize throughput.

To optimize mill performance, a second contractor operated mobile crusher is at times utilized at the mine. Run-of-mine ore is transported to the contract crusher for initial crushing before being transported to the crusher pad to feed the permanent mine crusher and subsequently the mill.

To ensure that dust from the two crushers is adequately managed, dust suppressants and other engineered mitigations are applied.

The permanent crusher is equipped with nozzles to apply a dust suppressant (currently a product called Envirobind©) and water at the stacker conveyor. In 2014, a telescoping chute was installed to decrease fugitive dust from the crushing sequence.

If a secondary mobile crusher continues to be used at the Minto site, dust control measures will continue to be in place at three locations of the process: at the cone-crusher feed, the lower vibrating screen, and at the stacker conveyor. A dust suppressant and water is applied through custom nozzles at these locations. In addition, operators ensure that the drop from the conveyor to the live pile is minimized, whenever practical and safe, to mitigate against fugitive dust loss.

The crushed ore is transported into the mill by a conveyor underneath the live pile.

3.1.2 Grinding Circuit

The grinding circuit comprises the SAG mill (16.5’ D x 5.0’ L), and two grate discharge ball mills (10.5’ D x 12’ L) in parallel. All three mills have 900 HP motors. The limiting factor in increasing tonnage is the SAG mill. The SAG has a reverse spiral and a trommel screen with 25mm openings. Minto has been able to increase tonnage thru the SAG mill by pre-crushing ore completed by a contractor on-site. To compensate for the coarser material feeding the ball mills, the steel charge will be 50% 3” balls and 50% 2” balls instead of the current 2” balls. The power draw on the mills will also be increased to closer to maximum available power draw of 900HP.

Table 3-1: Grinding Media Consumption

Mill	Diameter	Type	Plant Consumption Rate (kg/t)
SAG Mill	125 mm	Forged	0.48
Ball Mill	75 mm	Forged	0.35
Ball Mill	50 mm	Forged	0.30

3.1.3 Flotation Circuit

The flotation circuit consists of three 40 cubic meter rougher flotation cells, four 14.4 cubic meter scavenger flotation cells, four 10 cubic meter first cleaner cells, and six 2.8 cubic meter final cleaner mechanical cells. Future opportunities include installing a Jamieson cell as a rougher-by pass system which will divert a portion of the concentrate from the cleaner/scavenger cells to the concentrate thickener thus increasing capacity of the cleaner/scavenger cells and improving recovery. Other plans include a second stage of cleaner flotation cells as well as replacing the final cleaners with two tanks cells; and installing a regrind mill to process the rougher concentrate and scavenger concentrate to liberate the copper mineralization in order to maintain high recovery and good quality concentrate grade

3.1.4 Concentrate

The concentrate thickener is a 20 ft high rate thickener. The concentrate is dewatered using a Larox ceramic filter. Depending on slurry density, dewatering rate varies from 25-30 tonnes per hour with a moisture content of 7 - 8 %.

3.1.5 Tailings Disposal

At this time, the tailings are thickened to 58% solids in a 13.5 meter diameter thickener manufactured by Westpro. Tailings slurry is pumped from the bottom of the thickener out to the Main Pit for final deposition. Supernatant water off the top of tails thickener overflows into a process water tank to be recycled through the mill flowsheet. Supernatant water at the Main Pit is pumped backed to the mill to be recycled as both process water and fresh water.

Prior to November 2012, tailings slurry from the bottom of the tails thickener was pumped to a stock tank for temporary storage. Five Lasta 1500x1500 pressure filters were used to dewater the tailings. The filters are fully automatic and produce an average of 6.5 tonnes tailings per cycle at 16% moisture. Cycle times are between 8.5 and 9 minutes, giving each filter a capacity near 1,000 tonnes per day. Filtered tails were conveyed to the dry stack tailings storage facility and trucked to the dry stacked tailings area.

Minto discontinued dry stacking of tailings in 2012 and has since followed an in-pit tailings deposition plan.

While Minto does not intend to dry stack tailings as part of the Phase V/VI plan, the facilities will remain in place for consideration in future tailings disposal options.

3.1.6 Reagent Handling and Preparation

Reagent consumptions vary according to metallurgical and production parameters. Handling and preparation are done in accordance with the MSDS (material safety data sheets) and other guidance by the supplier. Reagents are appropriately stored and handled to ensure a low potential for an environmental or health and safety risk. Processing reagents are provided in Table 3-2.

Table 3-2: Processing Reagents

Reagent
Flotation Collector (PAX)
Flotation Frother (MIBC)
Filtration Nitric Acid
Flotation AM28
Flocculant (AE4270)
Concentrate Flocculant (AE4330)
Sodium Sulphide
Hydrated Lime

4 Concentrate Production

Daily, monthly and annual production rates, metal recoveries and concentrate grades for 2013 are summarized in Table 4-1. Rates similar to those summarized are expected in subsequent years of milling.

Table 4-1: Expected Recoveries and concentrate grades (example based on 2013 results)

Description	Units		Units		Units	
Year		2013		2013		2013
Period		Daily		Monthly		Annually
Tonnes Milled	Dmt	3,842	Dmt	116,855	Dmt	1,402,264
Mill Feed Rate	Dmt/cd	3,842	Dmt/cd	3,842	Dmt/cd	3,842
Operating Time	%	95.5	%	95.5	%	95.5
Mill Feed Rate	Dmt/h	167.58	Dmt/h	167.6	Dmt/h	167.6
Copper Head Grade	%	1.31	%	1.31	%	1.31
Copper Recovery	%	92.3	%	82.3	%	92.3

Gold Recovery	%	76.8	%	76.8	%	76.8
Silver Recovery	%	77.0	%	77.0	%	77.0
Copper Grade	%	36.5	%	36.5	%	36.5
Gold Grade	g/t	12.3	g/t	12.3	g/t	12.3
Silver Grade	g/t	108.8	g/t	108.8	g/t	108.8
Copper Concentrate						
Concentrate mass	Dmt	126.9	Dmt	3,859	Dmt	46,303
Copper Recovered	Dmt	46.3	Dmt	1,408	Dmt	16,891
Copper Recovered	Klb	102.1	Mlb	3.10	Mlb	37.2
Gold Recovered	Kg	1.6	Kg	47.3	Kg	568
Silver Recovered	Kg	13.8	Kg	420.0	Kg	5,040
Knelson Concentrate						
Concentrate Mass	Kg	130.8	Mt	4.0	Mt	47.7
Gold Grade	g/t	73.3	g/t	2,228	g/t	2,228
Gold Mass	g	258.6	kg	7.9	kg	94.3

5 Concentrate Storage and Haulage

The Minto Mine is accessible from Whitehorse, Yukon Territory, by means of the Klondike Highway (YG Highway No. 2) to Minto Crossing (240 km). Passage across the Yukon River can be made by barge in the summer or by ice bridge in the winter. A 28 km long, 10 m wide gravel access road provides access from the west side of the Yukon River to the project site. The highway, river crossing and gravel access road are suitable for heavy transport traffic. The barge has a 75,000 kg (165,000 lb) net capacity. B-train transport trailers are transported across the river one at a time.

The concentrate storage shed on site is capable of holding 18,000 tonnes of concentrate. Shipping from site stops in the fourth quarter, while the Yukon River freezes up and the ice bridge is built, and in the second quarter, for spring thaw.

Concentrate trucks are covered with tarps after loading at the mine to ensure concentrate dust does not escape during transport. An average of three to five concentrate trucks leave the mine site daily when the barge or ice bridge is operational. During the four to six week winter ‘freeze-up' and spring ‘break-up' periods on the Yukon River, when the barge and ice bride are not operational, concentrate is stored to be transported later. Gold concentrate is packaged in 1 cubic meter supersacs and shipped offsite in 20 foot sea containers. All concentrate produced at the mine is shipped to a port in Skagway, Alaska for further transport by ship.

6 References

Minto Explorations Ltd. . (2011). *Decommissioning and Reclamation Plan.* Minto Mine.

Minto Explorations Ltd. (2014). Minto Mine Water Management Pan.

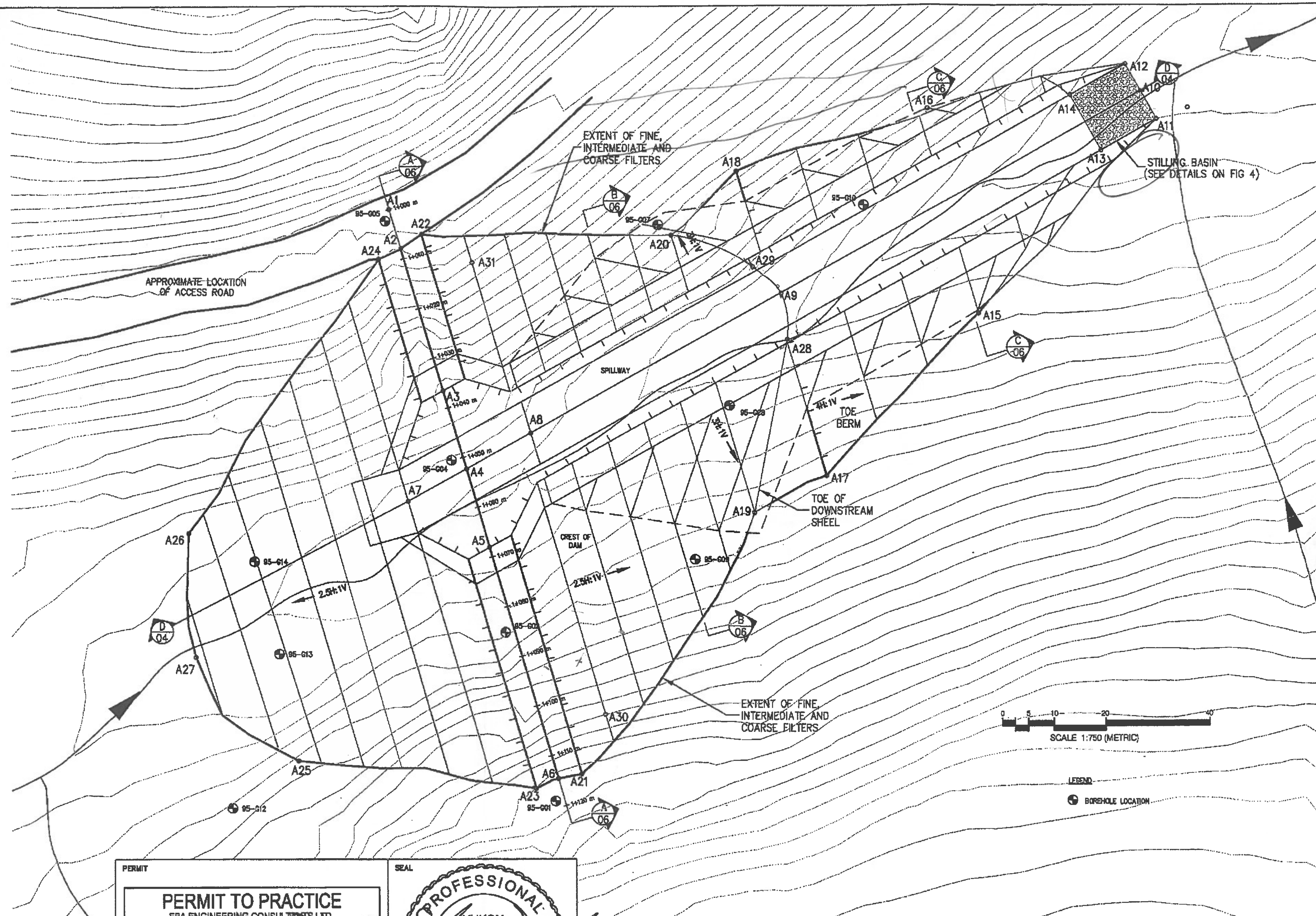
Minto Explorations Ltd. (2014). Tailings Management Plan.

Yukon Government. (2013, August). *Plan Requirement Guidance for Quartz Mining Projects.* From http://www.yukonwaterboard.ca/forms/quartz/Plan%20Requirement%20Guideline%20for%20Quartz%20Mining%20Projects%20-%20August%202013-kh.pdf

Yukon Government. (2003, March 25). Quartz Mining Land Use Regulations O.I.C. 2003/64. Whitehorse, Yukon.

Appendix A

Mill Facility Schematics (Water Storage Pond, Water Treatment Plant)



LOCATION	NORTHING	EASTING
A1	6945624.1	386524.3
A2	6945616.5	386526.5
A3	6945589.0	386534.5
A4	6945573.8	386538.9
A5	6945558.7	386543.3
A6	6945514.0	386556.2
A7	6945567.6	386527.8
A8	6945580.7	386551.3
A9	6945607.6	386599.4
A10	6945646.5	386669.0
A11	6945641.1	386672.0
A12	6945651.8	386666.0
A13	6945635.1	386661.3
A14	6945645.9	386655.3
A15	6945603.7	386637.3
A16	6945643.4	386627.7
A17	6945572.3	386608.7
A18	6945631.2	386590.9
A19	6945565.2	386594.1
A20	6945618.9	386578.5
A21	6945514.9	386560.8
A22	6945619.2	386530.6
A23	6945614.4	386522.3
A24	6945512.1	386552.0
A25	6945517.5	386506.5
A26	6945561.5	386485.8
A27	6945537.5	386487.0
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A31	6945613.7	386540.1

NOTES:
ALL COORDINATES ARE ZONE 8 NAD83.
DRAWING IS IN METRIC UNITS.

ISSUED FOR CONSTRUCTION

PERMIT

PERMIT TO PRACTICE
EBA ENGINEERING CONSULTANTS LTD.
SIGNATURE ____
Date Sept 7/06
PERMIT NUMBER PP003
Association of Professional Engineers of Yukon

SEAL

PROFESSIONAL ENGINEER
YUKON TERRITORY
J. RICHARD TRIMBLE
Sept 7/06

EBA Engineering Consultants Ltd.

DWN. JSB/CPC | CHKD. JRT
EBA JOB NO. 1200173

CLIENT: Minto Explorations Ltd.

FILE: 1200173 Figure 2 Dam IFC.dwg | REVISION NO.: 6

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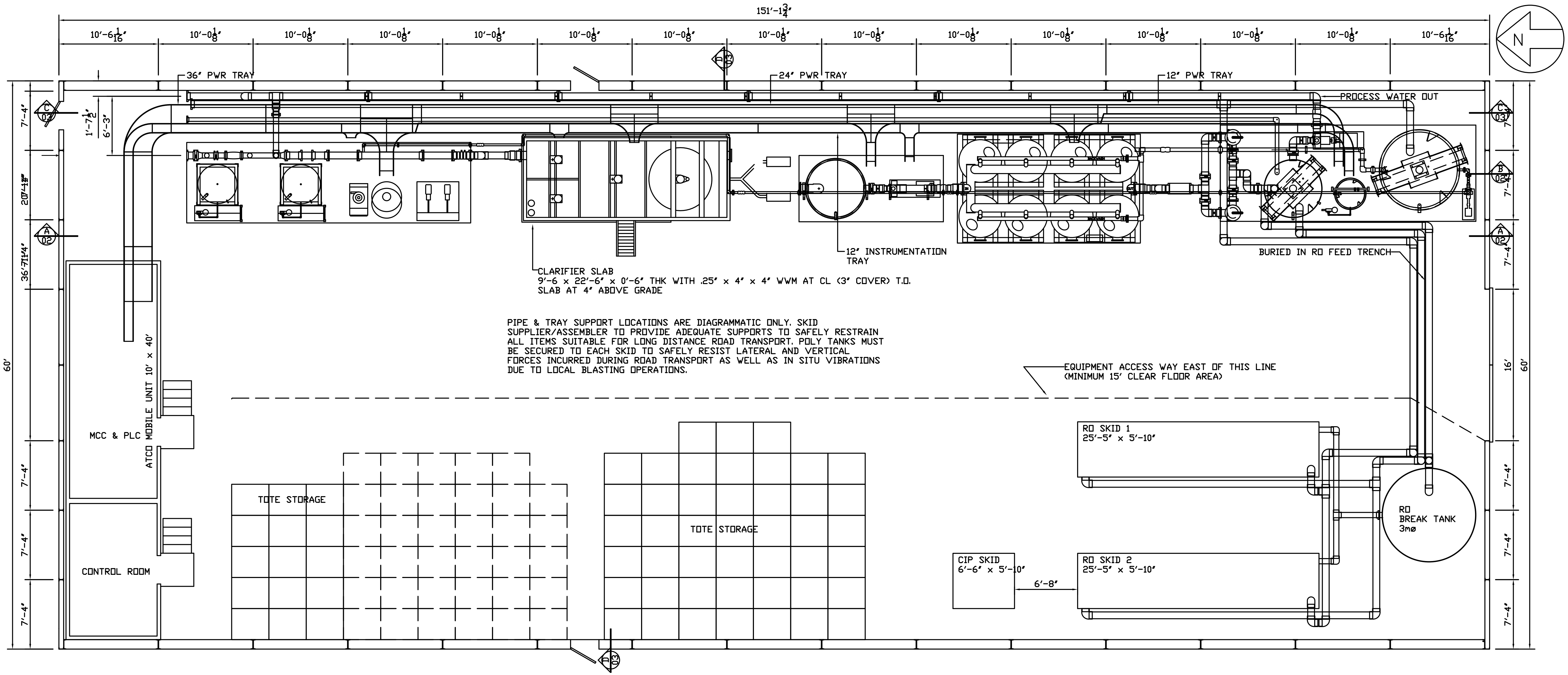
TITLE: PLAN OF WATER DAM AND SPILLWAY

DATE: September 2006

Figure WD2



BIOTEQ ENVIRONMENTAL TECHNOLOGIES INC.

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1	ISSUED REVISED FOR CONTRUCTION	06 NOV 09	RZ	
0	ISSUED FOR CONTRUCTION	31 OCT 09	RZ	

APPROVED:
DESIGNED:
CHECKED:
DRAWN: RZ

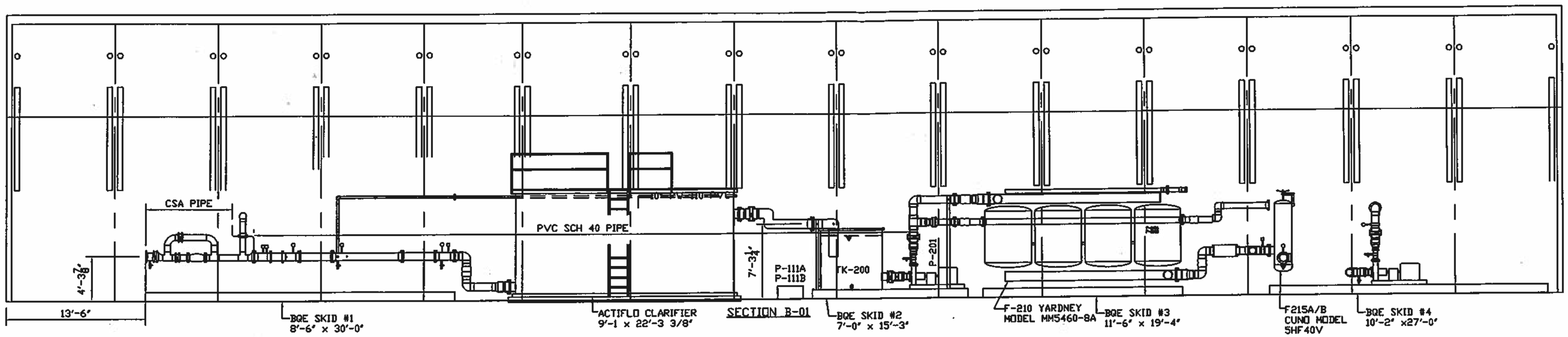
PROJECT TITLE: MINTO MINE – WATER TREATMENT PLANT

DRAWING TITLE: STAGE 1 & 2 – LAYOUT PLAN

DIM:	SIZE:	DWG. No.
IMPERIAL	11X17	MIN-000-GA-01

SCALE:	DATED:	SHEET NO:	REVISION:
1:135	15 SEP 09	1/3	2

ALL ELEVATION DIMENSIONS ARE BASED ON 10 1/4" OVERAL SKID DEPTH. ANY VARIATION MUST BE ADJUSTED TO SUIT PROVIDED SKIDS
ALL LOCATIONS LISTED AS FIELD LINKS ARE TO INCORPORATE A SECTION OF FLEXIBLE PIPE ALLOWING MINOR DISPLAEMENT DUE TO SETTLING AND BLASTING



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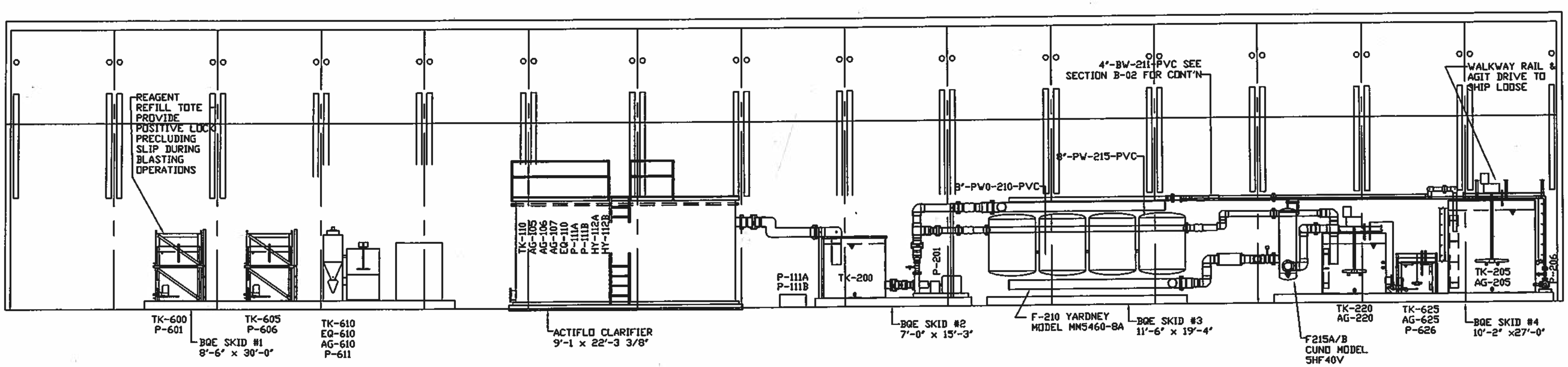

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ENVIRONMENTAL TECHNOLOGIES INC.

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DESIGNED	DRAWING TITLE: STAGE 1 & 2 PLANT SECTIONS			
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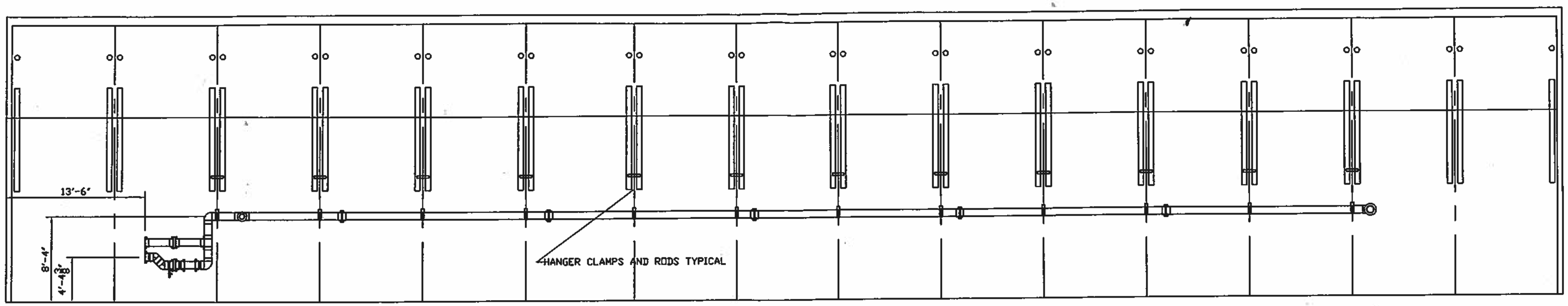

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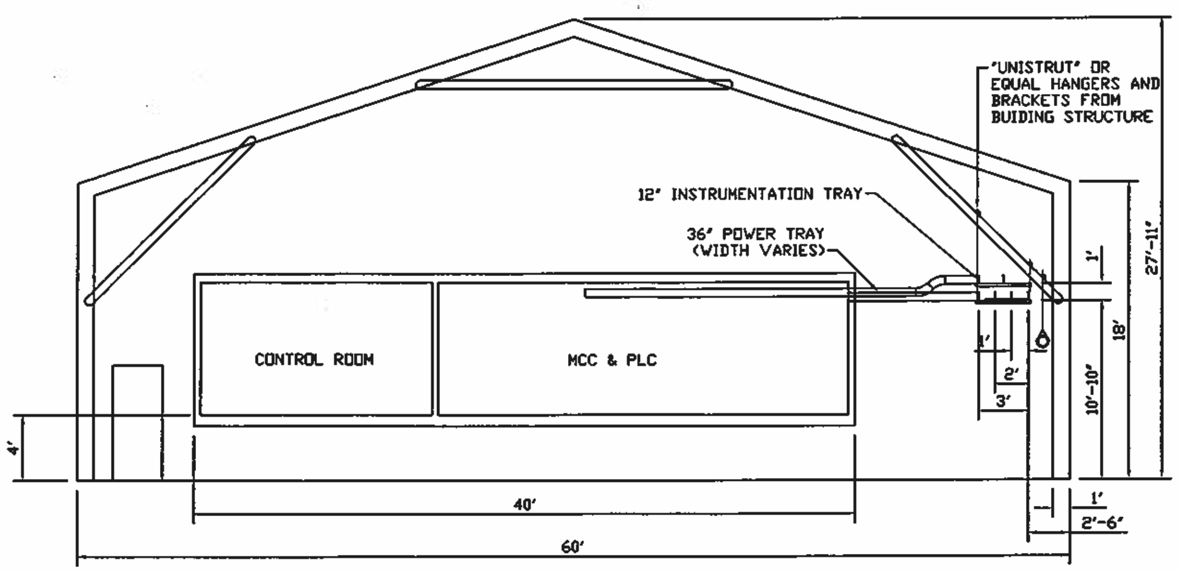

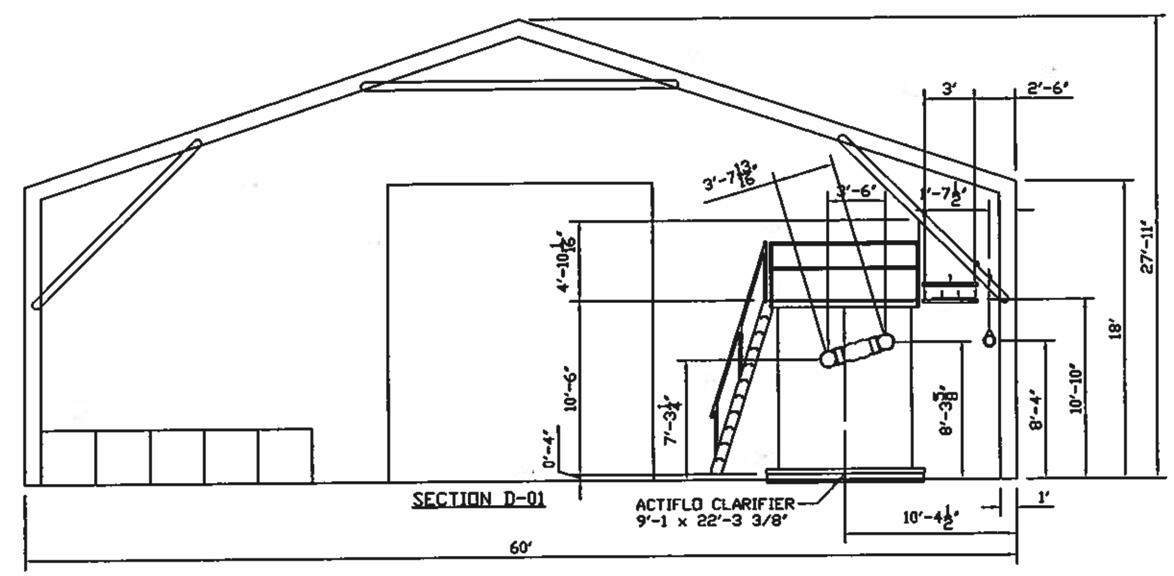

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0	ISSUED FOR CONSTRUCTION	31 OCT 09	RZ	

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DRAWING TITLE: STAGE 1 & 2 PLANT SECTIONS

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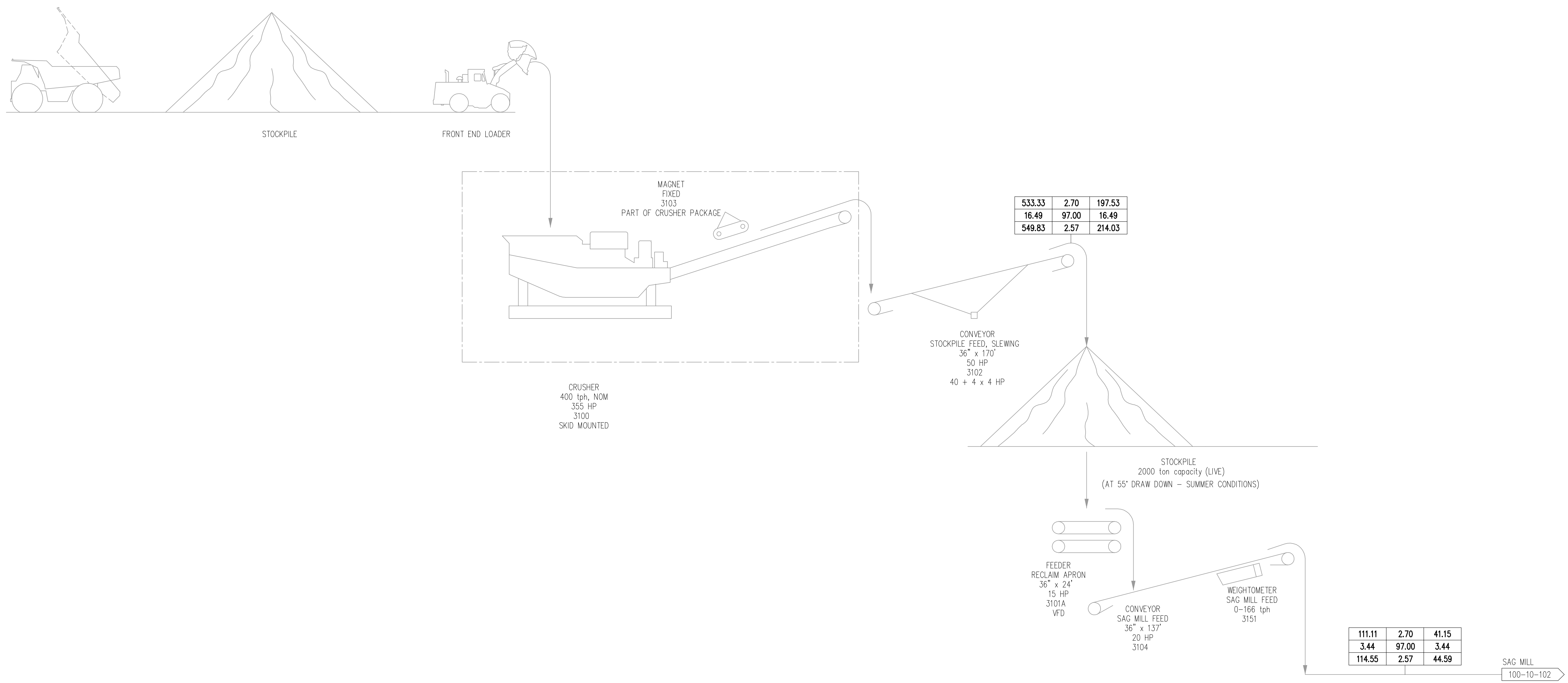
IMPERIAL

Appendix B

Crushing, Grinding, Flotation, Concentrate, Tailings and Reagent Process Flowsheets



533.33	2.70	197.53
16.49	97.00	16.49
549.83	2.57	214.03

111.11	2.70	41.15
3.44	97.00	3.44
114.55	2.57	44.59

NOTES:

THE FEED RATE TO THE STOCKPILE IS BASED ON 533.3 DRY METRIC TONS PER HOUR OVER A 6 HOUR DAY

THE FEED RATE TO THE SAG MILL IS BASED ON 111.11 DRY METRIC TONS PER HOUR OVER A 24 HOUR DAY

FADED ITEMS ARE EXISTING

LEGEND

t/HR solids	S.G. solids	m^3/HR solids
t/HR water	% solids	m^3/HR water
t/HR pulp	S.G. pulp	m^3/HR pulp

2,646 stpd = 2,400 mtpd

FOR REFERENCE

JUNE 12, 2007

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

PROJECT	PROCESS	CIVIL	MECH.	STRUCT.	PIPING	SERVICES	ELECT.	INSTR.	NO	DESCRIPTION	BY	DATE
RS	AS		BW						1	RE-ISSUED FOR REFERENCE	JB	07/06/12
RS			LR						0	ISSUED FOR REFERENCE	DB	07/04/20
									B	ISSUED FOR REVIEW	JSL	07/03/21
									A	ISSUED FOR COMMENT	JSL	07/02/28
										REVISIONS		

SECTION:	GENERAL	
SCALE:	NONE	DATE
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

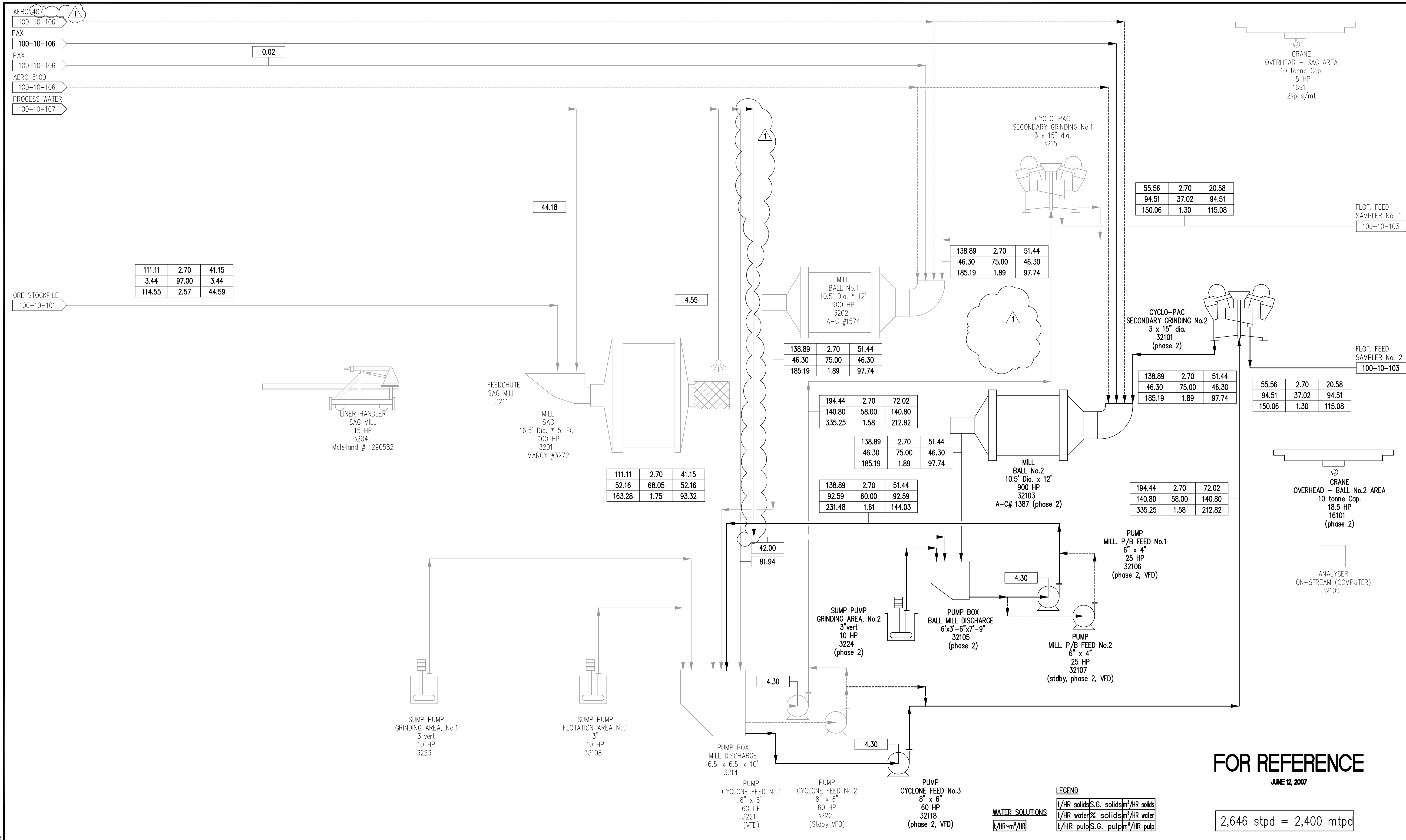
SHERWOOD COPPER CORP.
MINTO EXPLORATIONS Ltd.

HATCH™

MINTO PROJECT

GENERAL – PHASE 2
ORE STOCKPILE AND RECLAIM
PROCESS FLOWSHEET No.1

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010101.DWG	320256	100-10-101	1



THIS DRAWING HAS NOT BEEN PUBLISHED BUT RATHER HAS BEEN PREPARED BY HATCH FOR USE BY THE CLIENT NAMED IN THE TITLE BLOCK SOLELY IN RESPECT OF THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE FACILITY NAMED IN THE TITLE BLOCK AND SHALL NOT BE USED FOR ANY OTHER PURPOSE OR FURNISHED TO ANY OTHER PARTY WITHOUT THE EXPRESS CONSENT OF HATCH

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

		NO	DESCRIPTION	BY	DATE
RS AS	BW	1	PW LINE ADDED, PARTICLE SIZE MON. REMOVED	JB	07/06/12
RS	LR	0	ISSUED FOR REFERENCE	DB	07/04/20
		B	ISSUED FOR REVIEW	JSL	07/03/21
		A	ISSUED FOR COMMENT	JSL	07/02/28
			REVISIONS		

SECTION:	GENERAL	
SCALE:	NONE	DATE
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

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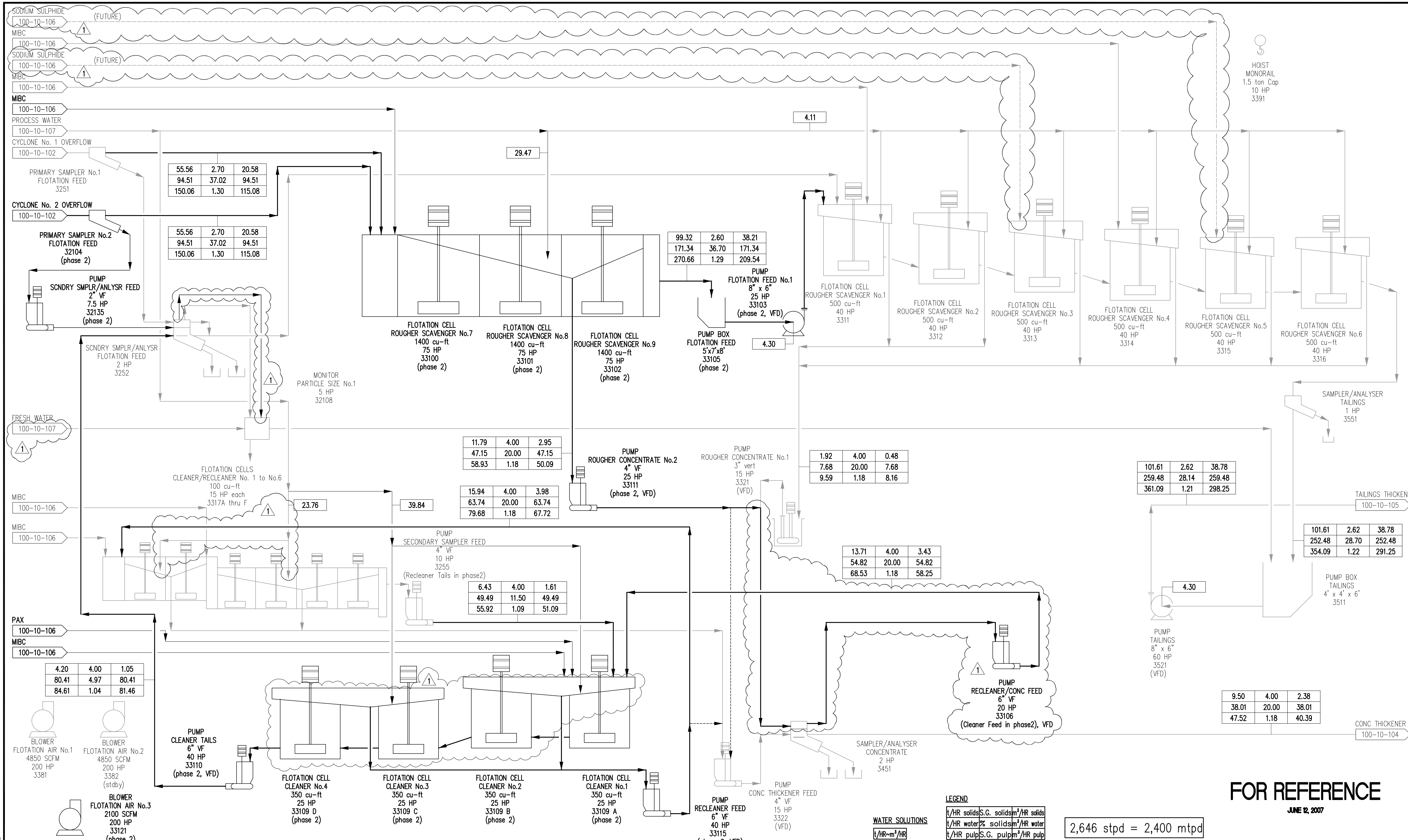
MINTO PROJECT
GENERAL - PHASE 2
GRINDING
PROCESS FLOWSHEET No.2

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010102.DWG	320256	100-10-102	1

2007/06/13 11:06
37128BSTD.DWG
B0RREV-0



FOR REFERENCE

JUNE 12, 2007

PROJECT BORDER No. 2007/06/13 11:06 BORREV-0

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

	NO	DESCRIPTION	BY	DATE
RS AS BW	1	PUMP 33106 ADDED, FLOAT CELL ARR. UPDATED, FUTURE REAGENT AND SAMPLER LINES ADDED	TRN	07/06/12
RS LR	0	ISSUED FOR REFERENCE	DB	07/04/20
	B	ISSUED FOR REVIEW	JSL	07/03/21
	A	ISSUED FOR COMMENT	JSL	07/02/28
		REVISIONS		

		DATE
SECTION:	GENERAL	
SCALE:	NONE	
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

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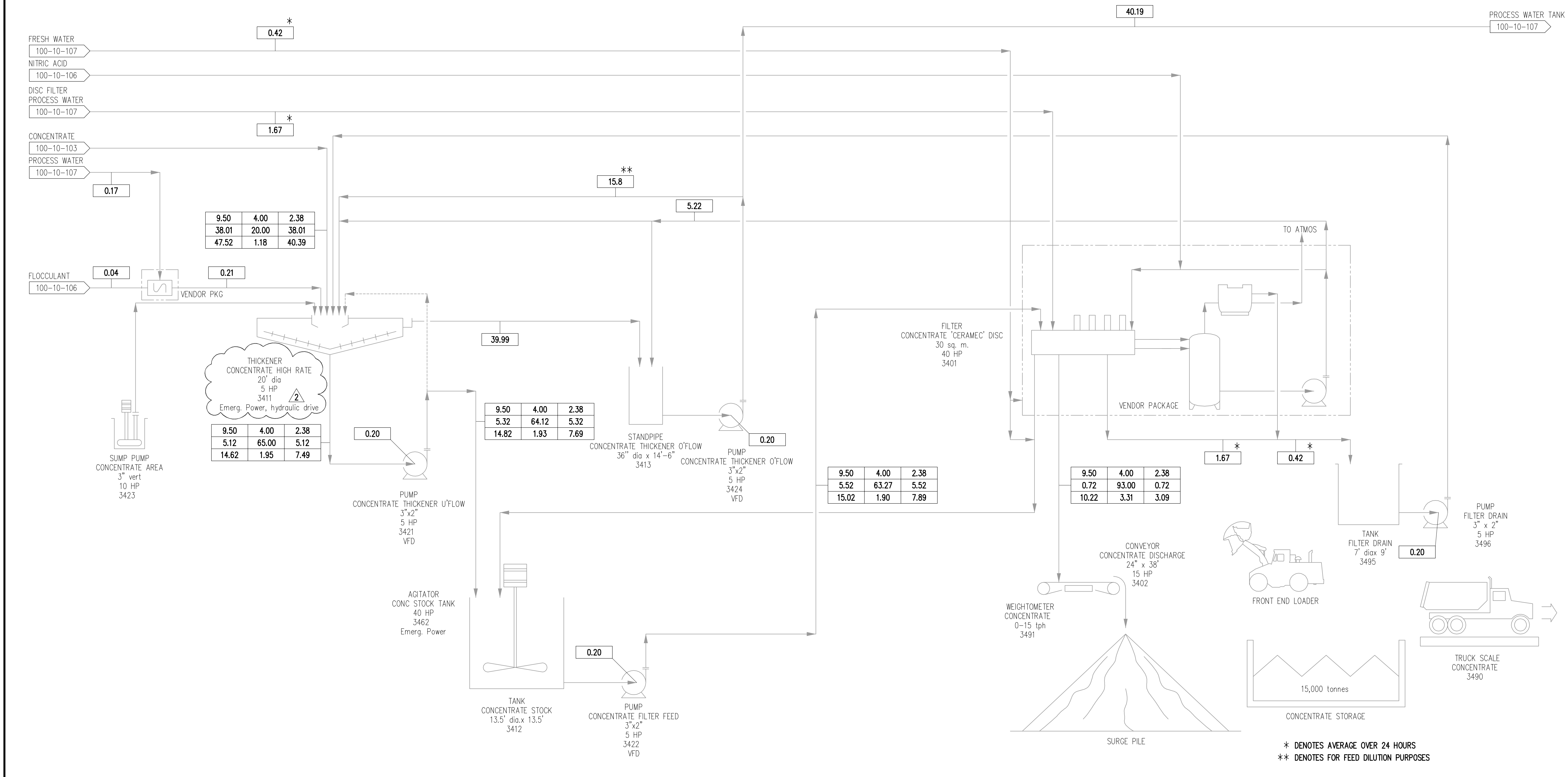
MINTO PROJECT

GENERAL – PHASE 2
FLOTATION
PROCESS FLOWSHEET No.3

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010103.DWG	320256	100-10-103	1



FOR REFERENCE

JUNE 18, 2007

LEGEND

t/HR solids	S.G. solids	m³/HR solids
t/HR water	% solids	m³/HR water
t/HR pulp	S.G. pulp	m³/HR pulp

WATER SOLUTIONS

t/HR~m³/HR

2,646 stpd = 2,400 mtpd

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PROJECT BORDER No. BORREV-0 2007/06/19 07:26

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

			NO	DESCRIPTION	BY	DATE
RS	AS	BW	2	EQUIPMENT DESCRIPTION UPDATED	JB	07/06/18
RS	AS	BW	1	REFERENCES AND FLOWS REVISED AS NOTED	TRN	07/06/12
RS		LR	0	ISSUED FOR REFERENCE	DB	07/04/20
				REVISIONS		

PROJECT PROCESS CIVIL MECH. STRUCT. PIPING SERVICES ELECT. INSTR.

SECTION:	GENERAL	
SCALE:	NONE	DATE
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

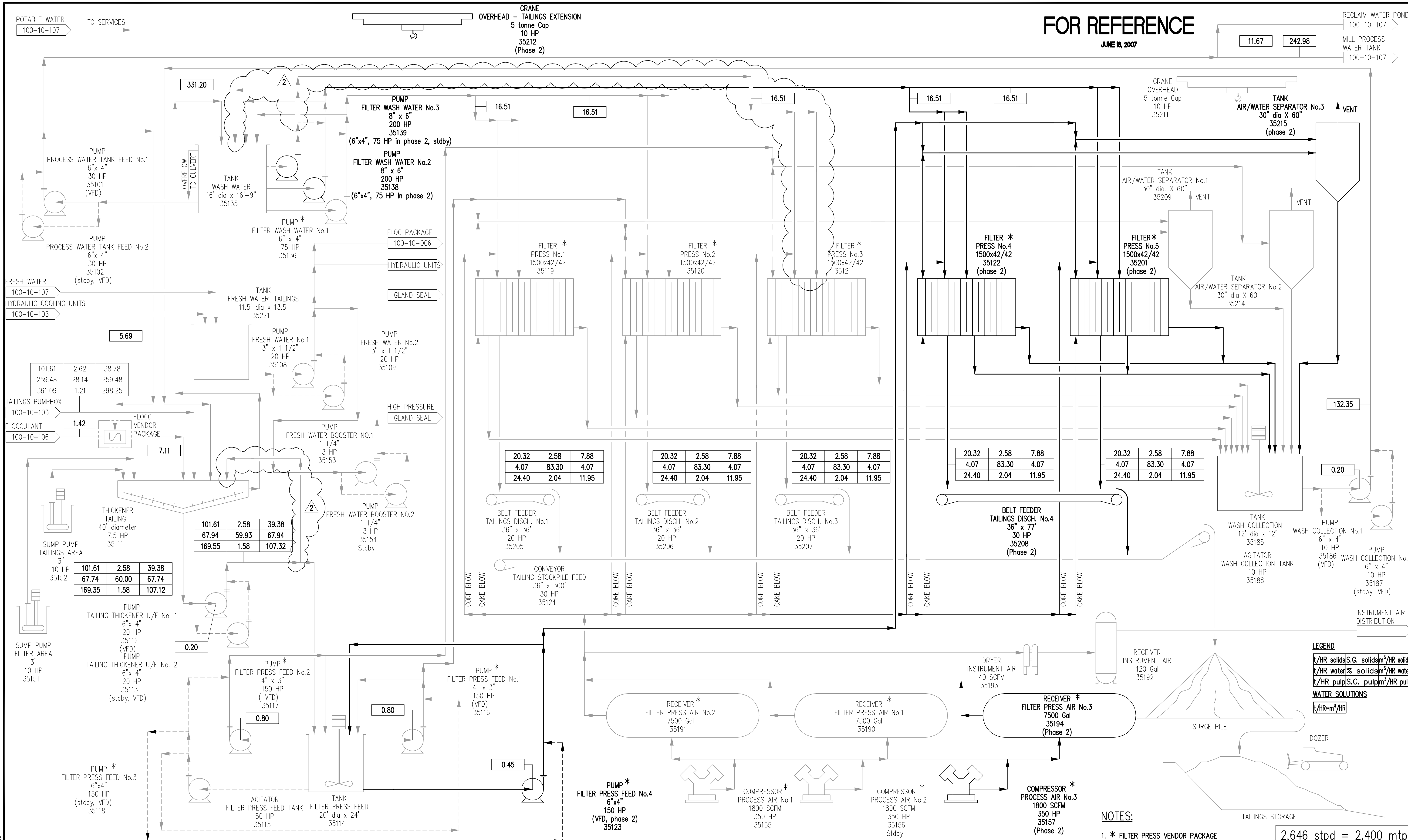
SHERWOOD COPPER CORP.
MINTO EXPLORATIONS Ltd.

HATCH™

MINTO PROJECT

GENERAL – PHASE 2
DEWATERING, FILT. & CONC. STOR.
PROCESS FLOWSHEET No.4

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010104.DWG	320256	100-10-104	2



NOTES:

1. * FILTER PRESS VENDOR PACKAGE

2,646 stpd = 2,400 mtpd

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PROJECT BORDER No. 2007/06/19 07:25 BORREV-0

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

			NO	DESCRIPTION	BY	DATE
RS AS	BW		2	RECIRC. & PUMPED LINE TO FILTER 3 UPDATED	JB	07/06/18
RS AS	BW		1	FLOWS REVISED AS NOTED, CRANE WAS 5HP	TRN	07/06/12
RS	LR		0	ISSUED FOR REFERENCE	DB	07/04/20
				REVISIONS		

		DATE
SECTION:	GENERAL	
SCALE:	NONE	
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

SHERWOOD COPPER CORP.
MINTO EXPLORATIONS Ltd.

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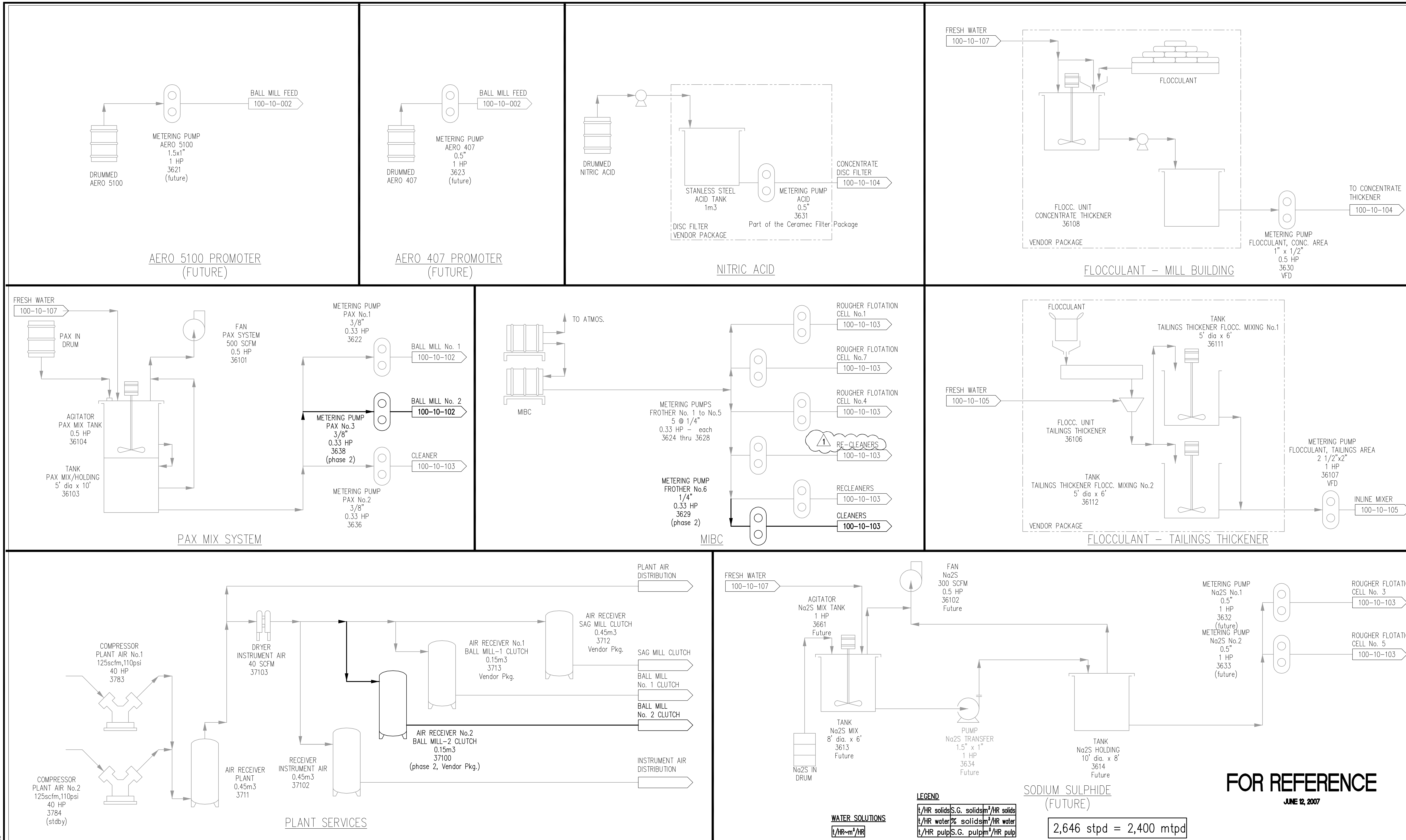
MINTO PROJECT

GENERAL - PHASE 2
TAILINGS
PROCESS FLOWSHEET No.5

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010105.DWG	320256	100-10-105	2



FOR REFERENCE
JUNE 12, 2007

LEGEND

t/HR solids	S.G. solids	m³/HR solids
t/HR water	% solids	m³/HR water
t/HR pulp	S.G. pulp	m³/HR pulp

WATER SOLUTIONS

t/HR-m³/HR

2,646 stpd = 2,400 mtpd

PROJECT BORDER No. BORREV-0 2007/06/13 11:03

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

		NO	DESCRIPTION	BY	DATE
RS AS	BW	1	REFERENCE REVISED	TRN	07/06/12
RS	LR	0	ISSUED FOR REFERENCE	DB	07/04/20
		B	ISSUED FOR REVIEW	JSL	07/03/21
		A	ISSUED FOR COMMENT	JSL	07/02/28
			REVISIONS		

		DATE
SECTION:	GENERAL	
SCALE:	NONE	
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

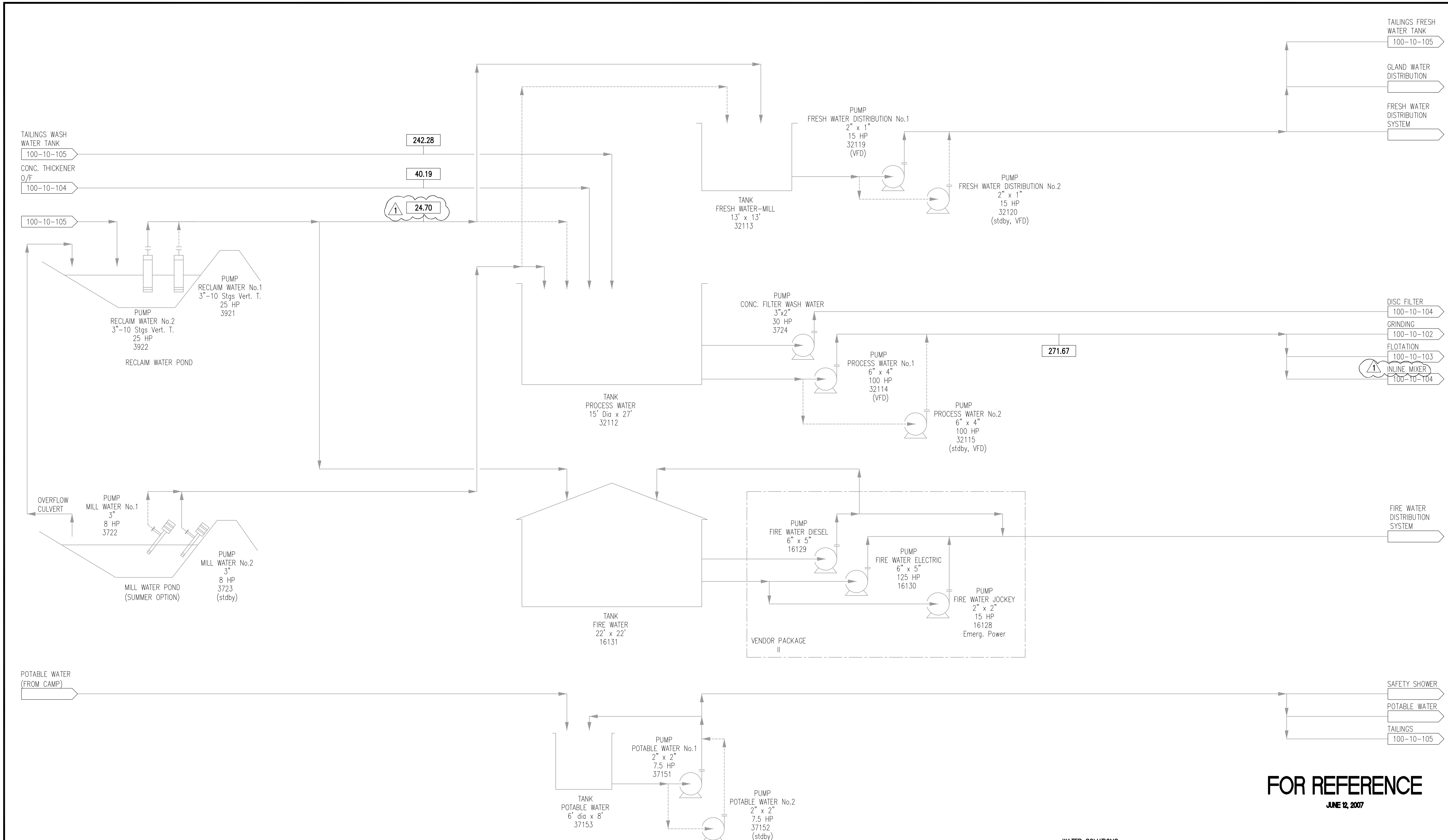
SHERWOOD COPPER CORP.
MINTO EXPLORATIONS Ltd.

HATCH

MINTO PROJECT

GENERAL - PHASE 2
REAGENTS AND UTILITIES
PROCESS FLOWSHEET No.6

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010106.DWG	320256	100-10-106	1



FOR REFERENCE

JUNE 12, 2007

WATER SOLUTIONS

t/HR=m³/HR

2,646 stpd = 2,400 mtpd

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PROJECT BORDER No. BORREV-0 2007/06/13 11:03

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

PROJECT	PROCESS	CIVIL	MECH.	STRUCT.	PIPING	SERVICES	ELECT.	INSTR.	NO	DESCRIPTION	BY	DATE
RS	AS		BW						1	REFERENCE WAS FILTRATION, FLOW REVISED	TRN	07/06/12
RS			LR						0	ISSUED FOR REFERENCE	DB	07/04/20
									B	ISSUED FOR REVIEW	JSL	07/03/21
									A	ISSUED FOR COMMENT	JSL	07/02/28

REVISIONS

SECTION:	GENERAL	
SCALE:	NONE	DATE
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

SHERWOOD COPPER CORP.
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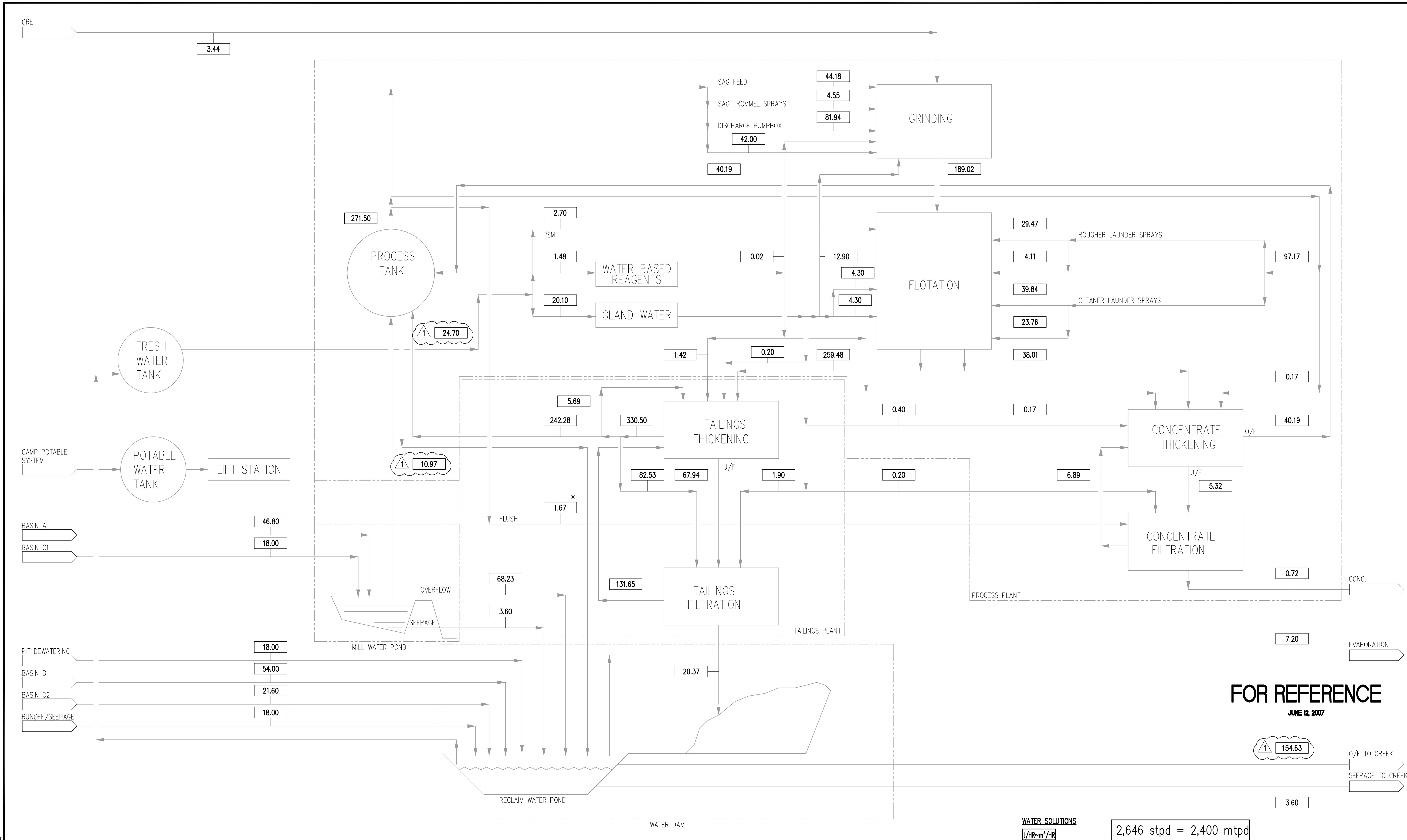
MINTO PROJECT

GENERAL- PHASE 2
WATER SYSTEM
PROCESS FLOWSHEET No.7

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010107.DWG	320256	100-10-107	1



FOR REFERENCE

JUNE 12, 2007

WATER SOLUTIONS
t/HR~m³/HR

2,646 stpd = 2,400 mtpd

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PROJECT BORDER No. 2007/06/13 11:02 BORREV-0

DWG. NO.	REFERENCE DRAWINGS

NO	DESCRIPTION	BY	DATE
	ISSUE		

			NO	DESCRIPTION	BY	DATE
RS	AS	BW	1	FLOWS UPDATED AS NOTED	TRN	07/06/12
RS		LR	0	ISSUED FOR REFERENCE	DB	07/04/20
			B	ISSUED FOR REVIEW	JSL	07/03/21
			A	ISSUED FOR COMMENT	JSL	07/02/28
				REVISIONS		

PROJECT PROCESS CIVIL MECH. STRUCT. PIPING SERVICES ELECT. INSTR.

SECTION:	GENERAL	
SCALE:	NONE	DATE
DESIGN. BY	HT	FEB/07
DRAWN BY:	JSL	FEB/07
CHECK. BY	AS	FEB/07
APP. BY:	RS	APR/07

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MINTO PROJECT

GENERAL
WATER BALANCE
PROCESS FLOWSHEET No.8

FILENAME:	PROJECT NUMBER	DRAWING NUMBER	REV.
10010108.DWG	320256	100-10-108	1