MELIADINE GOLD PROJECT

Mine Waste Management Plan

APRIL 2015
VERSION 1
6513-MPS-09

ᓇᐃᓈᕐᓯᒪᔪᖅ

ᐊᓂᑯᒃᑯᑦ ᑕᓯᕐᔪᐊᕐᒥᑦ ᒨᓗᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᓕᕆᓪᓕᐊᔪᑦ (ᐱᓕᕆᐊᖅ), 25 ᑭᓛᒥᑕᒥᒃ ᐅᐊᙵᙳᓂᑦ ᐅᙳᓯᒃᑎᒋᔪᖅ ᑲᙵᖅᖠᓂᕐᒥᑦ, ᐊᒻᒪ 80 ᑭᓛᒥᑕᒥᒃ ᓂᒋᖅᐸᓯᐊᓂᑦ ᐱᙳᙵᖅᐸᓯᐊᓂᑦ ᐅᙳᓯᒃᑎᒋᔪᖅ ᐃᒡᓗᓕᓚᕐᔪᙵᒥᑦ ᑭᓪᓕᕐᒥᑦ ᓄᓇᕗᒻᒥᑦ. ᐅᔭᕋᓐᓂᐊᕐᕖᙶᑦ ᐸᕐᓇᐅᑕᐅᔪᖅ ᐅᒃᑯᐃᙳᔪᒥᒃ ᐊᒻᒪ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᖕᓂᐊᖅᑐᖅ ᐱᕙᓪᓕᐊᓂᕐᒧᑦ ᑎᕆᓚᓂᐊᖅ-ᒥᑦ ᒨᓗᓂᒃ ᐱᓂᕐᒧᑦ, ᒪᕐᕉᙵᓂᒃ ᐅᒃᑯᐃᙳᔫᙵᓂᒃ ᓄᓇᒥᑦ (ᑎᕆᓚᓂᐊᖅ Pit 1 ᐊᒻᒪ ᑎᕆᓚᓂᐊᖅ Pit 2) ᐊᒻᒪ ᐊᑕᐅᓯᖅ ᓄᓇᐅᑉ ᐃᓗᐊᓂᑦ ᐅᔭᕋᓐᓂᐊᕐᓂᖅ.

Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒧᑦ ᑐᒃᓯᑫᐅᑎ ᐱᓕᕆᐊᙲᓚᐅᖅᑐᖅ ᒪᓕᒃᓱᒋᑦ ᓄᓇᕗᒻᒥ ᓄᓇᑖᕐᓂᕐᒧᑦ ᐊᒋᖃᑎᓯᒍᑎ, ᓄᓇᕗᒻᒥ ᐃᒪᕐᓄᑦ ᐊᒻᒪ ᓄᓇᐅᑉ ᖃᖏᓐᓄᑦ ᐱᔪᙵᐅᑎᖃᖅᑐᓄᑦ ᐱᕐᑯᔭᖅ, ᐊᒻᒪ ᓄᓇᕗᒻᒥ ᐃᒪᐃᑦ ᒥᒃᓵᓄᑦ ᒪᓕᒐᐃᑦ, ᑭᓯᐊᓂ ᐃᓱᒪᒋᐸᓗᒍᑕᐅᖅ ᓇᓗᓇᐃᔭᖅᓯᒪᔪᖅ ᒪᓕᒃᑕᐅᔭᕆᐊᖃᖅᑐᖅ ᑲᑎᒪᔨᓂᙱᖅᑐᖅ *ᒪᓕᒃᑕᐅᔪᓐᓴᖅ 4-ᒥᑦ – ᑕᑕᑎᕆᓂᖅ ᐊᒻᒪ ᑐᓂᐅᑎᒋᓂᖅ ᓚᐃᓴᓐᓯ ᐊᒻᒪ ᐃᓚᒋᔭᐅᔪᖅ ᑐᑭᓯᐅᒪᔾᔪᑎ ᒪᓕᒃᑕᐅᔭᕆᐊᓕᒃ ᐅᔭᕋᓐᓂᐊᕐᓂᕐᒧᑦ ᐊᒻᒪ ᓯᕗᓪᓕᑎᕆᓂᕐᒧᑦ* (SIG-MM3 ᒪᓕᒃᑕᐅᔭᕆᐊᓕᒃ). ᑖᒻᓇ ᑎᑎᖅᑲᖅ ᑕᑯᒃᓴᐅᑎᑦᑎᔪᖅ ᐃᒪᕐᒧᑦ ᐊᐅᓚᑦᑎᓂᕐᒥᒃ ᐸᕐᓇᐅᑎᒥᑦ (ᐸᕐᓇᐅᑎ) ᐊᒻᒪ ᐃᓚᓕᐅᑎᑦᑎᕐᓗᓂ ᑎᑎᖅᑲᓂᒃ Type A ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᒃ ᑐᒃᓯᑫᐅᑎᒥᒃ. ᑖᒻᓇ ᐸᕐᓇᐅᑎ ᖃᒥᕐᕈᔭᐅᓂᐊᖅᑐᖅ ᐊᒻᒪ ᐅᕝᓗᒥᒨᓕᙳᓕᖅᑐᖅᑕᐅᖃᑦᑕᖅᓱᓂ ᐊᕐᕋᒍᑕᒣᒃᑯᑦ, ᐱᔭᕇᐊᖃᕐᓂᙳᑐᑦ, ᐊᓯᐊᙹᕐᓂᐅᔪᑦ ᐊᒃᑭᒋᓕᖅᑯᑉᓗᒋᑦ ᐊᐅᓚᕐᓂᕐᒧᑦ ᐊᒻᒪ/ᐅᕙᓐᓄᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᓄᑦ.

ᓯᑕᒪᐅᓕᙳᔪᖅ ᐱᕙᓪᓕᐊᓂᙳ ᑎᕆᓚᓂᐊᑉ: ᓯᑕᒪᐃᑦ ᐅᑭᐅᑦ ᐅᙳᑎᐊᕐᔪᐊᓄᑦ ᓴᓇᔭᐅᓂᙳ (Q4 ᐅᑭᐅᖅ -5-ᒥᑦ ᐅᑭᐅᖅ -1-ᒧᑦ), 8-ᓄᑦ ᐅᑭᐅᓄᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᒃ ᐊᐅᓚᕐᓗᓂ (ᐅᑭᐅᖅ 1-ᒥᑦ ᐅᑭᐅᖅ 8-ᒧᑦ), ᐱᙳᓱᑦ ᐅᑭᐅᓂᒃ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓗᒍ (ᐅᑭᐅᖅ 9-ᒥᑦ ᐅᑭᐅᖅ 11-ᒧᑦ), ᐊᒻᒪ ᐅᒃᑯᐊᖅᓯᒪᓕᖅᑎᓪᓗᒍ (ᐅᑭᐅᖅ 11-ᒥᑦ ᐅᙳᑖᓄᑦ). 12.1 ᒥᓕᔭᓐ ᑕᓐᓂᒃ ᐅᔭᖅᑲᓂᒃ ᐱᓂᐊᖅᑐᑦ. ᐅᔭᖅᑲᐃᑦ ᐱᔭᐅᔪᑦ ᓯᖃᓪᓕᖅᑎᖅᑕᐅᓂᐊᖅᑐᑦ 8-ᓄᑦ ᐅᑭᐅᓪᓗᐊᓄᑦ ᐅᔭᕋᓐᓂᐊᕐᓂᐅᑉ ᐊᐅᓚᕐᓂᕆᔭᙳᓂᑦ 3,000 ᑕᓐᓂᒃ ᐅᓪᓗᑖᒧᑦ (tpd) ᐅᑭᐅᖅ 1-ᒥᑦ ᐅᑭᐅᖅ 3-ᒧᑦ ᐊᒻᒪ 5,000 tpd-ᓂᒃ ᐅᑭᐅᖅ 4-ᒥᑦ ᐅᑭᐅᖅ 8-ᒧᑦ.

ᐊᒃᑯᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐅᙳᑕᐅᑎᔪᓗ ᓄᓇᒃᑰᕈᑎᒃᑯᑦ ᐊᓯᖅᑕᐅᓂᐊᖅᑐᑦ ᐅᔭᖅᑲᓄᑦ ᐊᒃᑯᓯᕕᙳᒧᑦ (WRSFs) ᑕᐃᑲᓃᓗᑎᒃ ᑭᓯᐊᓂ ᐅᔭᕋᓐᓂᐊᕐᓂᖅ ᓄᖅᑲᖅᐸᑦ, ᐊᓯᖅᑐᖃᑦᑕᕐᓗᒋᑦ ᒪᓕᒡᓗᒋᑦ ᐊᕙᒻᒧᓕᕐᓂᕐᒧᑦ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᖅ. ᖃᓄᐃᙳᓂᐅᔪᑦ ᓄᓇᐅᑉ ᖃᓄᐃᙳᓂᙳᓄᑦ ᐆᒃᑐᕋᐃᓂᕐᓄᑦ ᓇᓗᓇᐃᖅᓯᔪᖅ ᐊᒃᑯᐃᑦ ᐅᔭᖅᑲᐃᑦ ᐅᙳᑕᐅᑎᔪᓗ ᐋᓯᑦᑎᐅᙱᑦᑑᓂᙱᓐᓄᑦ (NPAG); ᑕᒪᕐᒥᒃ ᐅᔭᖅᑲᐃᑦ ᐊᒃᑯᖅᑕᐅᔪᑦ ᐅᙳᑕᐅᑎᔪᓗ ᓴᕖᔮᙱᑦᑑᓂᙱᓐᓂᒃ. ᐱᙳᓱᐃᑦ ᐃᓂᐅᔪᑦ ᐃᓕᑕᕆᔭᐅᓯᒪᔪᑦ WRSFs-ᙳᓂᙱᓐᓄᑦ. ᐅᒃᑯᐊᖅᑕᐅᒋᐊᕐᓂᐊᖅᑐᑦ WRSFs ᐱᔪᙵᖅᓯᒍᑎᒃ ᐃᓚᒋᔭᐅᔪᑦ ᐅᑎᖅᑎᑦᑎᕆᕙᓪᓕᐊᓂᕐᒧᑦ. WRSFs ᖁᓕᖅᑕᐅᔾᔮᙱᑦᑐᑦ ᐊᒻᒪ ᐱᕈᖅᑐᓕᖅᑐᖅᑕᐅᙱᓪᓗᑎᒃ ᐊᒻᒪ ᖃᓄᐃᑑᓂᙱᑦᑕ ᓇᓃᓐᓂᙱᓐᓄᑦ ᐱᒋᐊᖃᔾᔮᙱᑦᑐᑦ ᒪᓕᒡᓗᒍ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐸᕐᓇᐅᑎ. ᐆᓇᕐᓂᕐᒥᒃ ᐆᒃᑐᕋᐅᑏᑦ ᐃᓕᔭᐅᓂᐊᖅᑐᑦ WRSFs-ᒥᑦ ᖃᐅᔨᒋᐊᖃᑦᑕᕐᓂᕐᒧᑦ ᖁᐅᙳᐃᓐᓇᐅᔭᖅᑐᖅᑖᖅᐸᓪᓕᐊᓂᖅ.

ᑲᑎᑦᓱᒋᑦ 12.1 Mt ᕿᒪᒃᑎᑦᑐᙳᕐᓂᐊᖅᑐᑦ, 9.7 Mt-ᓗᐊᑦ ᕿᒪᒃᑎᑐᑦ ᑐᖅᑯᖅᑕᐅᓯᒪᕝᕕᙴᐊᖅᑕᐅᓂᐊᖅᑐᑦ (TSF)-ᒧᑦ ᐸᓂᖅᑐᓂᑦ ᕿᒪᒃᑎᑦᑐᓄᑦ, ᐊᒥᐊᑯᐃᓪᓕ 2.4 Mt ᐃᓕᔭᐅᓗᑎᒃ ᓄᓇᐅᑉ ᐊᑖᓄᑦ ᐅᔭᕋᓐᓂᐊᕐᕕᙳᒥᑦ ᕿᑰᓗᒍ. ᕿᒪᒃᑎᑦᑐᙳᖅᑐᑦ ᐃᓱᒪᒋᔭᐅᔪᑦ ᐋᓯᑦᑎᐅᙱᑦᑑᓂᙱᓐᓄᑦ (NPAG). TSF ᐱᙳᓱᖅᓕᙳᔪᑦ,

ᐊᑕᐅᓯᐅᑕᕐᓗᒋᑦ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᑦ ᐅᒃᑯᐊᖅᐸᓪᓕᐊᓂᕐᒧᑦ ᐅᔭᕋᓐᓂᐊᕐᓂᖅ ᐊᐅᓛᖅᑎᓪᓗᒍ. ᖃᓕᓃᓕᓐᓂᑦ ᐅᖓᑕᐅᑎᔪᑦ ᐊᒻᒪ ᐊᒃᑕᒨᖅᑕᐅᔪᑦ ᐅᔭᖅᑲᐃᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ TSF ᐅᒃᑯᐊᖅᑕᐅᓂᖓᓄᑦ. ᒪᓂᒪᔪᓂᑦ ᐆᒃᑐᕋᐃᓂᕐᒧᑦ ᖃᓄᐃᖕᒐᓂᐅᔪᑦ ᐊᒻᒪ ᒪᓕᒃᓱᒋᑦ ᐸᓂᖅᑐᑦ ᕿᒪᒃᑎᑦᑐᑦ ᖃᓄᐃᖕᒐᓂᖓ, ᑎᓇᒐᓂᐊᕐᒥᑦ ᕿᒪᒃᑎᑦᑐᑦ ᐋᓯᑦᓕᐅᖅᑑᔾᔪᖕᒋᑦᑐᑦ, ᓴᕕᓐᓂᓪᓘᓃᑦ ᐊᓂᐊᔪᖃᕐᓗᑎᒃ ᐊᑯᓂᐅᔪᒥᑦ ᑕᑭᓂᕐᒥᑦ.

WRSFs ᐊᒻᒪ TSF ᐋᕿᒃᑕᐅᓚᐅᖅᑐᑦ ᐊᒻᒪ ᐊᑐᖅᑕᐅᓗᑎᒃ ᒥᑭᓛᒨᖅᑎᓐᓂᕐᒧᑦ ᐊᒃᑐᖅᓯᓂᐅᔪᖅ ᐊᕙᑎᒧᑦ ᐊᒻᒪ ᐃᓱᒪᒋᑉᓗᒍ ᓄᓇᒥᒃ ᖃᐅᔨᓴᐃᓂᑦ ᐊᒻᒪ ᓄᓇᐅᑉ ᖃᓄᐃᓕᐅᕐᓂᕋᓗᖕᒐᑕ ᐊᔪᙱᓐᓂᖓᓄᑦ. ᑰᒃᑑᑉ ᖄᖓ ᐊᒻᒪ ᐊᓂᐊᔪᖅ ᐃᒪᖅ ᑐᖅᑯᖅᓯᒪᕝᕕᖓᓂᑦ ᓱᑉᓗᒃᑯᑦ ᐊᓯᐊᒎᖅᑎᑕᐅᓂᐊᖅᑐᑦ ᐊᒻᒪ ᑲᑎᑕᐅᓗᑎᒃ ᐃᒪᕐᓄᑦ ᑲᑎᖅᓱᐃᕝᕕᖓᓂᑦ (Cps). ᐃᒪᐅᑉ ᖃᓄᐃᓐᓂᖓ ᑎᑭᐅᑎᙱᑉᐸᑦ ᑯᕕᔪᓄᑦ ᐋᕿᐅᒪᔪᒥᒃ ᒪᓕᒃᓱᒍ ᐃᒪᕐᒧᑦ ᓚᐃᓴᓐᓯᒥᑦ ᐱᔭᕆᐊᖃᕐᓂᖅ, ᑲᑎᑕᐅᔪᖅ ᐃᒪᖅ ᐱᓕᕆᐊᖑᓂᐊᖅᑐᖅ ᐃᒪᓕᕆᕝᕕᖕᒥᑦ (WTP)-ᒥᑦ ᑯᕕᑎᑕᐅᓂᐊᓵᕐᓗᓂ ᓯᓚᒧᑦ.

EXECUTIVE SUMMARY

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the Project), located approximately 25 km north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. The mine plan proposes open pit and underground mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one underground mine.

The Type A Water Licence Application has been prepared in accordance with the Nunavut Land Claims Agreement, *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, and the Nunavut Water Regulations, but also takes into account the detailed guidance provided by the Board in Guide 4 – Completing and Submitting a Water Licence Application for a New Licence and the Supplemental Information Guide for Mining and Milling (SIG-MM3 Guide). This document presents Mine Waste Management Plan (Plan) and forms a component of the documentation series produced for the Type A Water Licence Application. This Plan will be updated, as required, to reflect changes in operations and/or technology.

There are four phases to the development of Tiriganiaq: just over 4 years construction (Q4 Year -5 to Year -1), 8 years mine operation (Year 1 to Year 8), 3 years closure (Year 9 to Year 11), and post-closure (Year 11 forwards). Approximately 12.1 million tonnes (Mt) of ore will be produced. The produced ore will be milled over approximately 8 years of mine life at a rate of 3,000 tonnes per day (tpd) in Year 1 to Year 3 and 5,000 tpd in Year 4 to Year 8.

Waste rock and overburden will be trucked to the waste rock storage facilities (WRSFs) until the end of mine operation, with distribution according to an operation schedule. Results of geochemical testing indicate that the produced waste rock and overburden is non-potentially acid generating (NPAG); both the waste rock and overburden are considered non-ML. Three areas have been identified as the WRSFs. Closure of the WRSFs will begin when practical as part of the progressive reclamation program. The WRSFs will not be covered and vegetated and no additional re-grading activity will be required under the closure plan. Thermistors will be installed within the WRSFs to monitor permafrost development.

Of the total 12.1 Mt of tailings produced, about 9.7 Mt of tailings will be placed in the tailings storage facility (TSF) as dry stack tailings, while the remaining 2.4 Mt will be backfilled to the underground mine as cemented paste backfill. The produced tailings are considered to be non-acid generating (NAG). The TSF consists of three cells, which will be operated one by one to facilitate progressive closure during mine operation. A layer of overburden and waste rock will be used for the TSF closure. From the available testing results and based on the dry stack tailings design, the Tiriganiaq tailings will not pose an acid generation problem, nor a ML problem in the long-term.

The WRSFs and TSF were designed and to be operated to minimize the impact on the environment and to consider geotechnical and geochemical stability. The surface runoff and seepage water from the storage facilities will be diverted via channels and collected in the water collection ponds (CPs). If the water quality does not meet the discharge criteria as per the Water Licence requirement, the collected water will be treated by the Water Treatment Plant (WTP) prior to being discharged to the outside environment.

TABLE OF CONTENTS

Tables in Text

APPENDIX A • FIGURES

DOCUMENT CONTROL

Version	Date	Section	Page	Revision	Author
1	April 2015			First draft version of Mine Waste Management Plan as Supporting Document for Type A Water Licence Application, submitted to Nunavut Water Board for review and approval	Tetra Tech EBA Inc.

ACRONYMS

ABA	Acid Base Accounting
Agnico Eagle	Agnico Eagle Mines Limited
ARD	Acid Rock Drainage
ML	Metal Leaching
CP	Collection Pond
DFO	Department of Fisheries and Oceans Canada
FEIS	Final Environmental Impact Statement
HCT	Humidity Cell Test
INAC	Indian and Northern Affairs Canada
MEND	Mining Environment Neutral Drainage
MMER	Metal Mining Effluent Regulations
NAG	Non-Acid Generating
NLCA	Nunavut Land Claims Agreement
NPAG	Non-Potential Acid Generating
NPR	Net Potential Ratio
NWB	Nunavut Water Board
NWR	Nunavut Water Regulations
NWNSRTA	Nunavut Waters and Nunavut Surface Rights Tribunal Act
PAG	Potential Acid Generating
PGA	Peak Ground Acceleration
Project	Meliadine Gold Project
SFE	Shake Flask Extraction
TSF	Tailings Storage Facility
WRSF	Waste Rock Storage Facility
WTP	Water Treatment Plant

UNITS

%	percent
°C	degrees Celsius
°C/m	degrees Celsius per meter
cm/s	centimetre per second
ha	hectare
kPa	kilopascal
km	kilometre(s)
L	liter(s)
m	metre
mg	milligram
m/s	metre per second
mm	millimetre
mm/h	millimetre per hour
m^2/year	square metre(s) per year
m^3	cubic metre(s)
Mm^3	million cubic metre(s)
t	tonne
t/m^3	tonne per cubic metre
Mt	million tonne(s)
µm	micrometre

SECTION 1 • INTRODUCTION

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (Project), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the proposed Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1’23.8’’ N, 92°13’6.42"W), on Inuit Owned Lands. The Project is located within the Meliadine Lake watershed of the Wilson Water Management Area (Nunavut Water Regulations Schedule 4).

The mine plan proposes open pit and underground mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one underground mine. The proposed mine will produce approximately 12.1 million tonnes (Mt) of ore, 31.8 Mt of waste rock, 7.4 Mt of overburden waste, and 12.1 Mt of tailings. There are four phases to the development of Tiriganiaq: just over 4 years construction (Q4 Year -5 to Year -1), 8 years mine operation (Year 1 to Year 8), 3 years closure (Year 9 to Year 11), and post-closure (Year 11 forwards).

Mining facilities include a plant site and accommodation buildings, three ore stockpiles, a temporary overburden stockpile, a tailings storage facility (TSF), three waste rock storage facilities (WRSFs), and a water management system that includes collection ponds (CPs), water diversion channels, and retention dikes/berms, and a Water Treatment Plant (WTP). The general mine site location for the Project and the site layout plan are shown in Figures 1.1 and 1.2, respectively, as attached in Appendix A.

1.1 Concordance

The Project is subject to land and resource management processes established by the Nunavut Land Claims Agreement (NLCA) and other Federal laws and regulations. Agnico Eagle is required in accordance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA) and Nunavut Water Regulations (NWR) to submit to the Nunavut Water Board (NWB) a Type A Water Licence Application for Mining and Milling Undertaking to use water and to deposit waste in the development of the Project.

The Type A Water Licence Application has been prepared in accordance with the NLCA, the NWNSRTA, and the NWR, but also takes into account the detailed guidance provided by the Board in Guide 4 – Completing and Submitting a Water Licence Application for a New Licence and the Supplemental Information Guide for Mining and Milling (SIG-MM3 Guide). Concordance has been assessed for the requirements of the NWB Guidelines and SIG-MM3 Guide and commitments made during the Nunavut Impact Review Board (NIRB) Part 5 Review of the Final Environmental Impact Statement (FEIS).

1.2 Mine Waste Management Plan Summary

This document presents the Mine Waste Management Plan (the Plan) to support the Type A Water Licence Application. The purpose of the Plan is to provide consolidated information on waste rock, overburden, and tailings management, including strategies for runoff and dust control and monitoring programs for the storage facilities. The Plan is divided into the following components:

- Introductory section (Section 1);
- A brief summary of the physical setting at the mine site (Section 2),
- A brief summary of the mine plan (Section 3);
- A description of waste rock, overburden and tailings geochemistry (Section 4);
- A description of the waste rock and overburden management plan (Section 5);
- A description of the tailings management plan (Section 6);
- A description of water management associated with mine waste management (Section 7);
- A description of dust management associated with mine waste management (Section 8);
- A description of reclamation and closure related to mine waste management (Section 9); and
- Monitoring program (Section 10).

The Plan will be updated, as required, to reflect changes in operation or economic feasibility occurs, and incorporate new information and latest technology, where appropriate.

1.3 Linkages to Other Management Plans

Documents included in the application package of this Type A Water Licence Application, which support this Plan include the:

- Environmental Management and Protection Plan;
- Water Management Plan;
- Roads Management Plan; and
- Preliminary Closure and Reclamation Plan.

1.4 Overall Schedule and General Activities

The construction phase is anticipated to start in last quarter of 2015 (Year -5) and take approximately just over 4 years (Q4 Year-5 to Year -1). The mine construction period will primarily focus on site preparation and the construction of infrastructure, with some mining activities (advancement of the mine ramp) occurring at the Tiriganiaq underground mine. The first year of operation (Year 1) will commence after commissioning is completed in the last quarter of construction (Year -1). The operation phase will span approximately 8 years (Year 1 to Year 8). Mining activities are expected to end in Year 7 and ore processing is expected to end in Year 8. Closure will occur within three years (Year 9 to Year 11) after the completion of mining and will include the removal of non-essential site infrastructure. Flooding of the mined-out open pits with water pumped from Meliadine Lake and flooding of the underground mine with natural groundwater seepage will start in Year 8 as progressive reclamation. Post closure phase will commence as closure is completed in Year 11 and will continue until it is shown that the site and water quality meets all the regulatory closure objectives. Table 1.1 summarizes the overview of the timeline and general activities.

Table 1.1: Key Mine Development and Water Management Activities and Sequence

Mine Year	Mine Development Activities	Water Management Activities
Q4 of Yr-5	• Start to construct the industrial pad • Develop the ramp to Tiriganiaq underground mine • Construct portion of rock pad for OP1 and OP2 stockpiles to store the ore from Tiriganiaq underground ramp development • Install Culvert2	• Start to re-use the underground water • Dewatering top 0.5 to 1.0 m of fresh water in Pond H17 (depending on the time of obtaining the Type A Water Licence)
Yr -4	• Continue construction of the industrial pad and start to construct the associated buildings • Construct D-CP1 to impound CP1 and start to collect contact water within CP1 • Construct discharge diffuser in Meliadine Lake • Build WTP and water intake causeway and start to treat the contact water in CP1 • Construct Channel2 and install Culvert1	• Start to pump the water from CP1 to WTP for treatment prior to discharge to the outside environment via the diffuser in Meliadine Lake • Pump the underflow sludge water from the WTP to CP1. To limit recirculation of the sludge within CP1, the discharge will be located away from the WTP intake • Dewater Lake A54 in Q3 of Year -4 and pump the water to CP1
Yr -3	• Complete the industrial pad • Construct freshwater intake causeway in Meliadine Lake • Construct CP2 and start to collect contact water • Construct Berm3 and Channel5 • Construct D-CP5 to impound CP5 and start to collect contact water • Construct and operate the landfill and landfarm	• Start to supply fresh water from Meliadine Lake to the camp area • Start to treat sewage water and pump the treated sewage water from STP to CP1 • Start to pump contact water from CP2 to CP1 • Start to pump contact water from CP5 to CP1 • Start to pump water from the landfarm to CP1 after pre-treatment for oil • Start to store the excess groundwater from the underground mine at surface
Yr -2	• Expand the pad footprint of OP1 and OP2 to increase the storage capacity • Start to place waste rock in the WRSF1 • Construct Berm1, Channel1, Channel6, Channel7, and Channel8 • Install Culvert3 to Culvert 6	• Start to divert the contact water from industrial pad to CP1 via Channel1

Table 1.1: Key Mine Development and Water Management Activities and Sequence

Mine Year	Mine Development Activities	Water Management Activities
Yr -1	• Complete the construction of the buildings over the industrial pad • Start process commissioning in Q4 of Year -1 • Start to place dry stack tailings in Cell 1 of TSF in Q4 of Year -1	• Start to pump the treated water from WTP to mill as make-up water • Start to pump the underflow sludge water from WTP to the mill during the open water season, the mill will be supplemented as much as possible with water from the WTP. For the balance of the year, fresh water will be used for ore processing • Start to pump excess truck wash water from the wash bay to CP1
Yr 1	• Start full capacity of ore processing • Construct Berm2, Channel3, and Channel4 • Construct D-CP3 to form CP3 and start to collect contact water • Construct D-CP4 to form CP4 and start to collect contact water	• Start to pump contact water in CP3 to the partially drained Pond H13 where the water will flow though Channel1 to CP1 • Start to pump contact water in CP4 to the partially drained Pond H13 where the water will flow though Channel1 to CP1
Yr 2	• Start to mine Tiriganiaq Pit 1 • Start to place overburden and waste rock from Tiriganiaq Pit 1 in WRSF1	• Start to pump contact water collected in Tiriganiaq Pit 1 to CP5
Yr 3	• Expand process plant to reach the process capacity of 5,000 tpd • Construct temporary overburden stockpile to store the selected ice-poor overburden that will be used for progressive reclamation of TSF	• Dewater Ponds H19 and H20 in Q3 of Year 3 and pump the water to CP1
Yr 4	• Increased mill production to 5,000 tpd • Start to mine Tiriganiaq Pit 2 • Start to place waste rock and overburden from Tiriganiaq Pit 2 in WRSF3 • Construct D-CP6 to CP6 and start to collect contact water • Start to place dry stack tailings in Cell 2 of TSF • Start to place low grade ore from the open pits in the OP1 stockpile • Construct rock pad for OP3 to store marginal grade ore from the open pits • Stop placing rock and overburden in WRSF1 when WRSF1 reaches design capacity	• Start to pump contact water collected in Tiriganiaq Pit 2 to CP5 • Start to pump contact water in CP6 to CP1
Yr 5	• Start to place waste rock from Tiriganiaq Pit 1 in WRSF2 • Place final closure cover on top of tailings surface in Cell 1 of TSF (waste rock cover over final Cell 1 perimeter slope to be	• Water management plan similar to Year 4

Table 1.1: Key Mine Development and Water Management Activities and Sequence

Mine Year	Mine Development Activities	Water Management Activities
	placed as progressive reclamation -as soon as slope reaches final grade)	
Yr 6	• Start to place dry stack tailings in Cell 3 of TSF • Stop placing overburden waste in WRSF3	• Water management plan similar to Year 4
Yr 7	• Place final closure cover on top of tailings surface in Cell 2 of TSF (waste rock cover over final Cell 2 perimeter slope to be placed as for progressive reclamation as soon as slope reaches final grade) • Stop mining of Tiriganiaq Pit 1 and Tiriganiaq Pit 2 when the open pits reach design elevation • Stop Tiriganiaq underground operation when underground mine reaches design elevation • Stop placing waste rock and overburden in WRSF2 when WRSF2 reaches design capacity • Stop placing waste rock in WRSF3 when WRSF3 reaches design capacity	• Water management plan similar to Year 4 • Stop pumping water from the open pits when the pits are mined-out at end of year • Stop pumping excess water from underground when underground mine is completed
Yr 8	• Process the ore from the OP1, OP2, and OP3 until all stored ore are processed • Decommission of underground mine surface openings as needed	• Start to fill the mined-out Tiriganiaq Pits 1 and 2 with active pumping water from Meliadine Lake • Start natural flooding of Tiriganiaq Underground mine with groundwater seepage • Stop pumping water to process plant when the processing is completed
Closure (Yr 9 to 11)	• Place final closure cover on top of tailing surface in Cell 3 of TSF in Year 9 (waste rock cover over final Cell 3 perimeter slope to be placed as progressive reclamation - as soon as slope reaches final grade) • Decommission non-essential mine infrastructure and support buildings in Years 9 and 10 • Continue to fill the mined-out open pits with active pumping water from Meliadine Lake until Year 10 • Start monitoring and maintenance in Year 9 (start in Year 8 if possible)	• Finish flooding Tiriganiaq Pit 1 and Tiriganiaq Pit 2 by Q4 of Year 10 • Continue to collect and manage the contact water in CP1 to CP6 • Continue to pump the contact water in CP1 to WTP, if required, for treatment before being discharged to the outside environment • Remove non-essential site infrastructure • Pump the underflow sludge water from WTP to CP1 • Continue natural flooding of Tiriganiaq Underground mine with groundwater seepage • Remove Meliadine Lake pumping system
Post-Closure	• Continue monitoring and maintenance until Year 18	• Treat the contact water until water quality meet direct discharge criteria and then

Table 1.1: Key Mine Development and Water Management Activities and Sequence

Mine Year	Mine Development Activities	Water Management Activities
		decommission the water management system • Continue natural flooding of Tiriganiaq Underground (progressive reclamation since Year 8) • Breach water retention dikes D-CP1, D-CP3, D-CP4, D-CP5 and D- CP6 once water quality monitoring results meet discharge criteria to allow water to naturally flow to outside environment • Remove culverts and breach remaining water retention dikes/berms in Year 18

SECTION 2 • PHYSICAL SETTING

2.1 Site Conditions

The mine site is located in lowlands near the northwest coast of Hudson Bay. The dominant terrain at the mine site area comprises glacial landforms such as drumlins (glacial till), eskers (gravel and sand), and small lakes. The topography is gently rolling with a mean elevation of 65 m above sea level and a maximum relief of 20 m.

The local overburden typically consists of sand and gravel deposits of various thicknesses overlying till with cobbles and boulders. Some of the surfaces are covered by a thin layer of organics. Bedrock at the mine site area consists of a stratigraphic sequence of clastic sediments, oxide iron formation, siltstones, graphitic argillite, and mafic volcanic flows (Snowden 2008; Golder 2009a).

Low-lying areas are poorly drained as a result of a low slope in the landscape and intermittent streams connect numerous shallow ponds and lakes. The following subsections summarize the physical setting at the mine site.

2.2 Climate

The mine site is located in the Kivalliq Region of Nunavut, near the northern border of the southern Arctic terrestrial ecozone, and within the Arctic tundra climate region. Within this region daylight reaches a minimum of 4 hours per day during the winter to a maximum of 20 hours per day during the summer. The climate is extreme with long cold winters and short cool summers. Temperatures are cool, with a mean temperature of 12°C in July and -31 °C in January. The mean annual air temperature at the Project site is approximately -10.4 °C (Golder 2012a).

The recorded prevailing winds are from north and north-northwest. The wind blows from the north and north-northwest direction more than 30% of the time, and the least frequent wind direction is west-southwest, with a frequency of 2.1%. The calm frequency is 2.8% of the time. The mean values for wind speed show that the north-northwest together with north and northwest winds have the highest speeds and tend to be the strongest.

Mean annual precipitation at the mine site, based on the hydrological year from 1 October to 30 September, is estimated to be 411.7 mm after accounting for rainfall and snowfall undercatch. Approximately 51% of precipitation occurs as rain (207.1 mm) and 49% occurs as snow (199.1 mm).

2.3 Permafrost

The mine site is located in an area of continuous permafrost, as shown on Figure 2.1 as attached in Appendix A.

Late-winter ice thicknesses on freshwater lakes in the mine site area were recorded from 1998 to 2000. The measured data indicated that ice thickness ranges from 1.0 to 2.3 m with an average thickness of 1.7 m. Ice covers usually appear by the end of October and are completely formed in early November. The spring ice melt typically begins in mid-June and is complete by early July (Golder 2012 b).

Published data regarding permafrost were used to recreate the permafrost map of Canada shown in Figure 2.1. Based on thermal studies and measurements of ground temperatures, the depth of permafrost at the mine site is estimated to be in the order of 360 to 495 m. The depth of the active layer ranges from about 1 m in areas with shallow overburden, up to about 3 m adjacent to the lakes. The depth of the permafrost and active layer will vary based on proximity to the lakes, overburden thickness, vegetation, climate conditions, and slope direction (Golder 2012b). The typical permafrost ground temperatures at the depths of zero annual amplitude (typically at the depth of below 15 m) are in the range of -5.0 to -7.5 °C in the areas away from lakes and streams. The geothermal gradient ranges from 0.012 to 0.02 °C/m (Golder, 2012c).

2.4 Taliks

Taliks (areas of unfrozen ground) are to be expected where lake depths are greater than about 1.0 to 2.3 m. Formation of an open-talik, which penetrates through the permafrost, would be expected for lakes that exceed a critical depth and size. It is anticipated that an open-talik exists below Lake B7 based on the depth and geometry of this lake (Golder, 2012b). The salinity of groundwater also influences the temperature at which the groundwater will freeze. The test results on two deep groundwater samples collected below the base of the permafrost for baseline study indicated salinity level leads to a freezing point depression of about 3.2 °C (FEIS Volume 7, Appendix 7.2-A).

2.5 Subsurface Condition

A series of geotechnical site investigation programs had been carried out at the mine site (Golder 1999, 2009b, 2010a, 2010b, 2012d, 2012e, SRK 2007, and Tetra Tech EBA 2013a, 2014a). A total of 150 geotechnical boreholes were drilled and 37 thermistor cables were installed during the site investigation programs.

Fourteen boreholes were drilled within the proposed footprints of the WRSFs during the previous site investigations. In general, a veneer of organic material ranging from 0.02 to 0.70 m was encountered in most of boreholes. The underlying overburden material encountered in most of boreholes consisted of a sand and silt matrix, gravelly, and some gravel with cobbles and boulders. The overburden thickness ranges between 1.5 to 13.6 m and is underlain by greywacke bedrock. Overburden soils with excess ice were observed in most of the boreholes. Massive icy beds up to 1.5 m thick were also encountered.

In 2014, a total of seven boreholes were drilled within the proposed footprint of the TSF. The subsurface soil profile is similar to the soil encountered within the proposed footprint of the WRSFs. Generally, the soil profile consists of a veneer of organic material ranging from 0.1 to 0.75 m, layers of a sand and silt matrix, and overlaid by bedrock. The overburden thickness ranges from 1.3 to 7.3 m. An ice layer up to 1.75 m thick was encountered in one borehole. Soil porewater salinity tests (Tetra Tech EBA, 2013a) indicated that the overburden soils at the mine site may have a porewater salinity of 4 to 12 parts per thousand.

2.6 Seismic Zone

The mine site is situated in an area of low seismic risk. The peak ground acceleration (PGA) for the area was estimated using seismic hazard calculator from the 2010 National Building Code of Canada website (http://www.earthquakescanada.nrcan.gc.ca/hazard-alea/interpolat/index_2010-eng.php). The estimated PGA is 0.019 g for a 5% in 50-year probability of exceedance (0.001 per annum or 1 in 1,000 year return) and 0.036 g for a 2% in 50-year probability of exceedance (0.000404 per annum or 1 in 2,475 year return) for the area.

SECTION 3 • MINING PLAN

3.1 Mine Development Plan

Tiriganiaq gold deposit will be developed using traditional open-pit and underground mining methods. Two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and an underground mine (Tiriganiaq Underground) will be developed as shown in Figure 1.2. Approximately 31.8 Mt of waste rock, 7.4 Mt of overburden material, and 12.1 Mt of tailings will be produced.

The following mining development sequence is planned:

- Tiriganiaq underground mine will be developed and operated from Year -5 to Year 7;
- Tiriganiaq Pit 1 will be mined from Year 2 to Year 7; and
- Tiriganiaq Pit 2 will be mined from Year 4 to Year 7.

3.2 Mine Waste Development Plan

Three mine waste streams will be produced: waste rock, tailings, and overburden material.

The term “waste rock” designates all fragmented rock mass that has no economic value and needs to be stored separately. Waste rock is also commonly referred to as “mine rock” in the mining industry. Typically, waste rock is produced during the initial stripping and the subsequent development of open pits and underground workings.

The term “overburden” designates all soils above the bedrock that needs to be stripped at surface prior to developing the open pits. Generally, the overburden at the site consists of a thin layer of organic material overlying a layer of non-cohesive soil with variable amounts of silt, sand, and gravel.

Tailings are the processed material by-product of the gold recovery process and generally comprise water with gravel, sand, silt, and clay sized particles.

Table 3.1 summarizes the schedule and quantities to be mined from the open pit and underground mining operations. The proposed usage or destination of the three mine waste materials is presented in Table 3.2. Figure 3.1 presents a graphical representation of the mine waste management flow sheet.

Further details on the management of the mine waste materials are presented in Sections 5 and 6 of this plan.

Table 3.1: Summary of Mine Waste Production Schedule

Year	Mine Waste and Ore from Underground (t)		Mine Waste and Ore from Tiriganiaq Pit 1 (t)			Mine Waste and Ore from Tiriganiaq Pit 2 (t)		
	Waste Rock	Ore	Overburden	Waste Rock	Ore	Overburden	Waste Rock	Ore
Yr-5	290,705*	338	0	0	0	66,746	26,260	0
Yr-4	355,200	987	0	0	0	200,239	373,739	0
Yr-3	583,679	731	0	0	0	0	0	0
Yr-2	691,529	120,865	0	0	0	0	0	0
Yr-1	764,683	602,440	0	0	0	0	0	0
Yr1	959,950	1,185,403	0	0	0	0	0	0
Yr2	789,614	1,051,472	2,038,237	68,930	0	0	0	0
Yr3	608,626	1,254,293	4,328,239	4,205,799	0	0	0	0
Yr4	336,059	1,237,507	236,246	5,774,071	905,004	391,137	287,727	6,509
Yr5	31,567	1,154,294	0	5,004,160	742,892	97,830	1,667,353	70,586
Yr6	0	967,430	0	3,703,548	781,391	0	2,468,635	123,008
Yr7	0	888,008	0	1,830,060	710,953	0	973,358	254,040
Total (t)	**5,411,612**	**8,463,768**	**6,602,722**	**20,586,568**	**3,140,240**	**755,952**	**5,797,072**	**454,143**
*The amount include approximately 112,775 tonnes of waste rock produced during development of ramp to underground mine before construction phase starting in Year-5								

Table 3.2: Summary of Mine Waste Tonnage and Destination

<table>
<tr><th>Mine Waste Stream</th><th colspan="2">Estimated Quantities</th><th>Waste Destination</th></tr>
<tr><td rowspan="3">Overburden</td><td colspan="2" rowspan="3">7.4 Mt</td><td>Temporary storage in the Overburden Stockpile ~ 0.1 Mt for reclamation of TSF</td></tr>
<tr><td>Closure and site reclamation for the TSF</td></tr>
<tr><td>Co-disposed with waste rock within WRSFs</td></tr>
<tr><td rowspan="3">Waste Rock</td><td colspan="2" rowspan="3">31.8 Mt</td><td>Dike and road construction</td></tr>
<tr><td>WRSFs</td></tr>
<tr><td>Closure and site reclamation for the TSF</td></tr>
<tr><td rowspan="2">Tailings</td><td rowspan="2">12.1 Mt</td><td>9.7 Mt</td><td>As dry stack tailings placed in the TSF</td></tr>
<tr><td>2.4 Mt</td><td>Backfilled to underground mine as cemented paste backfill</td></tr>
</table>

3.2 Mine Waste Storage

The overall objective of the site selection for the WRSFs and TSF was to minimize the footprint of the areas occupied by the waste rock, overburden, and tailings, and where possible, avoid environmentally and socially sensitive areas.

3.2.1 Waste Rock and Overburden Storage Area

Three areas were identified for the combined storage of waste rock and overburden material as shown in Figure 1.2 of Appendix A. These areas can be described as follows:

- The WRSF1: located north of Tiriganiaq Pit 1 with an approximate footprint of 41.4 ha.
- The WRSF2: located south of Pond H17 (CP1) with an approximate footprint of 20.2 ha.
- The WRSF3: located north of Tiriganiaq Pit 2, covered H20 pond basin with an approximate footprint of 22.7 ha.

Originally, four main areas were proposed as the waste rock storage areas in the baseline study for the project during the FEIS to store the waste rock and overburden generated from mining the five deposits. Comparatively, the WRSFs for Tiriganiaq have less impact on existing waterbodies, smaller footprints, shorter haul distances, and it will be easier to manage the surface runoff and seepage from the facilities as shown in Figure 3.2

3.2.2 Tailings Storage Area

Tailings will be placed and stored the as a dry stacked tailings within the TSF that is located on an area of high ground located between the proposed mill and east of Lake B7 as shown on Figure 1.2. For the original baseline work and the FEIS, it was proposed to confine the thickened slurry tailings within the basin of Lake B7, with dikes providing the additional above ground storage capacity. A total 12.1 Mt of tailings will be produced over a mine life of approximately 8 years. About 9.7 Mt tailings (80% of total tailings) will be placed in the TSF as dry stack tailings. The remaining 2.4 Mt (20% of total tailings) will be used as underground cemented paste backfill for the primary stopes and longitudinal stopes.

The dry stack TSF will be constructed on land and will not cover any major waterbodies such as Lake B7. Benefits of dry stack tailings are provided in Section 6.1. The Mine Plan (Section 2.7) provides the advantages and disadvantages of dry stack tailings identified during the evaluation process for the final TSF design.

3.3 Use of Traditional Knowledge in the Planning for Mine Waste Management

Inuit Qaujimajatuqangit (IQ) is the most successful and oldest monitoring practice in Nunavut, where the resource users do the observing or monitoring. Information collected can contribute to mine design and monitoring.

Agnico Eagle is committed to including IQ and public concerns stemming from IQ, where practical, in the design of management and monitoring plans for the Project. Agnico Eagle will continue active engagement with communities and Inuit organizations as the Project proceeds through permitting, and if approved, construction, operations and closure. This consultation and engagement should lead to further inclusion of IQ, as it becomes available, in updates to the design and implementation of environmental programs. Section 1.5 of the Main Application Document summarizes IQ and public concerns. A list of public concerns can be found in the Public Engagement and Consultation Baseline Report, submitted in support of this Type A Water Licence Application.

This Mine Waste Management Plan considers IQ, including traditional ecological knowledge (TEK), traditional land use (TLU) and public concerns regarding Project effects on traditional resources and traditional land use sites, through the following Project design and mitigation measures:

- Based on IQ and community consultation, it is clear that clean water and the health of fish, wildlife, birds, and caribou is important to Elders and other people in the communities. Therefore, the WRSFs and TSF for the Project are designed and will be operated to minimize the impact on the environment. For example, the surface runoff and seepage water from the storage facilities will be diverted via channels, collected in water collection ponds, and treated as needed prior to discharge to the outside environment. In addition, contact water quality will be monitored and assessed throughout the construction, operations, closure, and post-closure phases such that any required changes to how the water is managed on site can be identified and implemented in a timely fashion.
- Inuit Qaujimajatuqangit indicates that caribou move through the Project area on a regular basis. Therefore, progressive reclamation of Project waste management infrastructure includes closure activities that take place prior to the end of mining (final closure). These closure activities consider minimizing the risk of erosion and sediment loss as a result of on-site runoff, minimizing dust generation and soil drifting, stabilizing slopes, and the creation of a final landscape that allows caribou to continue to move through the area in the future as they have done in the past. They also provide for clean water, as well as healthy fish, wildlife, birds, and caribou.
- Through IQ and community consultation, it is known that people have fished and continue to fish in the Meliadine area. The use of dry stack tailings avoids potentially impacting and/or using significant bodies of water, such as Lake B7, and further limits the amount of seepage potentially reporting from the TSF, both during operations and into closure and post-closure of the proposed mine. The dry stack tailings process also minimizes the

traditional “tailings pond” surface area thereby reducing the potential for contact between migratory birds and the tailings “pond”.

- Inuit Qaujimajatuqangit states that berry picking and caribou hunting are important parts of the Inuit culture in the past and today. Community members have expressed concern over dust that could impact the health of the caribou and berries. Therefore, dust suppression measures will be considered though the design, operation, and closure phases of all waste management infrastructure at the Project. Monitoring programs have been included to monitor the impact of dust on vegetation near the mine site and to specifically measure uptake of metals by such vegetation.

SECTION 4 • GEOCHEMISTRY

A baseline geochemical characterization program for the Project was initiated in 2008 and consisted of static and kinetic testing methods to assess the chemical composition of the mine waste and overburden, its potential to generate acid rock drainage (ARD) and its potential for metal leaching (ML) upon exposure to ambient conditions. The objectives of the program were to identify chemicals of environmental interest in the framework of mine water and waste management and probable future mine water quality.

The Project site is located in the Rankin Inlet Greenstone Belt. The ore deposits are low-sulphide, gold-quartz vein deposits. The principal lithological units that are likely to be disturbed by mining include turbiditic sedimentary rocks, volcanic-hosted and sediment-hosted iron formation, sericite altered siltstones and graphitic argillite, and schistose and carbonate-altered mafic volcanic rocks.

The waste rock and ore sample selection for the geochemical characterization program was completed to obtain a data set that is compositionally and spatially representative of the material to be removed by mining.

All waste rock, tailings, and overburden samples were subjected to a variety of static testing to evaluate chemical and mineralogical composition, the potential to generate ARD, as well as short-term and long-term ML potential. ARD potential was assessed following *Guidelines for Acid Rock Drainage Prediction in the North* (INAC 1992) for waste rock and tailings and the *Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials* (MEND 2009). All leach test water quality results were screened against Metal Mining Effluent Regulations (MMER) for effluent quality (MMER; DFO 2006).

The following subsections summarize the test results for waste rock, overburden and tailings from the geochemical characterization program completed for baseline studies of the Project (SD 6-3 of the FEIS). The results from the geochemical characterization program indicate that waste rock and overburden produced on site are appropriate for construction (they do not generate ARD, nor leach metals above MMER monthly mean criteria). The geochemistry of the construction material will continue to be monitored though geochemical analyses, as needed, to verify the chemical adequacy of the material to be used for construction.

4.1 Waste Rock

The key findings from the geochemical characterization program for the waste rock are summarized as follows:

- ARD generation test results (acid-base accounting [ABA]; static testing) indicated that the waste rock from the Tiriganiaq deposit has no potential for acid-generation (NPAG), stemming from their low sulfur content and the presence of a sufficient quantity of readily-available buffering capacity.

- The final pH values of the leachates from the short-term leaching tests (Shake Flask Extraction or SFE tests) are circum-neutral to alkaline with values ranging from 6.1 to 9.5, corroborating the available buffering capacity.
- Leachate quality from the SFE tests meet mine effluent criteria (DFO, 2006) for almost all parameters with the exception of arsenic. Arsenic was leached in concentrations marginally higher than the MMER effluent limit (maximum monthly mean of 0.5 mg/L) in one Tiriganiaq greywacke/siltstone sample. However, the average arsenic concentration from all samples was well below the MMER limit.
- Kinetic test leachate quality results from humidity cells, large columns and field cell tests on waste rock also yielded circum-neutral to alkaline pH values ranging from 6.5 to 9.3. This confirms the NPAG classification of Tiriganiaq waste rock groups that was defined through the static test methods.
- For all kinetic leaching test types, leachate concentrations were below mine effluent criteria (DFO, 2006).
- Large column and field cell tests, conducted at low water-to-rock ratios that are more appropriate to site conditions, generated leachate concentrations well below MMER criteria.

Based on the aforementioned waste rock geochemical testing findings, the waste rock from the Tiriganiaq deposit area is considered to be NPAG and has a low potential for ML in view of proposed waste rock management for the Project. Kinetic tests at various scales indicate that drainage water quality will meet MMER monthly mean effluent limits.

4.2 Overburden

The key findings from the geochemical characterization program for the overburden material are summarized as follows:

- Overburden samples reported very low sulphur content and the presence of available buffering capacity; all samples were NPAG.
- For all overburden samples, the concentrations of all leachate parameters met mine effluent criteria (DFO, 2006) with the exception of one Tiriganiaq surface overburden sample that exceeded the MMER maximum monthly mean limit (0.5 mg/L) for zinc. However, the average zinc concentration for all the Tiriganiaq overburden samples (0.09 mg/L) was an order of magnitude below the MMER limit.
- Arsenic content in the overburden samples exceeded the Canadian Council for Ministers of the Environment Industrial Soil Guidelines (12 mg/kg). These results are consistent with a previous study that documented the natural occurrence of higher arsenic concentrations in the soil and surface water samples collected in the area of the Meliadine deposits.

The results of geochemical characterization indicated that the overburden produced will be NPAG, and that leachate concentrations are generally lower than waste rock and will meet MMER monthly mean limits. Waste rock and overburden have compatible geochemical characteristics such that these materials can be managed together in the same disposal facilities.

4.3 Tailings

The key findings from the geochemical characterization program for tailings are summarized as follows:

- The test results from ABA indicated that the whole ore tailings sourced from the Tiriganiaq deposit are NPAG according to INAC and MEND guidance criteria.
- Humidity cell tests (HCTs) on the tailings samples maintained neutral pH (>6.5) and stable to decreasing parameter concentrations with time.
- Most leachates from the SFE tests on Tiriganiaq tailing samples had constituent concentrations below MMER with the exception of arsenic, which was above the MMER monthly mean limit of 0.5 mg/L in DFO (2006).
- Kinetic testing also showed elevated arsenic concentrations in early cycles, with a decreasing trend in time.

From the available testing results, the Tiriganiaq tailings will not pose an acid generation (Golder, 2012f) or a ML problem in the long-term.

SECTION 5 • WASTE ROCK AND OVERBURDEN MANAGEMENT

5.1 General Description of Waste Rock and Overburden Management

Approximately 31.8 Mt of waste rock will be mined from the open pits and underground mine operations. The majority of the waste rock produced (about 25.7 Mt) will be placed and stored within the designated WRSFs. The remaining 6.1 Mt of waste rock will be used for other purposes, including: about 2.0 Mt will be backfilled to the underground mine, 1.65 Mt of waste rock will be used for construction activities, and 2.45 Mt of waste rock will be used as TSF closure cover material.

Approximately 7.4 Mt of overburden will be produced. About 7.3 Mt of overburden will be co-disposed within the WRSFs. The remaining, approximately 0.1 Mt, will be stored in a temporary overburden stockpile that will be used as cover material for progressive closure and reclamation of the TSF area.

Seepage and runoff water from the WRSFs and the temporary overburden stockpile will be managed by a series of water diversion channels, water retention dikes/berms, and water collection ponds. If the water quality does not meet the discharge criteria the collected contact water will be treated by the WTP prior to discharge to the outside environment. The contact water quality and the water management structures for the WRSFs will be monitored and assessed according to an approved environmental protocol during each stage of the mine life, including construction, operations, closure, and post-closure. The water management strategies associated with mine waste management is presented in Section 7 and further detailed in the Water Management Plan.

5.2 Waste Rock Storage Facilities

The design location of the WRSFs took into consideration the environmental, social, economic, and technical aspects of waste rock management which included the following:

- minimize the overall footprints of the WRSFs while maintaining the short-term and long-term stability of the facilities;
- avoid or minimize impact to adjacent fish bearing lakes;
- minimize the haul distance from the open pits to the WRSFs;
- minimize the number of the water catchment areas potentially affected by drainage from the WRSFs;
- when feasible, divert the upstream clean natural non-contact run-on water away from the WRSFs;
- facilitate the collection and management of the contact water from the WRSFs during mine operations to avoid potentially negative impacts on the surrounding environment;
- maintain a minimum distance of 100 m between the toe of the WRSFs and the open pits;

- maintain a minimum distance of 20 m from the toe of the WRSFs to haul and access roads; and
- maintain a minimum distance of 100 m between the toe of the WRSFs and adjacent lakes that will not be disturbed by mine activities.

Table 5.1 summarizes some of the key physical parameters used for the design of the WRSFs:

Table 5.1: Design Parameters for Waste Rock Storage Facilities

Design Parameters	WRSF1	WRSF2	WRSF3
Height of the first lift above original ground surface (m)	5		
Sideslope of each lift of waste rock	1.3(H):1(V)		
Width of the horizontal offset between the first and second lift (m)	15		
Width of the horizontal offset between two adjacent lifts above the second lift (m)	30	20	20
Maximum crest elevation above the sea level (m)	115	102	100
Average overall sideslopes of each WRSFs (from bottom toe of first lift to top crest of final lift)	2.5(H):1(V) to 3.4(H):1(V)	2.2(H):1(V) to 2.4(H):1(V)	2.3(H):1(V) to 2.5(H):1(V)
Sideslope for each lift of overburden	1.6(H):1(V)		
Internal Overburden setback distance from toe of WRSF for the first lift (m)	120	80	88
Assumed waste rock in place bulk density (t/m^3)	1.88		
Assumed overburden in place bulk density (t/m^3)	1.62		

Based on the above design criteria, the WRSFs will provide a 9.4 Mm^3, 3.6 Mm^3, and 5.0 Mm^3 of design capacity for WRSF1, WRSF2, and WRSF3, respectively.

5.2.1 Waste Rock Storage Facility 1

The proposed WRSF1 will occupy an area of approximately 41.4 ha and will be located to the north of Tiriganiaq Pit 1. Two small shallow ponds (Ponds A17 and B9) are located within the footprint of WRSF1 and will be covered by the facility as shown in Figure 5.1. The ponds are less than 2 m deep and freeze to the bottom annually during the winter season. The WRSF1 will accommodate waste rock produced from Tiriganiaq underground mining and Tiriganiaq Pit 1 and the overburden produced from Tiriganiaq Pit 1. It is anticipated that approximately 10.2 Mt (5.42 Mm^3) of waste rock and 6.5 Mt (4.02 Mm^3) of overburden will be placed in WRSF1.

From Year -2 to Year 4, the majority of the waste rock produced will be placed at WRSF1, with a portion of waste rock being used for underground backfill and TSF progressive closure cover. All overburden material produced from pre-stripping of Tiriganiaq Pit 1 will be placed at WRSF1. To manage the slope stability of the placed overburden, the overburden will be placed within areas that will be surrounded by waste rock. The WRSF1 is expected to reach its design capacity at the end of Year 4.

5.2.2 Waste Rock Storage Facility 2

The proposed WRSF2 is located to the south of Pond H17 (CP1) with an approximate footprint of 20.2 ha. Five small ponds (Ponds A58, H8, H9, H10, and H11) are located within the footprint of WRSF2 as shown in Figure 5.1. Pond A58 will be fully covered and the other four ponds will be partially covered by waste rock. All five ponds are less than 2.0 m deep and freeze to bottom during the winter (about 8 months of the year). Of the five ponds impacted by WRSF2, only nine spine stickleback were caught in Ponds A58 and H10.

The WRSF2 will accommodate the majority of waste rock produced from Tiriganiaq Pit 1 from Year 5 to Year 7. The WRSF2 is expected to reach its design capacity by the end of Year 7.

5.2.3 Waste Rock Storage Facility 3

The proposed WRSF3 is located to the north of Tiriganiaq Pit 2, covered basin of Pond H20 with an approximate footprint of 22.7 ha as shown in Figure 5.1. The runoff water from WRSF3 will be collected within Pond H19. Maximum water depths for Ponds H19 and H20 are 1.4 m and 1.6 m, respectively. No fish species were found in these two ponds. The WRSF3 will accommodate overburden from pre-stripping of Tiriganiaq Pit 2 and all waste rock produced from Tiriganiaq Pit 2 with some portions of waste rock from Tiriganiaq Pit 1 in Year 4 and Year 5. The WRSF3 is expected to reach its design capacity by end of Year 7.

5.3 Waste Rock Distribution

An estimate for the production schedule, quantities, and distribution of waste rock by year is presented in Table 5.2. The yearly development plan for the waste rock placement is shown in Figures 5.2 to 5.15

Table 5.2: Schedule, Quantities, and Distribution of Waste Rock by Year

Mine Year	Total Waste Rock from Mine Operation (t)	Utilization of Waste Rock (t)			Waste Rock to be Placed in WRSFs(t)		
		Construction	Rockfill for Underground Backfill	TSF Closure Cover	WRSF1	WRSF2	WRSF3
Yr -5	316,965*	316,965	0	0	0	0	0
Yr -4	728,939	728,939	0	0	0	0	0
Yr -3	583,679	583,679	0	0	0	0	0
Yr -2	691,529	0	0	0	691,529	0	0
Yr -1	764,683	0	31,910	0	732,773	0	0
Yr 1	959,950	0	190,180	160,929	608,842	0	0
Yr 2	858,544	0	235,839	164,214	458,491	0	0
Yr 3	4,814,425	19,268	188,991	128,402	4,477,764	0	0
Yr 4	6,397,857	0	349,005	236,634	3,221,661	0	2,590,557
Yr 5	6,703,080	0	364,965	411,296	0	3,059,326	2,867,493
Yr 6	6,172,183	0	370,885	239,114	0	3,093,548	2,468,635
Yr 7	2,803,418	0	319,338	533,194	0	977,528	973,358
Yr 8	0	0	0	313,774	0	-313,774	0
Yr 9	0	0	0	269,094	0	-269,094	0
Total (t)	**31,795,251**	**1,648,851**	**2,051,112**	**2,456,651**	**10,191,060**	**6,547,534**	**8,900,043**
Volume (m^3)	**16,912,368**	**877,048**	**1,091,017**	**1,306,729**	**5,420,777**	**3,428,731**	**4,734,065**

*The amount include approximately 112,775 tonnes of waste rock produced during development of ramp to underground mine before construction phase starting in Year-5

5.4 Overburden Storage and Management

Approximately 7.4 Mt of overburden material will be removed from the surface footprint of the two pits over the mine life. The approximate quantities and proposed placement location of the overburden is presented in Table 5.3 and shown in Figures 5.2 to 5.15.

The overburden material will be mainly stored within the WRSFs. A small volume of overburden (approximately 0.5% of total overburden produced) will be used for site infrastructure construction. The amount of overburden used for site infrastructure construction is included within the quantities of overburden placed into the WRSFs, as presented in Table 5.3. About 0.1 Mt of selected ice-poor overburden will be stored in a temporary overburden stockpile as TSF closure cover material. This temporary overburden stockpile is located at the east side of the TSF and has a footprint of approximately 1.12 ha and is shown in Figure 1.2. The temporary overburden stockpile is approximately 5.0 m high with sideslopes of 3(H):1(V).

Table 5.3: Schedule, Quantities, and Distribution of Overburden by Year

Mine Year	Total Overburden from Mine Operation (t)	Utilization of Overburden (t)		Overburden to be Placed in WRSFs (t)		
		Overburden Stockpile for TSF Closure Cover	Withdraw from Stockpile for TSF Closure Cover	WRSF1	WRSF2	WRSF3
Yr -5	66,746	0	0	0	66,746	0
Yr -4	200,239	0	0	0	200,239	0
Yr -3	0	0	0	0	0	0
Yr -2	0	0	0	0	0	0
Yr -1	0	0	0	0	0	0
Yr 1	0	0	0	0	0	0
Yr 2	2,038,237	0	0	2,038,237	0	0
Yr 3	4,328,239	94,816	0	4,233,423	0	0
Yr 4	627,383	0	0	236,246	0	391,137
Yr 5	97,830	0	20,844	0	0	97,830
Yr 6	0	0	0	0	0	0
Yr 7	0	0	26,737	0	0	0
Yr 8	0	0	0	0	0	0
Yr 9	0	0	47,235	0	0	0
Total (t)	**7,358,674**	**94,816**	**94,816**	**6,507,906**	**266,985**	**488,967**
Volume (m^3)	**4,542,391**	**58,528**	**58,528**	**4,017,226**	**164,806**	**301,831**

5.5 Anticipated Design Performance of WRSFs

The WRSFs were designed to minimize the impact on the environment and consider both the physical and geochemical stability of the stored waste rock and overburden.

Slope stability analyses for the WRSFs were carried out during the feasibility study. Using the geometric parameters presented in Section 5.2, the results of the stability analysis indicates that the calculated minimum factors of safety for the WRSFs meet or exceed the acceptable factors of safety. Thermal analyses were conducted to estimate the thermal regime of the WRSFs and foundations during mine operations and after closure. The results indicate that material placed in the winter period will probably stay in a frozen condition while the material placed in the summer period will take 2 to 10 years to freeze back. Information on the stability and thermal studies for the WRSFs is described in the report of Tailings, Waste and Water Management for Feasibility Level Study, Meliadine Project, Nunavut (Tetra Tech EBA, 2014b).

It should be noted that the design and performance of the WRSFs are not dependent on freeze-back of waste rock and permafrost conditions continuing to exist at the site (i.e., the design has included for thaw of the WRSFs and its foundations). The permafrost development within the WRSFs will provide additional benefits (i.e., more physical stable and less seepage water) during operation and closure of WRSFs.

SECTION 6 • TAILINGS MANAGEMENT

6.1 General Description of Tailings Management

During development of the FEIS, thickened slurry tailings (with solid content of 65% to 72%) stored in a facility confined by perimeter dikes was the preferred option. However, dry stacked tailings placed at a solids content of 85% is considered a better tailings management option as it has distinct environmental and closure advantages (Agnico Eagle 2013). The main arguments for dry stack tailings disposal over slurry tailings disposal methods are the environmental benefits and increased water conservation, which is particularly beneficial in Nunavut's cold and dry climate (Government of Nunavut, 2012) as follows:

- A TSF could be constructed without affecting significant bodies of water such as B7.
- Simplified permitting, reduced compensation costs for the loss of habitat, and simplified water management are some of the advantages that were identified by not impinging on bodies of water.
- Dike construction in the original concept represented a significant cost item and negatively affected the construction schedule. The availability of construction material (rock) is more critical and results in additional costs. Therefore, the use of filtered tailings placed in a pile or stack simplifies start-up and reduces costs by eliminating dike construction.
- Can be constructed with standard earth moving equipment (dozers, compactors, haul trucks) and avoids the use of tailings pipelines and associated mechanical equipment which can be difficult to manage during the long cold winter months.
- Water management for filtered or dry stack tailings simplifies start-up and continued operations in general. Minimal water management would be required, limited to collecting and managing runoff at freshet or during summer months.
- Dry stack tailings avoid the need to construct the TSF in a lake. No formal dewatering or water treatment would be required at start-up resulting in significant cost savings associated with the preparation of the TSF.
- Effective progressive closure by placement of a final cover over the portions of the TSF that have reached their final configuration can be more easily achieved.

Dry stack tailings produced in the mill at Meliadine will be dewatered to a solids content of 85%. The dewatered tailings will be trucked to the TSF with haul trucks and spread and compacted into thin lifts using a dozer and compactor.

Site contact water from the TSF will be collected by the perimeter water management system located to the northwest and south of the TSF. The contact water quality and the water management structures for the TSF will be monitored and assessed according to an approved environmental protocol during each stage of the mine life.

6.2 Tailings Storage Facility

The TSF is located on high ground west of the proposed mill and east of Lake B7, as shown in Figure 1.2. The direct distance from the mill to the tailings stack ranges from 300 to 900 m. The minimum setback distance from the edge of Lake B7 is approximately 200 m.

The TSF is designed to accommodate approximately 9.7 Mt of tailings. As shown in Figure 6.1, the tailings will be managed using a three cell system (Cell 1, Cell 2, and Cell 3) to limit dust generation, control tailings surface erosion, and to facilitate the progressive reclamation and closure of the TSF. As the tailings reach final elevation, it is proposed that the tailings are progressively encapsulated with either waste rock or a layered combination of waste rock and overburden. The closure plan for TSF is described in Section 9 and the Preliminary Closure and Reclamation Plan.

The properties of the tailings and TSF operation parameters relevant to the design of the TSF are presented in Table 6.1.

Table 6.1: Design Parameters for the Tailings Storage Facility Operations

Parameters	Value
Mine design life	8 years
Mill production	3,000 tpd in Years -1 to 3 5,000 tpd per day in Years 4 to 8
Ore processed	12.1 Mt
Tailings to TSF as dry stack	9.7 Mt (or 80% or total tailings)
Tailings backfilled to underground mine	2.4 Mt (or 20% or total tailings)
Average specific gravity of tailings	2.83
Tailings solid content to TSF	85%
Average tailings dry density	1.71 t/m^3
Maximum height of TSF over original ground surface	30 m
Side slope for the bottom 15 m thick (or below elevation of 84 m)	4H:1V
Side slope for the top 15 m thick (or above elevation of 84 m)	3H:1V
Slope of the final tailings surface at crest	4%
TSF storage capacity	9.7 Mt (5.65 Mm^3)

6.3 Tailings Physical and Geotechnical Properties

A laboratory test program on the tailings was conducted for the slurry tailings option with solids contents of 65% and 72%. The test program included physical index tests, a gradation analysis test, settling tests, thermal conductivity tests, a consolidated-undrained triaxial test, a consolidation test, a hydraulic conductivity test, and a direct shear test. The index and gradation analysis tests indicated that the tailings are inorganic silt with low plasticity and low compressibility and consist of 17% sand, 81% silt, and 2% clay size particles. Tailings have the gradation curve of 98% passing 150 µm, 83% passing 75 µm, 40% passing 20 µm, and 5% passing 3 µm (Tetra Tech EBA 2013b).

Additional tailings laboratory geotechnical tests were carried out in 2014 for the dry stack tailings option with a tailings solid content of 85% at disposal (Tetra Tech EBA 2014c). The test included moisture-density relationship (Standard Proctor), consolidation test, soil water characteristic curve, direct shear test, and hydraulic conductivity test. The key finding from the test results were briefly summarized below:

- The moisture-density relationship (Standard Proctor, ASTM D698) test indicated that the maximum dry density of the tailings was 1.8 t/m^3 at an optimum moisture content of 14.9%.
- The coefficient of consolidation (cv) of the tailings ranged from 24.6 to 29.8 (m^2/year) under various pressures ranging between 10 and 1,600 kPa.
- The tailings had a soil water characteristic curve with an air entry value of 20 kPa and a residual suction of 900 kPa.
- The shear strength parameters were determined to be an inferred internal angle of friction of 33.5° and an apparent cohesion of 9.9 kPa for the tailings samples with a dry density of 1.7 t/m^3.
- The saturated hydraulic conductivity of the tailings sample was 2.91E-07 m/sec for the tailings sample with a dry density of 1.7t/m^3.

6.4 Schedule, Quantities, and Distribution of Tailings

Commissioning of the process plant is planned to start in the last quarter of Year-1. Approximately 12.1 Mt of tailings will be produced over an eight year period. Approximately 9.7 Mt or 80% of the tailings will be deposited within the TSF and the remaining 2.4 Mt or 20% will be used as underground cemented paste backfill. Based on a tailings dry density of 1.71 t/m^3, the TSF will have a storage volume of 5.65 Mm^3.

The production schedule, quantities, and distribution of tailings by year are presented in Table 6.2.

Table 6.2: Schedule, Quantities, and Distribution of Tailings by Year

Mine Year	Tailings Solids from Mill (t)	Tailings Solids to be Used as Underground Backfill (t)	Tailings Solids to be Placed in Dry Stacked TSF (t)		
			Cell 1	Cell 2	Cell 3
Yr -1	202,350*	164,196	38,154	0	0
Yr 1	1,095,000	362,047	732,953	0	0
Yr 2	1,095,000	256,607	838,393	0	0
Yr 3	1,095,000	381,440	713,560	0	0
Yr 4	1,808,880	334,949	1,018,350	455,581	0
Yr 5	1,825,000	358,645	469,171	997,184	0
Yr 6	1,825,000	375,746	0	838,819	610,435
Yr 7	1,825,000	200,371	0	265,328	1,359,301
Yr 8	1,320,602	0	0	0	1,320,602
Total	**12,091,832**	**2,434,001**	**3,810,581**	**2,556,912**	**3,290,338**
*Tailings produced during commissioning in the last quarter of Year -1 (construction phase)					

6.5 Tailings Placement Plan

The dry stacked tailings will be dewatered to a solid content of 85% by mass in the mill. Thereafter the tailings will be hauled from the mill to the TSF by truck; end dumped, spread, and compacted. The following tailings placement and management strategy will be used:

- Prior to tailings placement, remove all surface water and snow within the footprint of placement.
- Tailings placement will start from Cell 1 in the last quarter of Year -1. The dewatered tailings will be hauled to the TSF Cell 1 with haul trucks, end dumped, and bladed into thin lifts using a dozer. Thereafter, the tailings' lifts will be compacted using a vibratory drum roller. This compaction is designed to promote runoff, reduce the potential for oxygen ingress and water infiltration, and maintain geotechnical stability. The thickness of each lift will be approximately 0.3m.
- Based on the tailings production schedule, Cell 1 will reach its design capacity by Year 5 at a height of 30 m above the original ground. Cell 2 will start operation from Year 4 and will reach design capacity in Year 7 and Cell 3 will start operation from Year 6 and will reach design capacity in Year 8.
- When possible and practical, as the tailings stack increases in height, a waste rock layer will be placed along the side slopes as erosion and thermal protection.
- At the final elevation, the top of the tailings stack will be progressively capped with a layered combination of overburden and waste rock. This will comprise 0.5 m of overburden followed by 2.5 m of waste rock.

Table 6.3 presents the tailings placement schedule for the TSF. The annually tailings placement plan is shown in Figure 5.2 to 5.14 and Figure 6.2 shows the typical cross-section of the TSF.

Table 6.3: Tailings Placement Schedule and Estimated Tailings Heights

Mine Year	Estimated Average Height of Tailings Placed in Each Cell (m)			Planned Tailings Placement Period		
	Cell 1	Cell 2	Cell 3	Cell 1	Cell 2	Cell 3
Yr -1	2.0*			Oct to Dec		
Yr 1	4.0			Jan to Dec		
Yr 2	8.5			Jan to Dec		
Yr 3	13.0			Jan to Dec		
Yr 4	23.0	4.5		May to Dec	Jan to Apr	
Yr 5	30.0	15.0		Jan to Apr	May to Dec	
Yr 6		26.0	4.5		Jun to Dec	Jan to May
Yr 7		30.0	15.0		Jan to Feb	Mar to Dec
Yr 8			28.0			Jan to Sep
*Tailings produced during commissioning in the last quarter of Year -1 (construction phase)						

6.6 Tailings Freeze-back

Based on ground temperatures and climate data for the Project site, it is anticipated that the TSF will freeze back in the long term. In order to promote freeze-back of the TSF, the following tailings placement strategies will be adopted during mine operation, when feasible and practical:

- During the initial year of placing tailings in a cell, limit the maximum yearly thickness of the tailings placed to 4.5 m;
- In the subsequent years, limit the total yearly thickness of the tailings placed in a cell to be no greater than 13 m.
- When feasible, place the initial tailings over the original ground during the winter period; and
- When feasible, use up to two operating cells in a given year to alternate tailings placement to promote the in situ freezing of the stacked tailings.

Preliminary thermal analyses were conducted to estimate the thermal conditions of the tailings and foundations during the TSF operation and after closure. The detailed information of the thermal analysis is described in the report of Tetra Tech EBA (2014b).

6.7 Anticipated Design Performance of TSF

The TSF is designed to minimize the impact to the environment and the design does not rely on freeze-back of the tailings to meet the design intent of the structure. However, the freeze-back of the TSF and the foundations will provide additional benefits such as increasing stability and minimizing seepage from the TSF during operation and closure of TSF.

The stability analysis of the TSF indicates that the calculated minimum factors of safety meet or exceed the acceptable factors of safety. The information of the stability analysis is described in the Tetra Tech EBA (2014b) report.

SECTION 7 • WATER MANAGEMENT ASSOCIATED WITH MINE WASTE MANAGEMENT

7.1 Water Management

The water management objectives for the Project are to minimize potential impacts to the quantity and quality of surface water at the site. This is further detailed in the Water Management Plan. Seepage and runoff water from the WRSFs, TSF, and temporary overburden stockpile will be managed by water diversion channels, water retention dikes/berms, and water collection ponds. If the water quality does not meet the discharge criteria, the contact water in the water collection ponds will be treated by the WTP prior to being discharged to the outside environment. No water will be discharged without authorization.

7.1.1 Water Management Associated with WRSFs

As shown in Figure 5.1, WRSF1 will straddle three catchment areas (catchment of Pond H17, catchment of Pond A54, and catchment of Lake B7), WRSF2 will straddle two catchment areas (catchment of Pond H17 and catchment of Pond A54), and WRSF3 will be located within the basin of Pond H20.

Seepage and runoff from the WRSFs during construction and operation phases will be managed using the water management system described below:

- Seepage and runoff from WRSF1 within the catchment of Pond H17 will be diverted to CP1 via Channels 1, 7 and 8 (see Figure 5.6);
- Seepage and runoff from WRSF1 within the catchment of Pond A54 will be diverted to CP5 via Channels 5 and 6 (See Figures 5.6 and 5.11);
- Seepage and runoff from WRSF1 within the catchment of Lake B7 will be diverted and collected in CP4 via Channel 4 (See Figures 5.7);
- Seepage water and runoff from WRSF2 within the catchment of Pond H17 will be diverted to CP1 via Channel1 and Channel7 or directly flow into CP1 (Figure 5.10);
- Seepage water and runoff from WRSF2 within the catchment of Pond A54 will be diverted to CP5 via Channel 6 (Figure 5.10);
- Seepage and runoff from WRSF3 will directly report to CP6 (See Figures 5.10); and
- The water collected in CP4, CP5, and CP6 will be pumped to CP1, where the contact water will be treated by the WTP prior to discharging to outside environment.

The WRSFs water management infrastructure will remain in place until mine closure activities are completed and monitoring results demonstrate that the contact water quality from the WRSFs meets discharge criteria. Once the water quality from the WRSFs meets the discharge criteria, the water retention dikes/berms will be breached to allow the water from the WRSFs to directly flow to the outside environment. Further details on water management for the WRSFs are described in the Water Management Plan.

7.1.2 Water Management Associated with TSF

The TSF is located within the catchment of Lake B7 with a small portion straddling the catchment of Pond H17 as shown in Figure 5.1. Water sources from the TSF during construction and operation will be managed as follows:

- Seepage and runoff from the TSF within the catchment of Pond H17 will be diverted to the CP1 using Channel 1 (see Figure 5.6);
- The seepage and runoff from the TSF within the catchment of Lake B7 will be diverted and collected in CP3 via Channel 3 (see Figure 5.7); and
- The water collected in CP3 will be pumped to CP1, where the contact water will be treated by the WTP prior to discharging to outside environment.

The TSF water management infrastructure will remain in place until mine closure activities are completed and monitoring results demonstrate that the contact water quality from the TSF meets discharge criteria. Once the water quality from the TSF meets the discharge criteria, the water retention dikes/berms will be breached to allow the water from the TSF to directly flow to the outside environment. Further details on water management for the TSF are described in the Water Management Plan.

SECTION 8 • DUST MANAGEMENT ASSOCIATED WITH MINE WASTE MANAGEMENT

The possible sources of dust related to the waste rock, overburden, and dry stacked tailings management during construction, operation, and closure include:

- Site preparation prior to placement of waste rock, overburden or dry stacked tailings i.e., stripping, excavation and/or placement of foundation pad;
- Wind erosion of fine particles from the WRSFs and TSF surface;
- Vehicle traffic dislodging fine particles from the surface of WRSFs and TSF, and associated service and haul roads to WRSFs and TSF;
- Waste rock, overburden, and dry stack tailings handling and transfer - loading, hauling, unloading, placement and compaction; and
- Placement of closure and capping layers.

Dust suppression measures, which are considered to be typical of the current mine practices (i.e. Meadowbank Mine) and consistent with best management practices, will be considered through design, operation and closure phases to control the dust.

Minimal site preparation is required for the WRSFs and the TSF during the construction phase. Therefore, dust is not expected to be problematic.

Dust is expected to be a minor issue during the operation of the WRSFs as the waste rock produced at the Project site will generally comprise large pieces of rock that will not be susceptible to wind erosion. The overburden contains material that is fine-grained and thus more susceptible to wind erosion. The plan is to store the majority of the overburden materials within the core of the WRSFs. Therefore, dust from the overburden materials is not expected to be an issue. However, should dusting become an issue, dust control measures such as spraying water and/or other approved chemical dust suppressants will be used as necessary.

Dry stacked tailings will be placed in lifts and spread with a dozer and then compacted. The surface compaction of the lifts will significantly reduce the potential for wind erosion of the tailings surface. Dust related to TSF operation during the winter season will be further managed by limiting the exposed surface area of the tailings. In the summer period, dust from the TSF will be controlled by spraying water and/or other approved chemical dust suppressants if problematic. Other control measures considered in the design of TSF to minimize dust generation include:

- Place the waste rock cover over the final perimeter tailings slope surface as soon as possible;
- TSF will be operated by cells to limit the tailings surface area exposed to wind and facilitate progressive closure;
- Tailings surface will be covered progressively once it reaches the design elevation; and

- Flat sideslope of 4(H):1(V) for the TSF was adopted to minimize the erosion potential and maintain overall stability of the tailings stack.

Dust generated from vehicles travelling on the surface of the WRSFs, TSF, and associated access roads will be controlled principally by spraying water on the traffic area, which will be carried out regularly by mine services during dry periods in the summer. Watering the haul and access roads is only possible when temperatures are above freezing. When the temperature is below freezing, dust suppression using water or chemical will pose a safety hazard for travel; therefore, reducing the speed limit will be the principal way of controlling dust during these periods. More details on the dust management for traffic are described in the Roads Management Plan.

Other control measures considered in design and operation related to dust generation by vehicles travelling include:

- Road will be designed as narrow and short as possible while maintaining safe construction and operation practices;
- Coarse size rock will be used as much as possible for road construction;
- Roads will be regularly graded to mix the fines found on the road surface with coarser material located deeper in the roadbed; and
- As required, roads and travel areas will be topped with additional aggregate.

Dust from material handling is not expected to be problematic on site. Long end dumps which can generate significant amounts of dust will not occur at site, since waste rock, overburden and dry stack tailings will be dumped in lifts and spread with a dozer. Where possible, multiple handlings of materials that have the potential to generate dust will be avoided. However, should dust related to material handling occur on site, specific control measures will be evaluated and applied, as required.

At closure, the TSF will be fully covered to prevent further wind erosion of the tailings. The proposed closure cover includes a layer of 0.5 m thick of overburden followed by a layer of 2.5 m thick waste rock on the top of the facility. The TSF slopes closure cover includes a 3.7 m to 4.2 m thick waste rock layer only. The overburden will be surrounded by waste rock in the WRSFs; therefore, dusting is not expected to be an issue. The need for dust control at closure will be further evaluated during closure activities.

SECTION 9 • RECLAMATION AND CLOSURE OF THE WRSFs AND TSF

Progressive reclamation includes closure activities that take place prior to permanent closure in areas or at facilities that are no longer actively required for current or future mining operations. Reclamation activities can be done during operations with the available equipment and resources to reduce future reclamation costs, minimize the duration of environmental exposure, and enhance environmental protection. Progressive reclamation may shorten the time for achieving reclamation objectives and may provide valuable experience on the effectiveness of certain measures that might be implemented during permanent closure. The WRSFs and TSF will be operated to facilitate progressive reclamation as discussed in the above sections. Detailed mine closure and reclamation activities are provided in the Preliminary Closure and Reclamation Plan.

Monitoring will be carried out during all stages of the mine life to demonstrate geotechnical stability and the safe environmental performance of the facilities (Section 10). If any non-compliant conditions are identified, then maintenance and planning for corrective measures will be completed in a timely manner to ensure successful completion of the Mine Closure and Reclamation Plan.

9.1 Closure and Reclamation of WRSFs

Mine closure and the reclamation of the WRSFs will use currently accepted management practices and appropriate mine closure techniques that will comply with accepted protocols and standards.

Geochemical testing indicates that the waste rock and overburden from the Project is non-potentially acid generating (PAG) and non- ML. Kinetic tests completed on all waste rock types and at various scales show that drainage water quality is expected to meet MMER monthly mean effluent limits, including results for arsenic. Therefore, a closure cover system is not proposed for the WRSFs. Appendix G of the Water Management Plan provides the water quality site predictions.

The WRSFs were designed for long-term stability and no additional re-grading will be required at closure. It is anticipated that the native lichen community will naturally re-vegetate the surface of the WRSFs over time.

The contact water management system for the WRSFs and TSF will remain in place until mine closure activities are completed and monitoring results demonstrate that water quality conditions from the WRSFs are acceptable for the discharge of all contact water to the environment with no further treatment required. Once water quality meets the discharge criteria established through the water licensing process, diversion channels/berms/dikes will be decommissioned to allow the surface runoff and seepage water from the WRSFs to naturally flow to the outside environment.

9.2 Closure and Reclamation of the TSF

Mine closure and reclamation of the TSF will utilize currently accepted management practices and appropriate mine closure techniques that will comply with accepted protocols and standards.

Results of geochemical characterization indicates that the tailings produced at the Project are NPAG and ML is not predicted to be an issue as there will be limited seepage from the tailings porewater at closure. The closure plan for the TSF is to progressively place an engineered cover over the tailings surface. The proposed closure cover includes a 0.5 m thick layer of overburden followed by a 2.5 m thick layer of waste rock on the top of the facility. The TSF slopes closure cover includes a 3.7 m to 4.2 m thick waste rock layer only. The overburden material is intended to limit runoff water infiltration into the tailings. This closure cover concept will be further evaluated during the final detailed design stage. It is anticipated that the native lichen community will naturally re-vegetate the TSF cover over time.

The contact water management system for the TSF will remain in place until mine closure activities are completed and monitoring results demonstrate that water quality conditions from the TSF are acceptable for the discharge of all contact water to the environment with no further treatment required. Once the water quality meets the discharge criteria established through the water licensing process, the TSF water management infrastructure will be decommissioned to allow the water to naturally flow to the outside environment.

SECTION 10 • MONITORING PROGRAM

This section presents a summary of the monitoring programs that will be carried out during construction and operation related to mine waste storage management. The monitoring program presented here includes; stability and deformation, ground temperature, and annual inspections. The detailed information on monitoring of runoff and seepage from the WRSFs and the TSF is described in the Water Management Plan. There are two types of monitoring related to mine waste management. Verification monitoring is carried out for operational and management purposes by Agnico Eagle. This type of monitoring provides data for decision making and builds confidence in the success of processes being used, with no obligation to report. General monitoring is commonly included in a water licence specifying what is to be monitored according to a schedule[6]. It covers all types of monitoring (e.g., geotechnical). This monitoring is subject to compliance assessment to confirm sampling was carried out using established protocols, included quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licensee, subject to approval by the NWB.

10.1 Monitoring Activities for WRSFs

Table 10.1 summarizes the monitoring activities for each WRSF. Each monitoring activity will be further defined, including location and type of instrumentation, prior to construction of each WRSF, according to the approved environmental protocols.

Table 10.1: Waste Rock Storage Facilities Monitoring Activities

Monitoring Component		Monitoring Frequency	Reporting
Verification Monitoring	Quantities of waste rock produced	Monthly	Monitoring data will be used by Agnico Eagle internally.
	Routine visual inspections of WRSFs	Daily during active rock placement, Monthly to semi-annually after placement	
	Elevation and geometry survey	Annually	
	Waste rock and overburden sampling	To be determined	
	Seepage collection and monitoring	Monthly over the open water season	
General Monitoring	Quantities of waste rock placed into facilities	Monthly	Monitoring data will be reported to the Regulators in the annual water licence report or annual inspection report
	Geochemical monitoring	A minimum of approximately one sample per 100,000 tonnes of mined material	
	Thermal and freeze-back monitoring	Quarterly	
	Dust monitoring related to WRSFs	Governed by Air Quality Monitoring Plan	
	Geotechnical inspection by qualified Geotechnical Engineer	Annually	

10.1.1 Verification Monitoring Program for WRSF

Verification monitoring data will be used by Agnico Eagle for the management of waste rock and overburden. The following verification monitoring data will be collected, compiled, and managed internally:

- The WRSFs were designed to store approximately 25.7 Mt of waste rock and 7.4 Mt of overburden material during mine operation. Monthly quantities of the waste rock and overburden produced during mine operation will be recorded.
- During the active development of each WRSF, site staff will carry out daily visual inspections in relation to the performance and condition of each structure. When placement activity ceases on an interim or seasonal basis, the inspection frequency will shift to monthly. Following the completion of a WRSF, inspections will continue on a semi-annual basis until closure. The purpose of these inspections is to identify and document any potential hazards or risks to the facility, such as deformations, unusual seepage, slumping, local failure, etc.
- The heights of the WRSFs are estimated to be approximately 35 to 40 m. During operation an annual elevation survey of the WRSFs will be performed to estimate the overall volume placed, determine the reclamation progress, and provide input information to the operation plan.
- Surface runoff and seepage from the WRSFs will be monitored during the construction and operation phases by visual inspection during the ice free season. Additional inspections will be carried out after the extreme rainfall event (1 in 100 wet year 24 hours rainfall event). The detailed information on the monitoring of surface runoff and seepage from the WRSFs is described in the Water Management Plan.

10.1.2 General Monitoring Program for WRSF

The following general monitoring data will be reported to the NWB through either the Water Licence Annual Report or an Annual Inspection Report:

- Monthly quantities of the waste rock and overburden placed into the WRSFs during mine operation.
- Waste rock samples will be taken from the production blast holes and analyzed the percentage of sulphur and carbon. The results from these analyses will be used to differentiate NPAG and PAG based on the derived NPR. To validate the classification method of NPAG/PAG based on NPR, additional samples will be taken evenly at a rate of one sample per 100,000 tonnes of mined material. The collected samples will be sent to an accredited commercial laboratory for ARD and ML using the ABA (the modified Sobek method) and SFE analyses.
- The placed waste rock and overburden are expected to freeze back and permafrost is likely to develop within the WRSFs with time. Thermistors will be installed in each WRSF to monitor the rate of freeze-back and permafrost development progress in the facilities

during closure. Temperature readings will be taken quarterly to track permafrost development within the WRSFs.

- Dust related to waste rock and overburden management is not expected to be an issue by employing the dust suppression measures presented in Section 8.0 through design, operation, and closure phases. Air quality at the mine site will be monitored during construction, operation, and closure through air quality monitoring stations and reported annually.
- The performance of the WRSFs will be inspected and assessed during the annual geotechnical site inspection by a geotechnical or civil engineer registered in Nunavut. The visual assessment and recommended actions to be taken related to the WRSFs will be summarized in the Annual Inspection Report.

The results from the general monitoring program related to waste rock and overburden management will be reported to the Regulators in the annual water licence report or in the annual geotechnical inspection report.

10.2 Monitoring Activities for the TSF

Table 10.2 summarizes the monitoring activities for the TSF. Each monitoring activity will be further defined, including location and type of instrumentation prior to construction, according to the approved environmental protocols.

Table 10.2: Tailings Storage Facility Monitoring Activities

Proposed Monitoring	Monitoring Component	Monitoring Frequency	Reporting
Verification Monitoring	Tailings production rate and solid content	Continuous	Monitoring data will be used by Agnico Eagle internally, and will be reported to the Regulators upon request
	In situ density testing and moisture content determination of recently placed tailings	Weekly	
	Routine visual inspections of TSF	Daily to yearly depending on actual operational condition	
	Elevation and geometry survey	Annually	
	Runoff and seepage collection and monitoring	Monthly over the open water season	
General Monitoring	Quantities of tailings placed into facilities	Monthly	Monitoring data will be reported to the Regulators in annual water licence report or annual inspection report
	Thermal and freeze-back monitoring	Quarterly	
	Dust monitoring related to TSF	Governed by Air Quality Monitoring Plan	
	Geotechnical inspection by qualified Geotechnical Engineer	Annually	

10.2.1 Verification Monitoring Program for TSF

A summary of the verification monitoring program for the TSF is presented below.

- The tailings production rate at the mill and solid content will be continuously monitored during mine operation.
- In situ density testing and moisture content of placed tailings will be carried out weekly to ensure that dry density of placed tailings meets the design criteria.
- During the active development of the TSF, the procedures and protocols for routine and annual inspections of the WRSFs will also apply, consistent with the inspection of the TSF.
- The heights of the TSF are estimated to be approximately 28 to 30 m. An annual elevation survey of the TSF will be performed to estimate the overall volume placed, determine the reclamation progress, and provide input information to the operation plan.
- The runoff and seepage monitoring procedures and protocols for the WRSFs during mine operation will also apply to the TSF.

10.2.2 General Monitoring Program for TSF

A summary of the general monitoring program for the TSF is presented below.

- The monthly quantities of tailings placed into the TSF will be recorded.
- Thermistor cables will be installed in the TSF to monitor the permafrost development within the facility during closure. The temperature readings will be taken quarterly (i.e. 4 times per year) to monitor permafrost development. The monitoring schedule will be reviewed and modified as necessary. The measured temperatures within the TSF will provide the background information for the study of permafrost development.
- Dust related to tailings management is not expected to be an issue by employing the dust suppression measures presented in Section 8 through design, operation, and closure phases. Air quality at the mine site will be monitored during construction, operation, and closure through air quality monitoring stations.
- The performance of the TSF will be inspected and assessed during the annual geotechnical site inspection by a geotechnical or civil engineer registered in Nunavut. The visual assessment and recommended actions to be taken related to the TSF will be summarized in the annual inspection report.

The results from general monitoring program related to tailings management will be reported to the Regulators in the Annual Water Licence Report or in the Annual Geotechnical Inspection Report.

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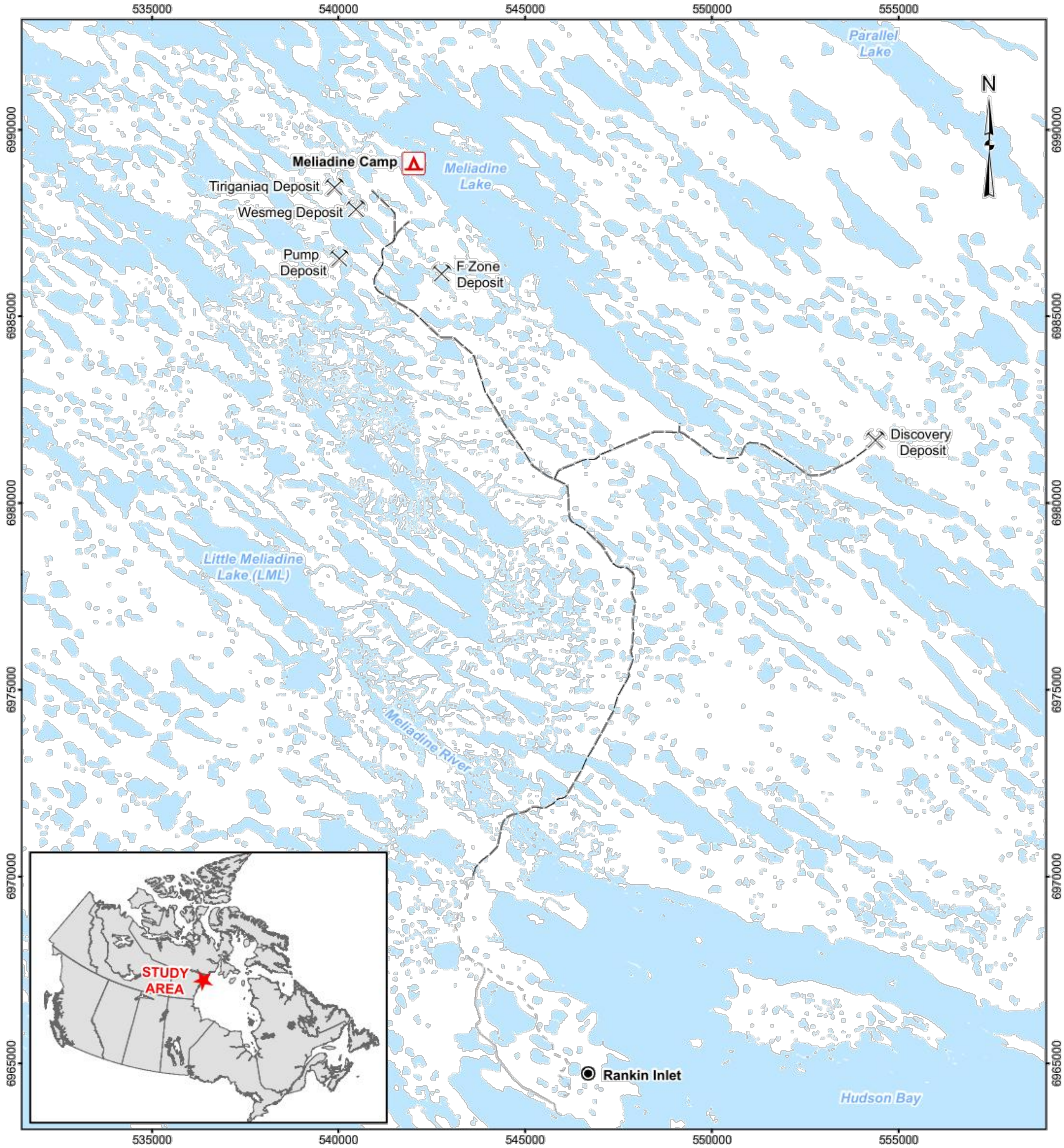
APPENDIX A • FIGURES

FORMAT ANSI A-8.5x11



LEGEND		AGNICO EAGLE – MELIADINE GOLD PROJECT FIGURE 1.1 GENERAL PROJECT LOCATION PLAN	
Camp	AGNICO EAGLE	No. PROJET / PROJECT No.	DATE 09-23-2014
Proposed Mine Site		DESSINÉ PAR / DRAWN BY CB	FEUILLE/SHT 1 / 1
All-weather Access Road (AWAR)		APPROUVÉ PAR / APPROVED BY HX	
Road - New		NO. DESSIN / DRAWING NO. 6500-680-210-200	REVISION A
Road - Existing			
Watercourse			
Waterbody			

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NO. DESSIN
DRAWING NO.

FORMAT ANSI B-11x17

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- CONTACT WATER FLOW DIRECTION

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG
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DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR DRAWN BY	HX	DATE	22-12-2014
VÉRIFIÉ PAR CHECKED BY	NG		22-12-2014
APPROUVÉ PAR APPROVED BY			
No. PROJET PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MLIADINE GOLD PROJECT
FIGURE 1.2 GENERAL SITE LAYOUT PLAN
(YEAR 7 OPERATOIN)

ISSUED FOR PERMITTING
DATE : 22-12-2014

ÉCHELLE/ SCALE	1:15000	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	6500-680-210-200	REVISION A	FEUILLE/SHT 1 / 1

AE-CART-ANSI B

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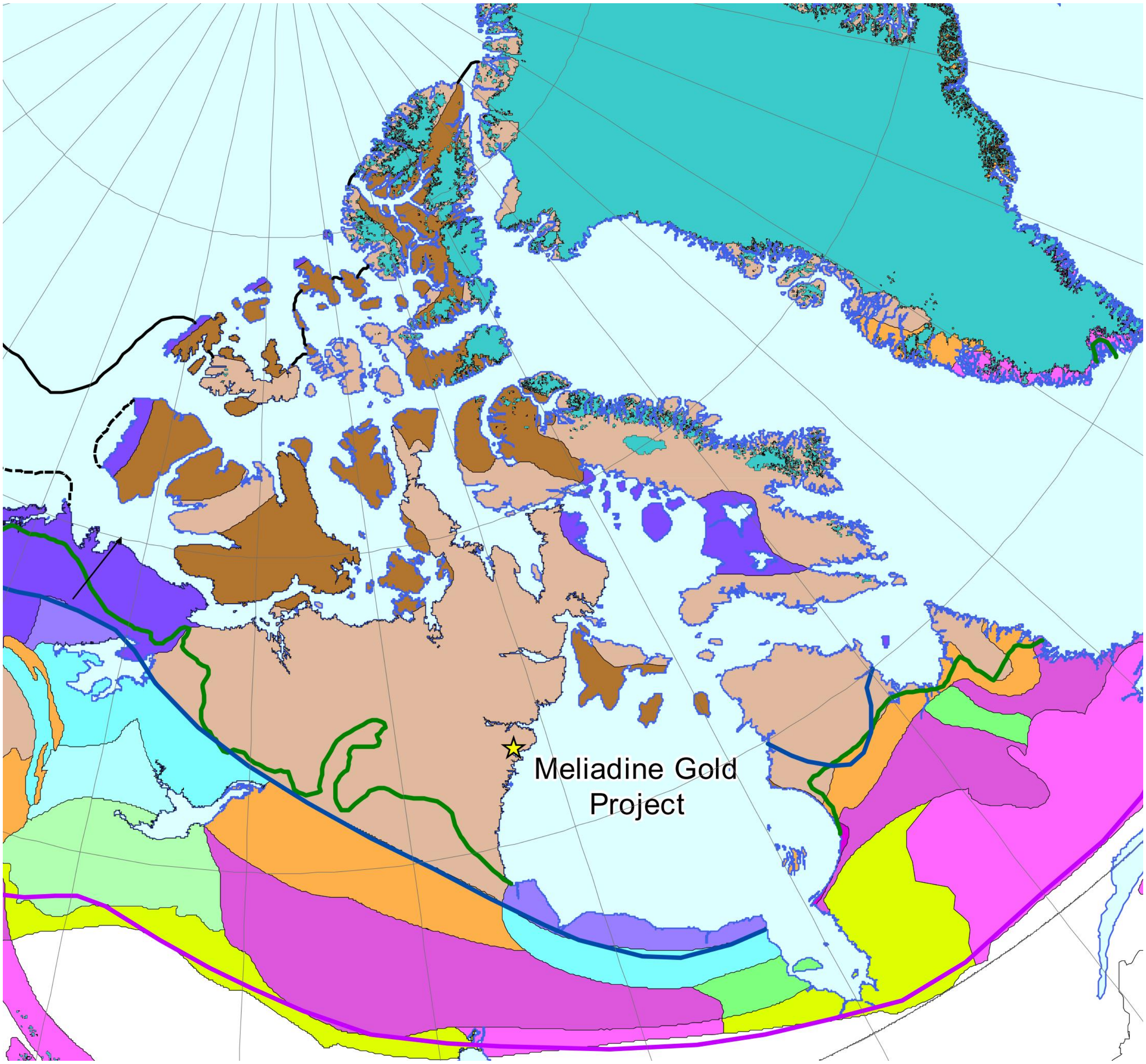


Legend for EASE-Grid Permafrost and Ground Ice Map

Permafrost Extent (percent of area)	Ground Ice Content (visible ice in the upper 10-20 m of the ground; percent by volume)				
	Lowlands, highlands, and intra-and intermontane depressions characterized by thick overburden cover (>5-10m)			Mountains, highlands, ridges, and plateaus characterized by thin overburden cover (<5-10 m) and exposed bedrock)	
	High (> 20%)	Medium (10-20%)	Low (0-10%)	High to medium (>10%)	Low (0-10%)
Continuous (90-100%)	Ch	Cm	Cl	Ch	Cl
Discontinuous (50-90%)	Dh	Dm	Dl	Dh	Dl
Sporadic (10-50%)	Sh	Sm	Sl	Sh	Sl
Isolated Patches (0-10%)	Ih	Im	Il	Ih	Il

Variations in the extent of permafrost are shown by the different colors; variations in the amount of ground ice are shown by the different intensities of color. Letter codes assist in determining to which basic permafrost and ground ice class any particular unit belongs. Letter codes are defined in the documentation that accompanies the data files.

Ice caps and glaciers

LEGEND

- ☆ MELIADINE GOLD PROJECT
- SOUTHERN BOUNDARY OF CONTINUOUS PERMAFROST - PRESENT
- SOUTHERN BOUNDARY OF DISCONTINUOUS PERMAFROST - PRESENT
- TREELINE
- SEA-ICE EDGE LIMIT
- SUBSEA PERMAFROST LIMIT

REV	DATE	DESCRIPTION	PAR BY

REVISIONS

AGNICO EAGLE

AGNICO EAGLE — MELIADINE GOLD PROJECT

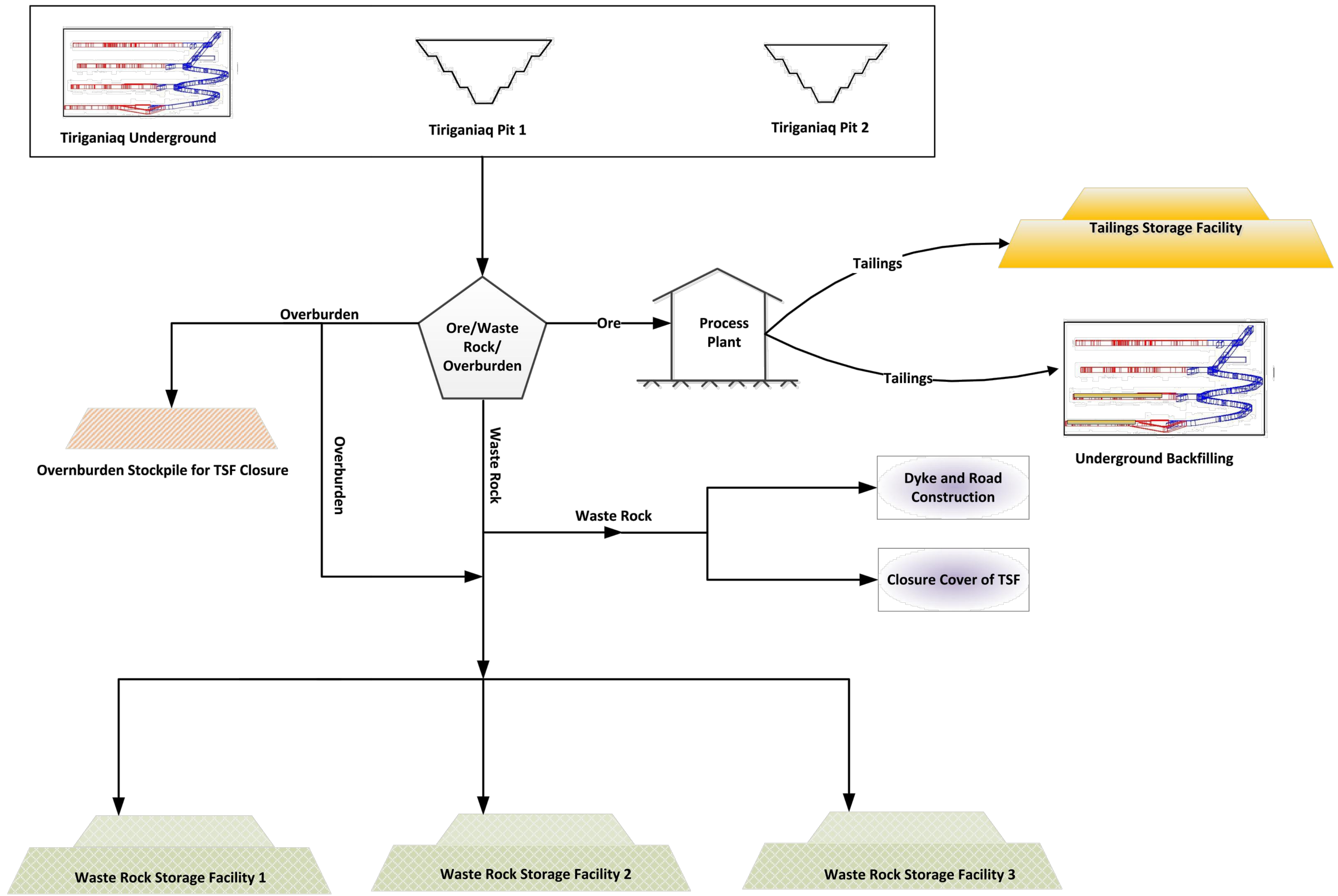
FIGURE 2.1 PERMAFROST MAP OF CANADA

No. PROJET / PROJECT No.	
DATE	09–23–2014
DESSINÉ PAR / DRAWN BY	CB
APPROUVÉ PAR / APPROVED BY	HX
FEUILLE/SHT	1 / 1
NO. DESSIN / DRAWING NO.	6500–680–210–200
REVISION	A

NO. DESSIN
DRAWING NO.

FORMAT ANSI B–11x17

LEGEND



AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG
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DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR / DRAWN BY	HX	DATE	14–11–2014
VÉRIFIÉ PAR / CHECKED BY	NG		14–11–2014
APPROUVÉ PAR / APPROVED BY			

No. PROJET / PROJECT NO.

DATE

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 3.1 MINE WASTE MANAGEMENT FLOW DIAGRAM

ÉCHELLE/ SCALE

FICHIER / FILE .DWG

No. DESSIN/ DRAWING NO.

REVISION A

FEUILLE/SHT 1 / 1

AE–CART–ANSI B

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NO. DESSIN
DRAWING NO.

FORMAT ANSI B-11x17

LEGEND

CATCHMENT BOUNDARY
WATERBODY

AGNICO EAGLE
TETRA TECH EBA

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No. PROJET / PROJECT NO.	6500		
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 3.2 LOCATIONS AND FOOTPRINTS OF WASTE ROCK STORAGE FACILITIES AND TAILINGS STORAGE FACILITY

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ÉCHELLE/ SCALE	1:30000	FICHIER FILE	.DWG
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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 3.2.dwg-September 5, 2014

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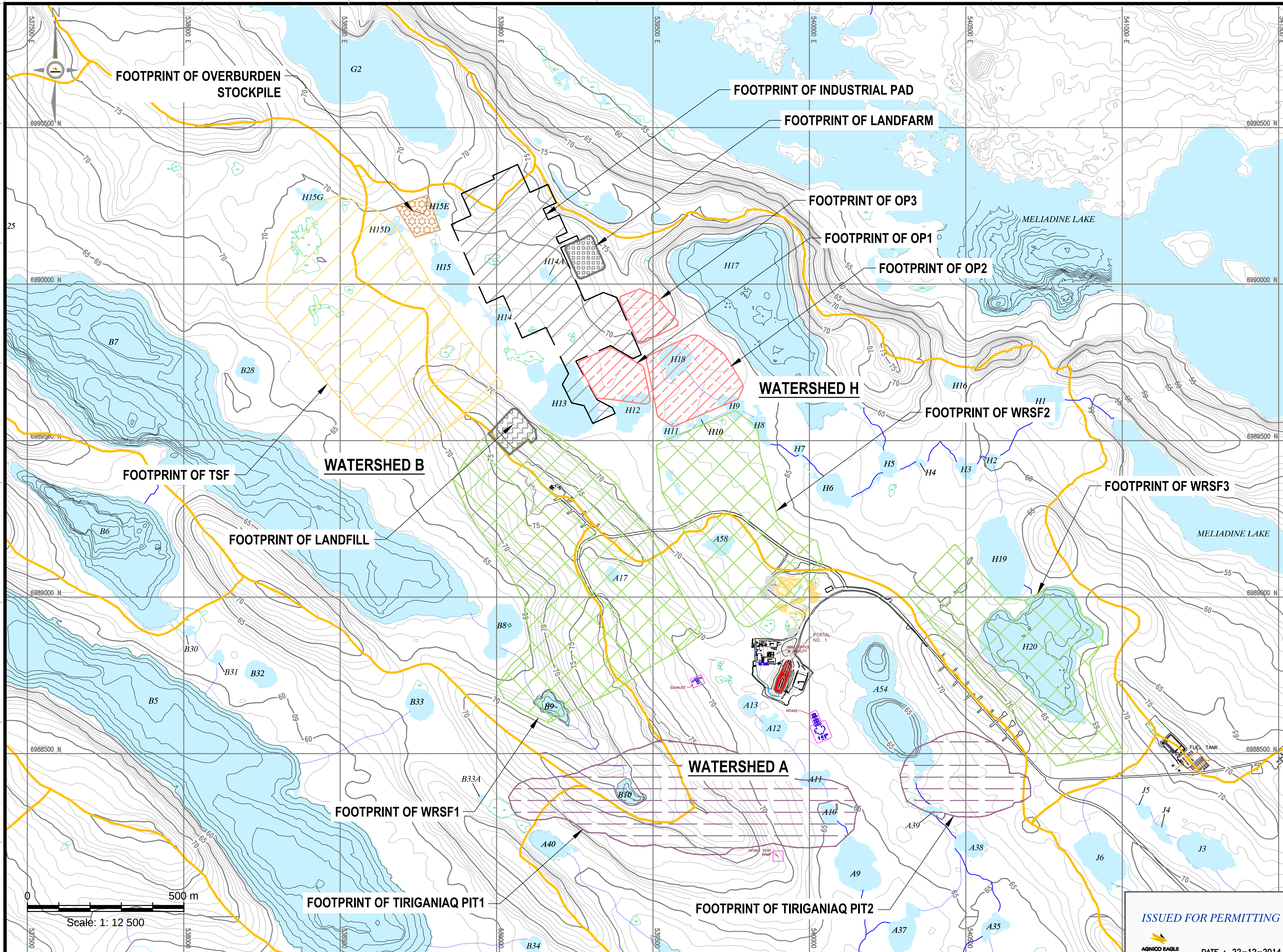

LEGEND

CATCHMENT BOUNDARY
NON CONTACT WATERBODY

AGNICO EAGLE

TETRA TECH EBA

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DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.1 WATERSHED AND WATERBODIES AFFECTED BY SITE INFRASTRUCTURE

ISSUED FOR PERMITTING
AGNICO EAGLE
DATE : 22–12–2014

ÉCHELLE/ SCALE	1:12500	FICHIER FILE	.DWG
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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.1.dwg–September 5, 2014

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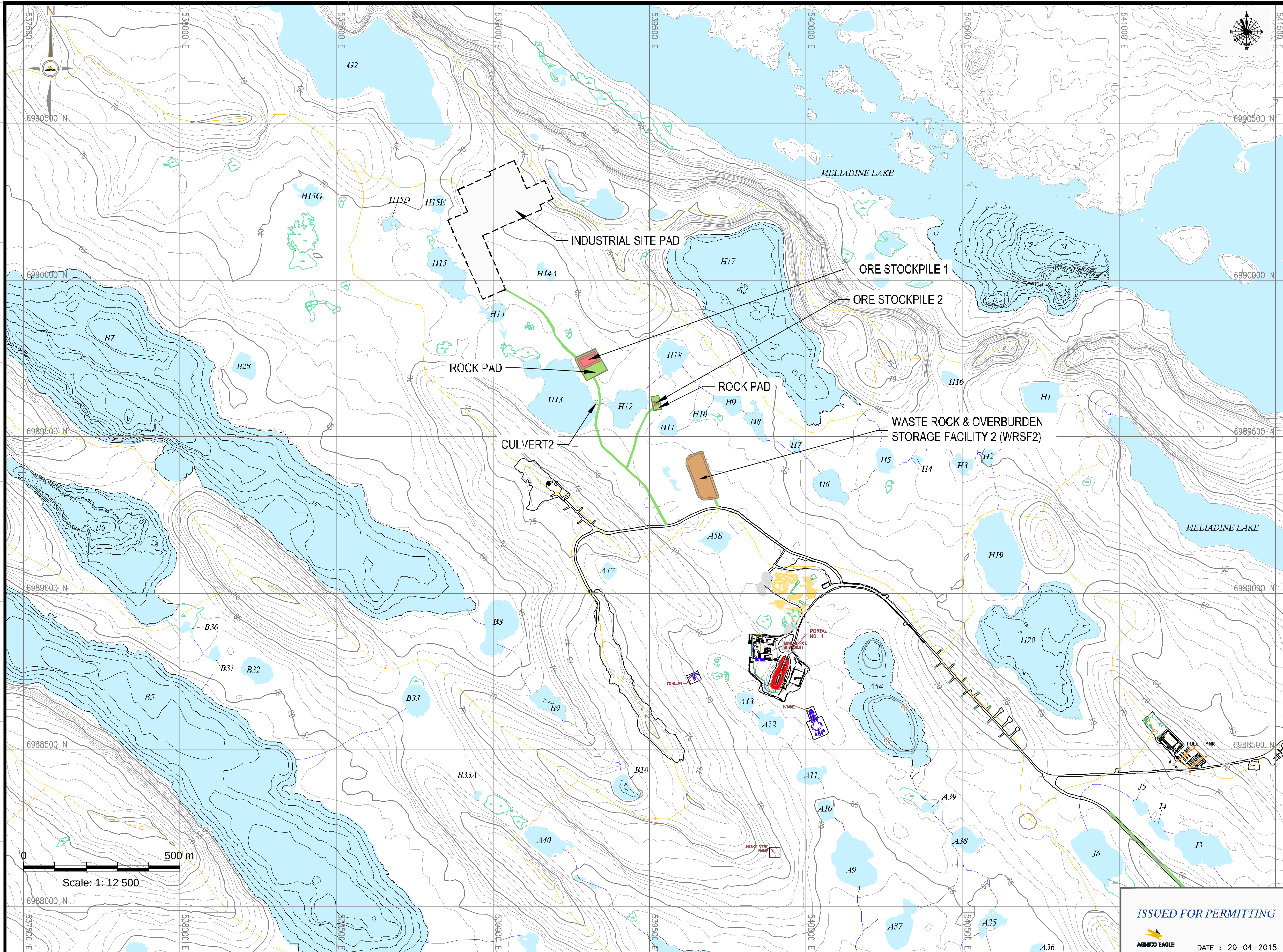

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- NON CONTACT WATERBODY
- OVERBURDEN
- WASTE ROCK
- ORE
- INDUSTRIAL SITE PAD
- STREAM

AGNICO EAGLE

TETRA TECH EBA

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No. PROJET PROJECT NO.			
DATE			

TITRE / TITLE

AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.2 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(LAST QUARTER OF YEAR -5)

ÉCHELLE/SCALE 1:12500 FICHIER FILE .DWG

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DATE : 20-04-2015

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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.2.dwg

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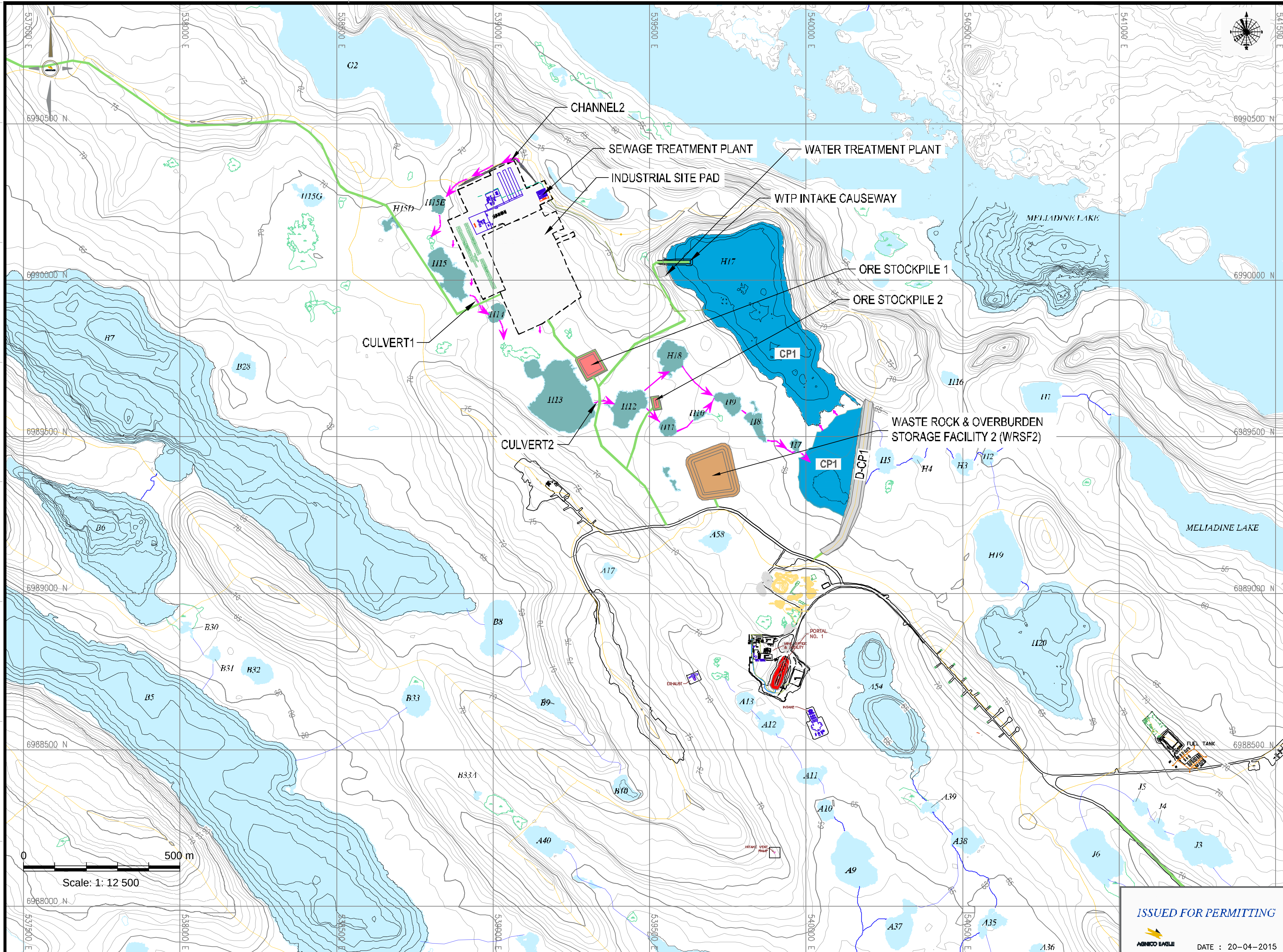

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- OVERBURDEN
- WASTE ROCK
- ORE
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

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No. PROJET PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.3 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR –4)

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DATE : 20-04-2015

ÉCHELLE/SCALE 1:12500 FICHIER FILE .DWG
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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.3.dwg

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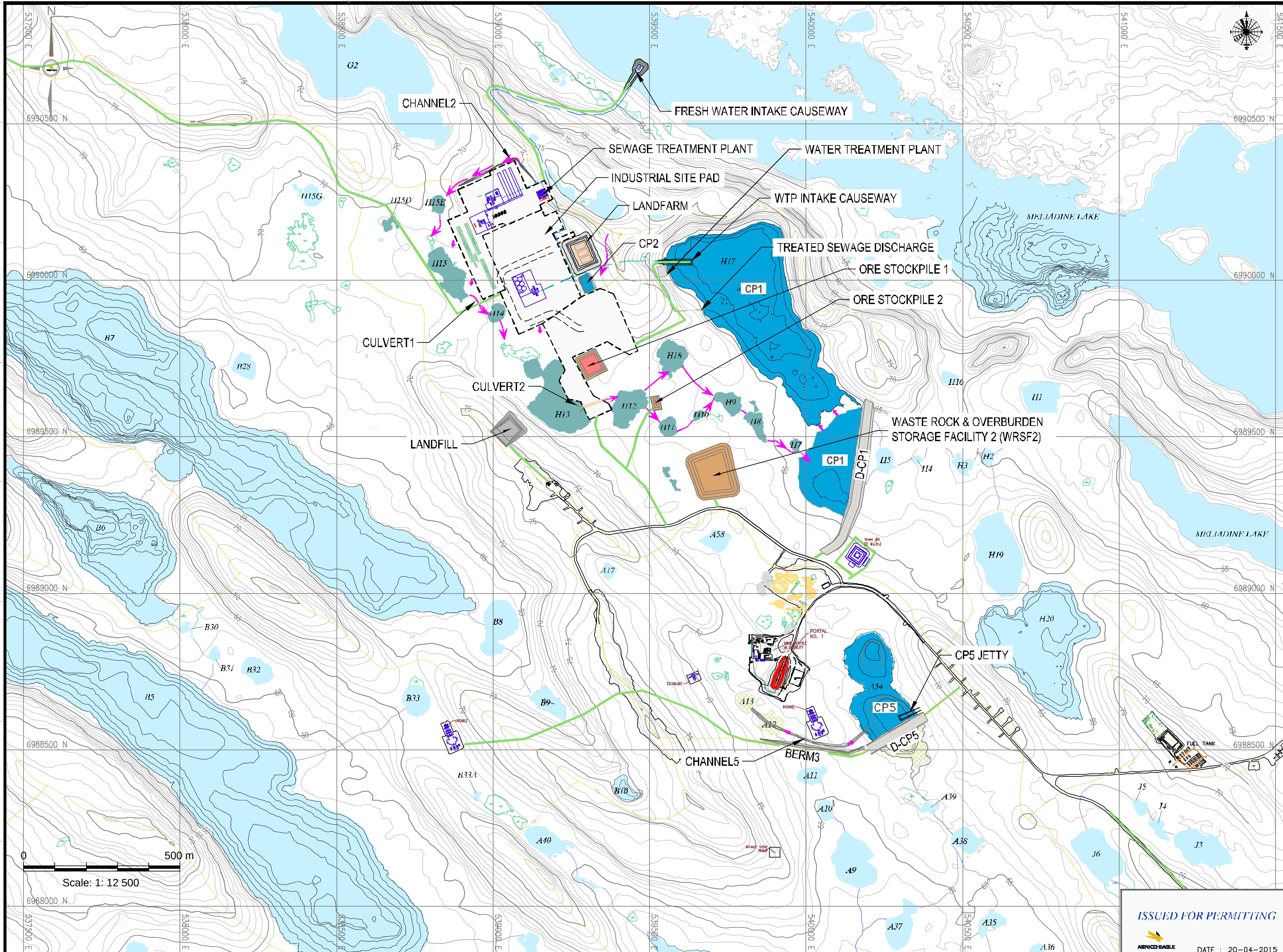

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- OVERBURDEN
- WASTE ROCK
- ORE
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

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No. PROJET PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.4 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR –3)

ÉCHELLE/SCALE 1:12500
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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.4.dwg

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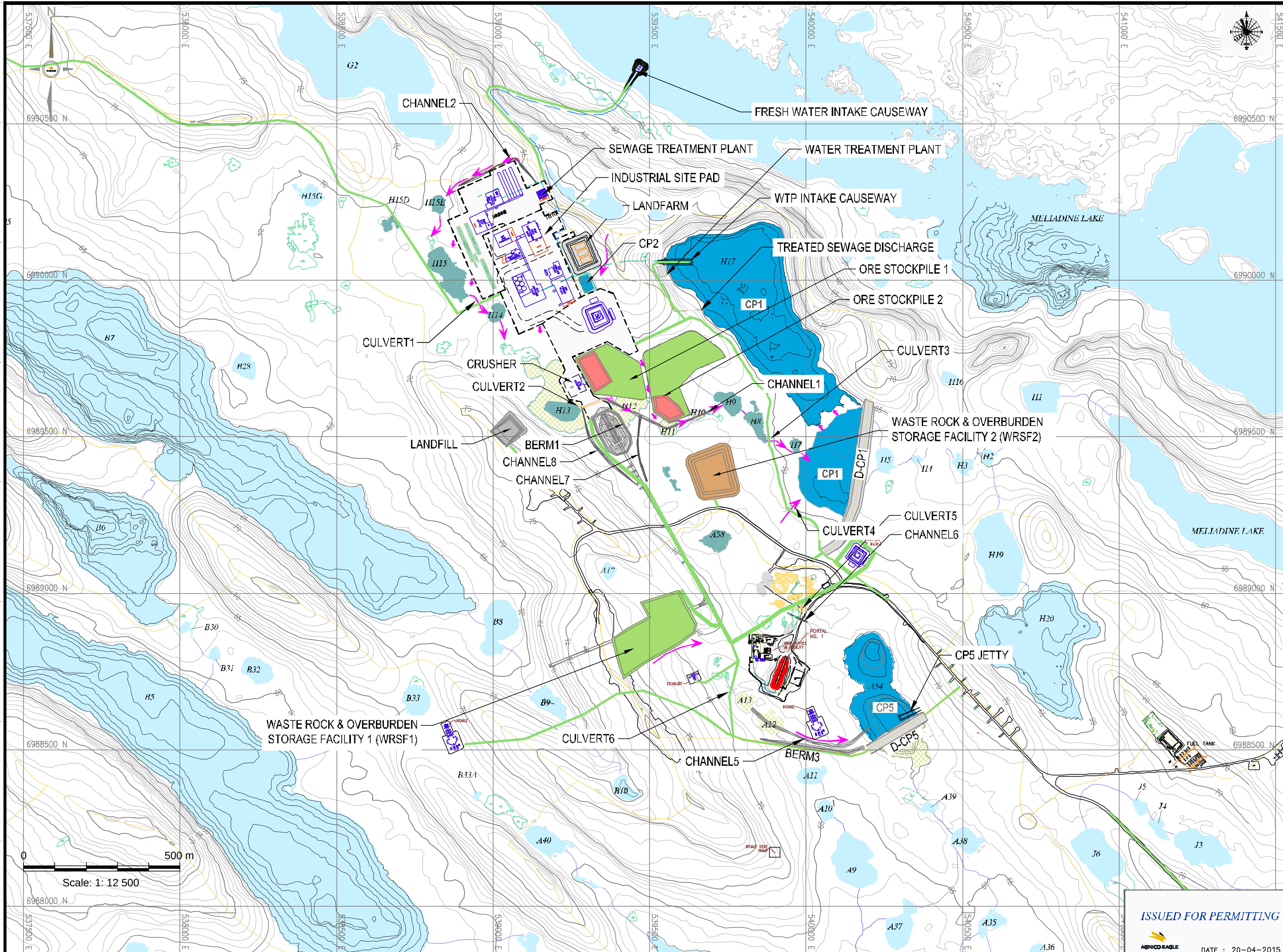

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OVERBURDEN
- WASTE ROCK
- ORE
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.5 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR -2)

ÉCHELLE/ SCALE	1:12500	FICHIER FILE	.DWG
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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.5.dwg

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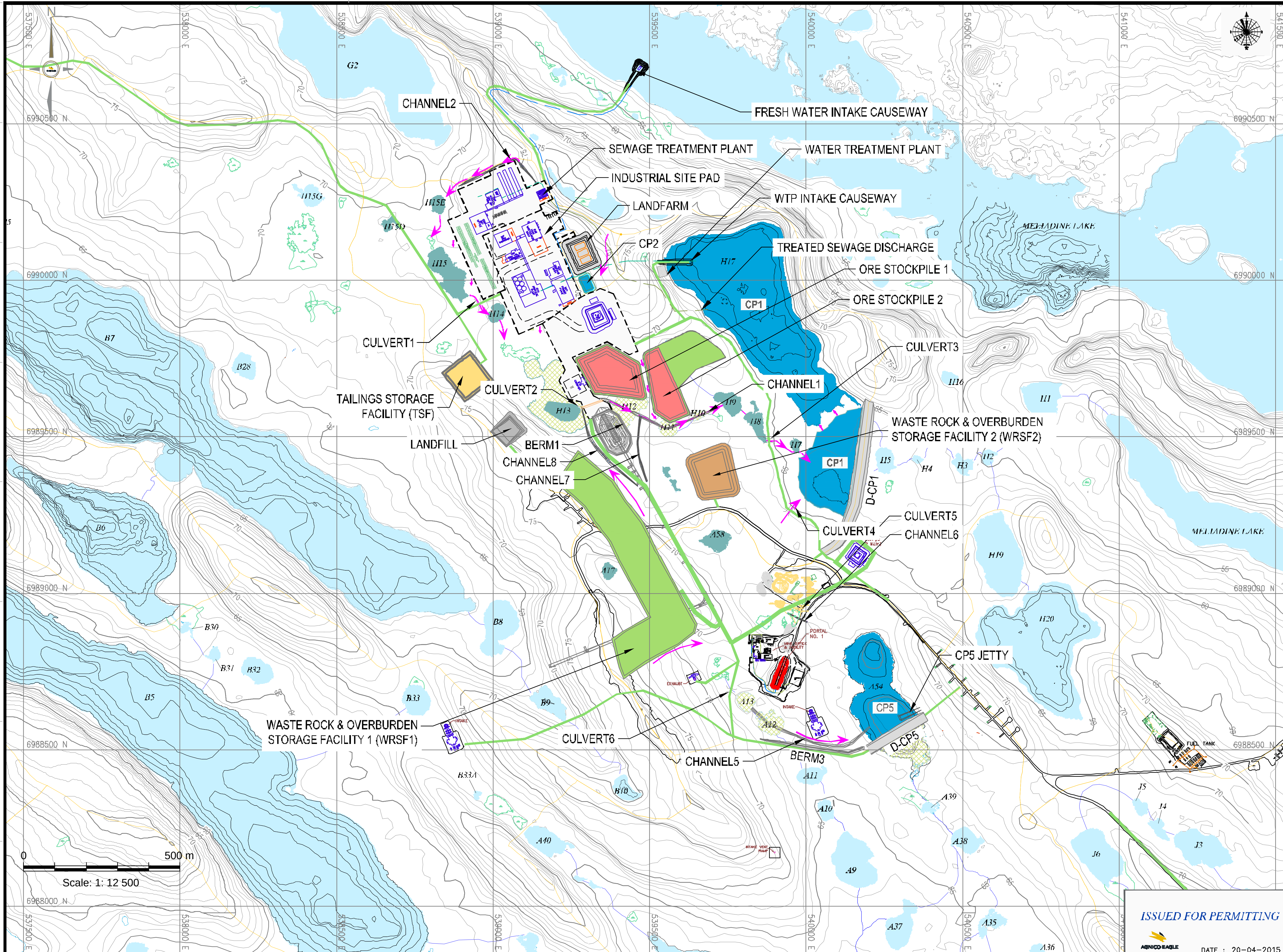

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DATE : 20-04-2015

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.6 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR –1)

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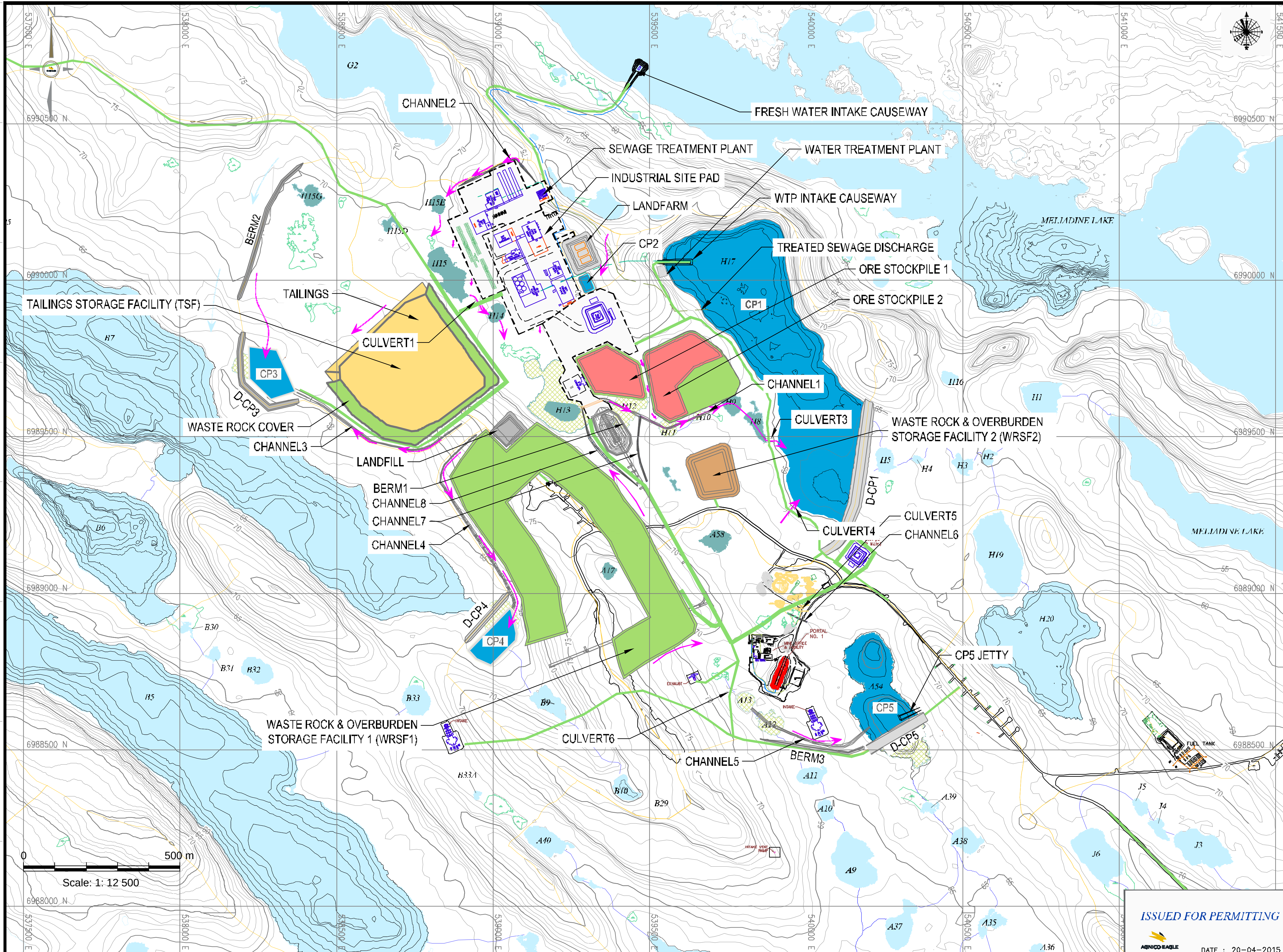

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

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AGNICO EAGLE – MELIADINE GOLD PROJECT
FIUGRE 5.7 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR 1)

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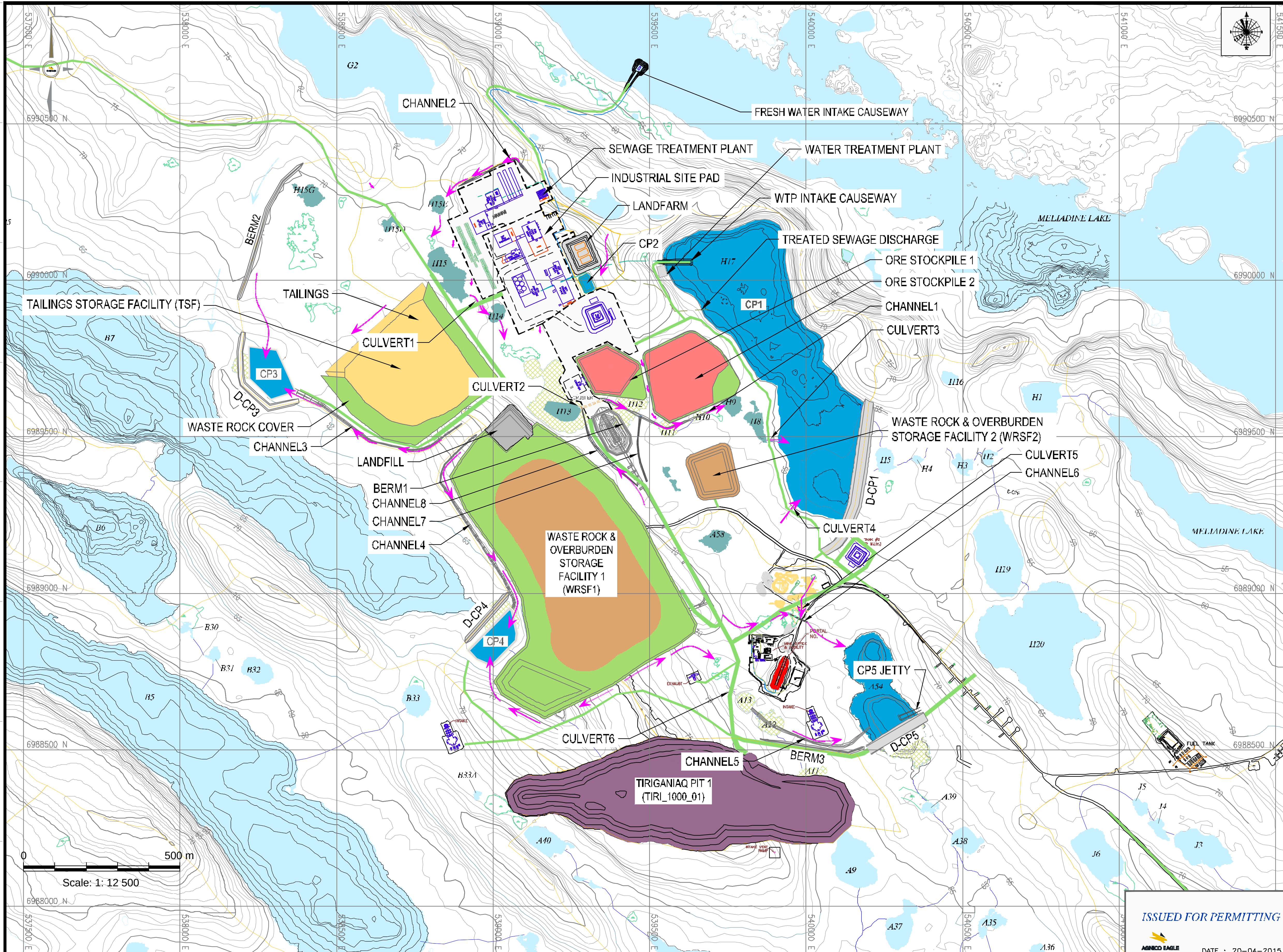

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LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.8 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR 2)

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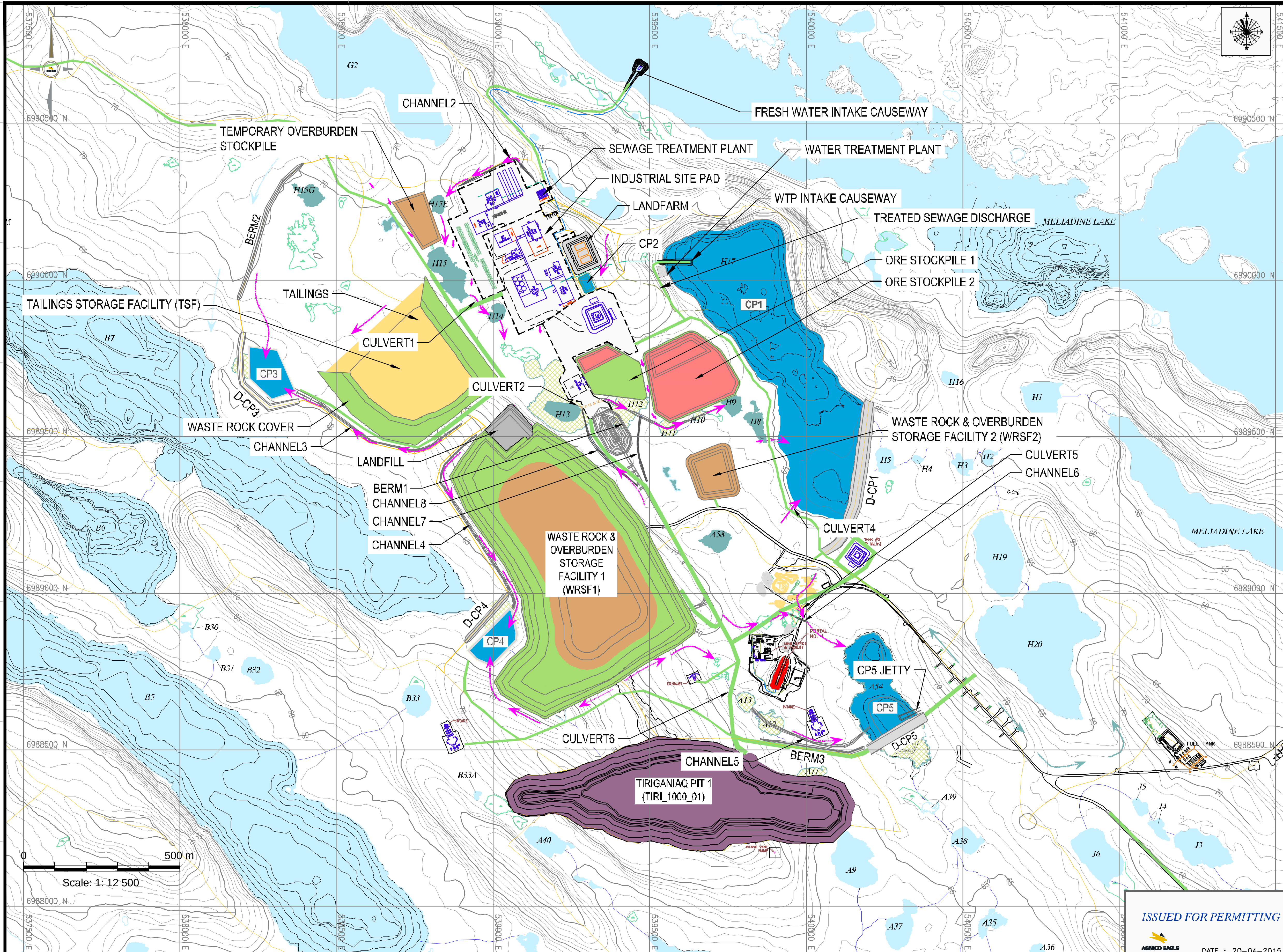

LEGEND

- CATCHMENT BOUNDARY
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- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.9 YEARLY SITE LAYOUT PLAN
FOR MINE WASTE MANAGEMENT
(YEAR 3)

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DRAWING NO.

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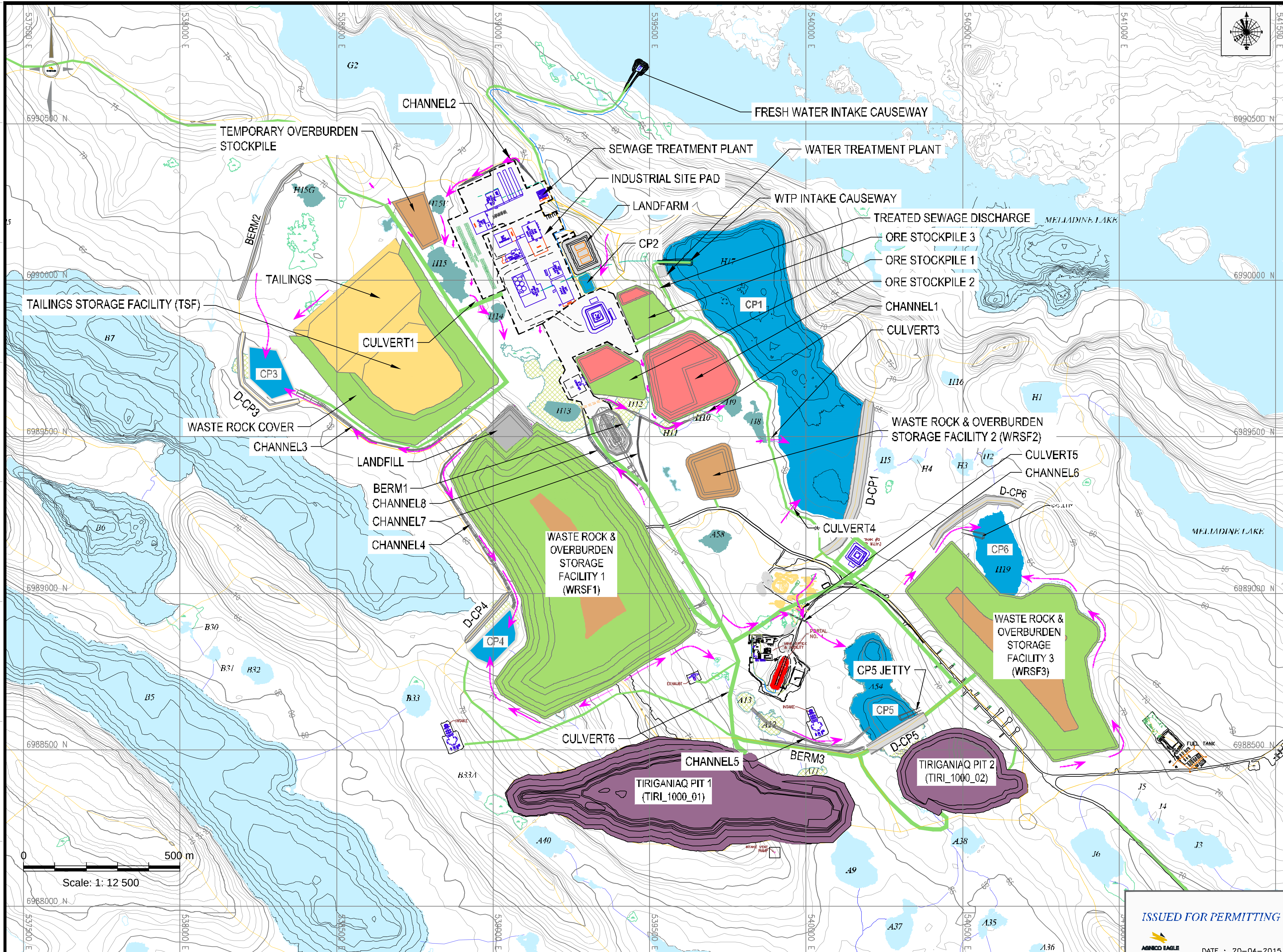

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.10 YEARLY SITE LAYOUT PLAN FOR MINE WASTE MANAGEMENT (YEAR 4)

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DATE : 20–04–2015

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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.10.dwg

NO. DESSIN
DRAWING NO.

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LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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FIGURE 5.11 YEARLY SITE LAYOUT PLAN FOR MINE WASTE MANAGEMENT (YEAR 5)

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AGNICO EAGLE
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DRAWING NO.

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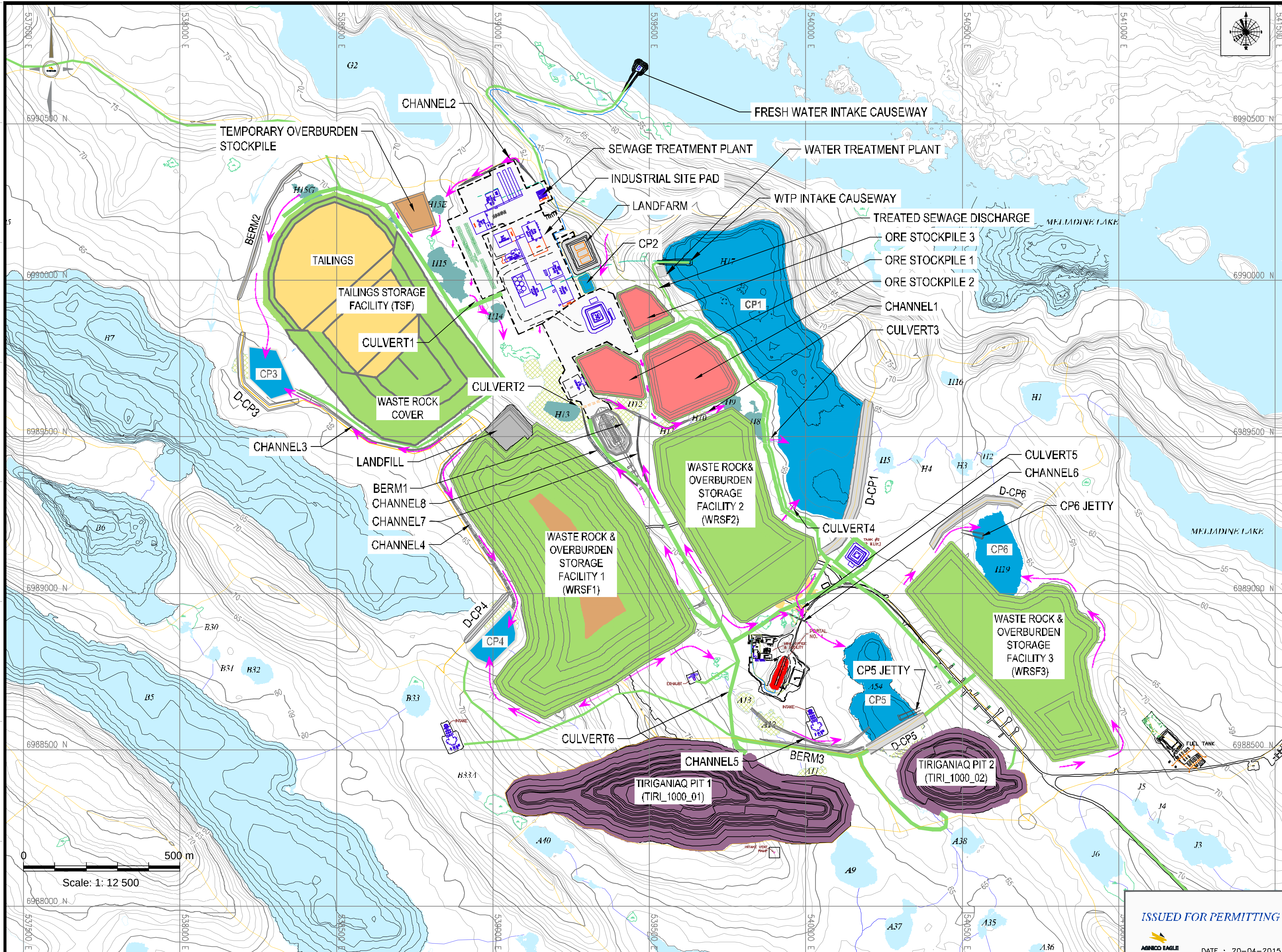

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

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AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.12 YEARLY SITE LAYOUT PLAN FOR MINE WASTE MANAGEMENT (YEAR 6)

ÉCHELLE/ SCALE	1:12500	FICHIER FILE	.DWG
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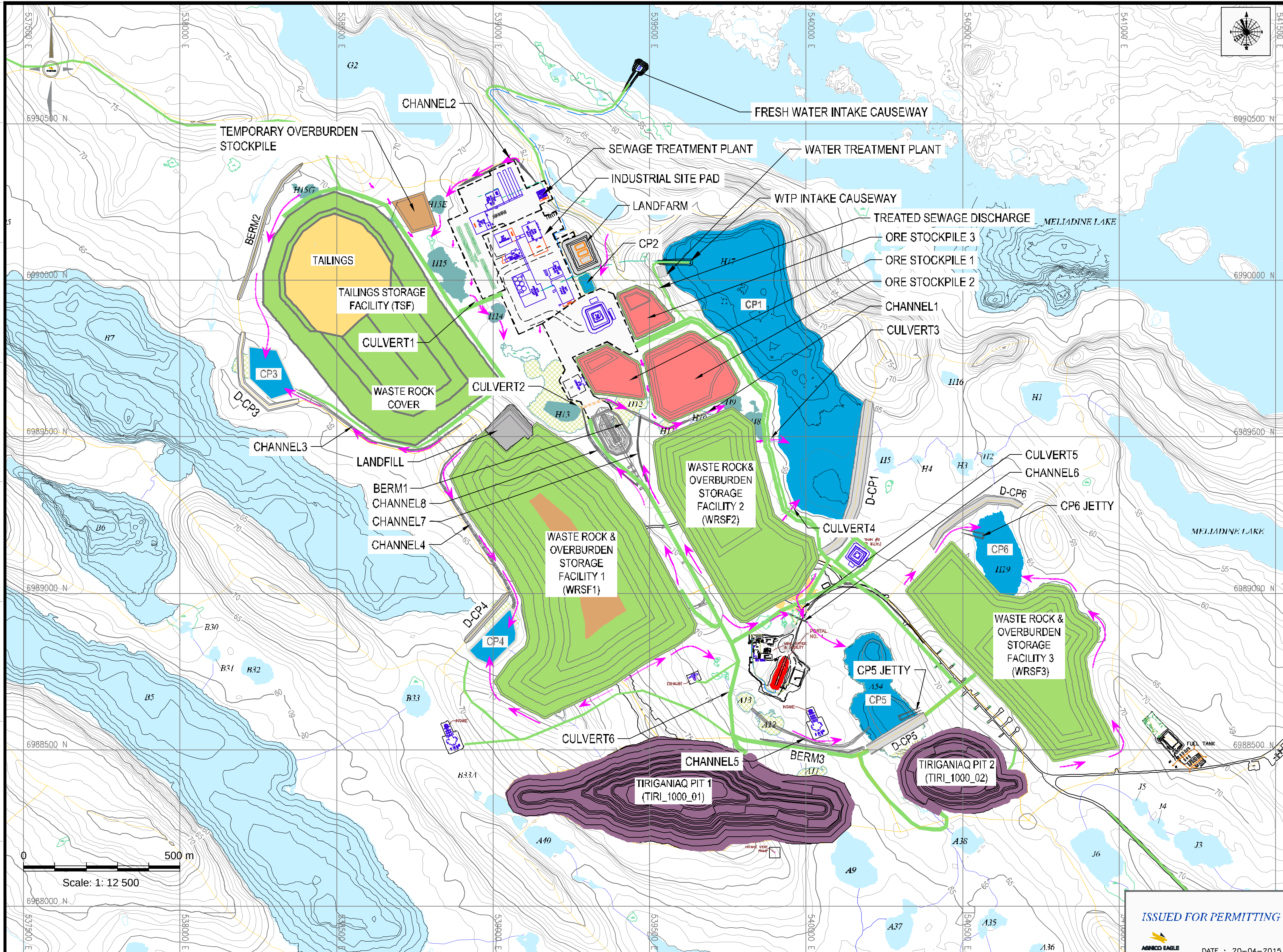

LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

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APPROUVÉ PAR / APPROVED BY			
No. PROJET / PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.13 YEARLY SITE LAYOUT PLAN FOR MINE WASTE MANAGEMENT (YEAR 7)

ISSUED FOR PERMITTING
DATE : 20-04-2015

ÉCHELLE/ SCALE	1:12500	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	6500-680-210-200-012	REVISION A	FEUILLE/SHT 12 / 13

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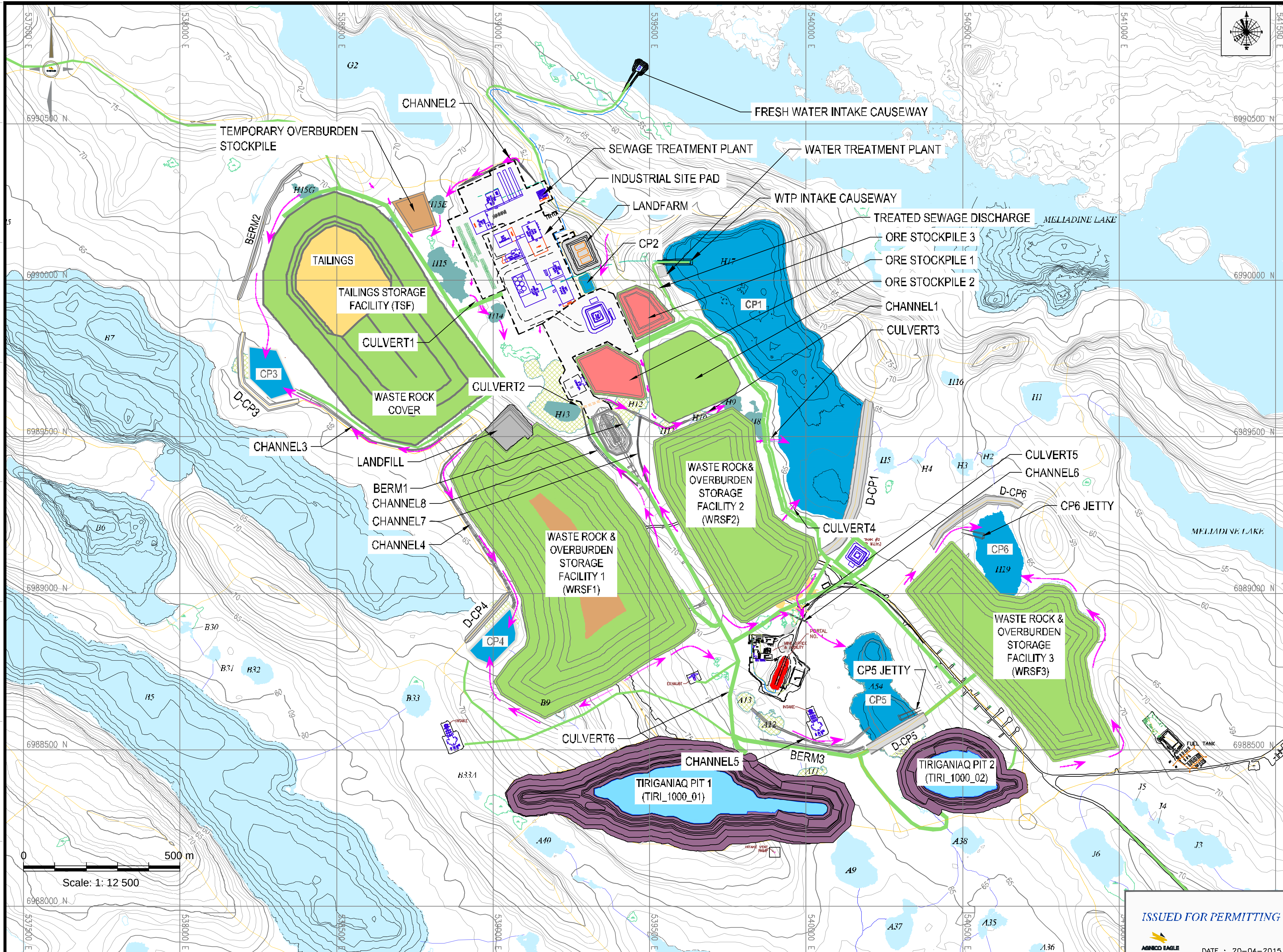
Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.13.dwg

NO. DESSIN
DRAWING NO.

FORMAT ANSI B–11x17



LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG
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DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR / DRAWN BY	HX	DATE	20–04–2015
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APPROUVÉ PAR / APPROVED BY			
No. PROJET / PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.14 YEARLY SITE LAYOUT PLAN FOR MINE WASTE MANAGEMENT (YEAR 8)

ÉCHELLE/ SCALE	1:12500	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	6500–680–210–200–013	REVISION A	FEUILLE/SHT 13 / 13

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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.14.dwg

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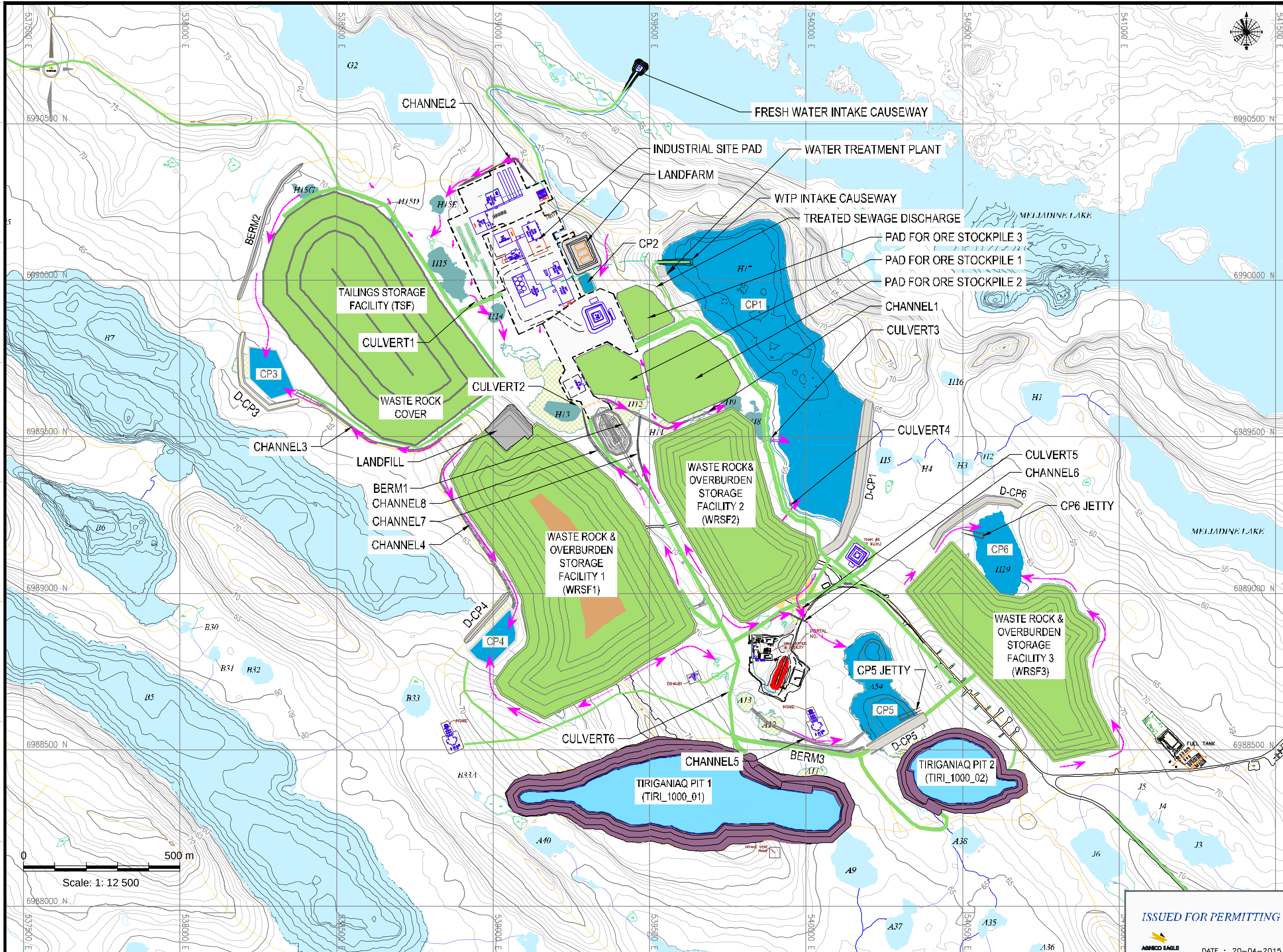
DRAWING NO.

FORMAT ANSI B–11x17



LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED LAKE AREA
- OPEN PIT
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG
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DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR / DRAWN BY	HX	DATE	20–04–2015
VÉRIFIÉ PAR / CHECKED BY	NG		20–04–2015
APPROUVÉ PAR / APPROVED BY			
No. PROJET / PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 5.15 YEARLY SITE LAYOUT PLAN FOR MINE WASTE MANAGEMENT (YEAR 9)

ÉCHELLE/ SCALE	1:12500	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	6500–680–210–200–014	REVISION A	FEUILLE/SHT 14 / 14

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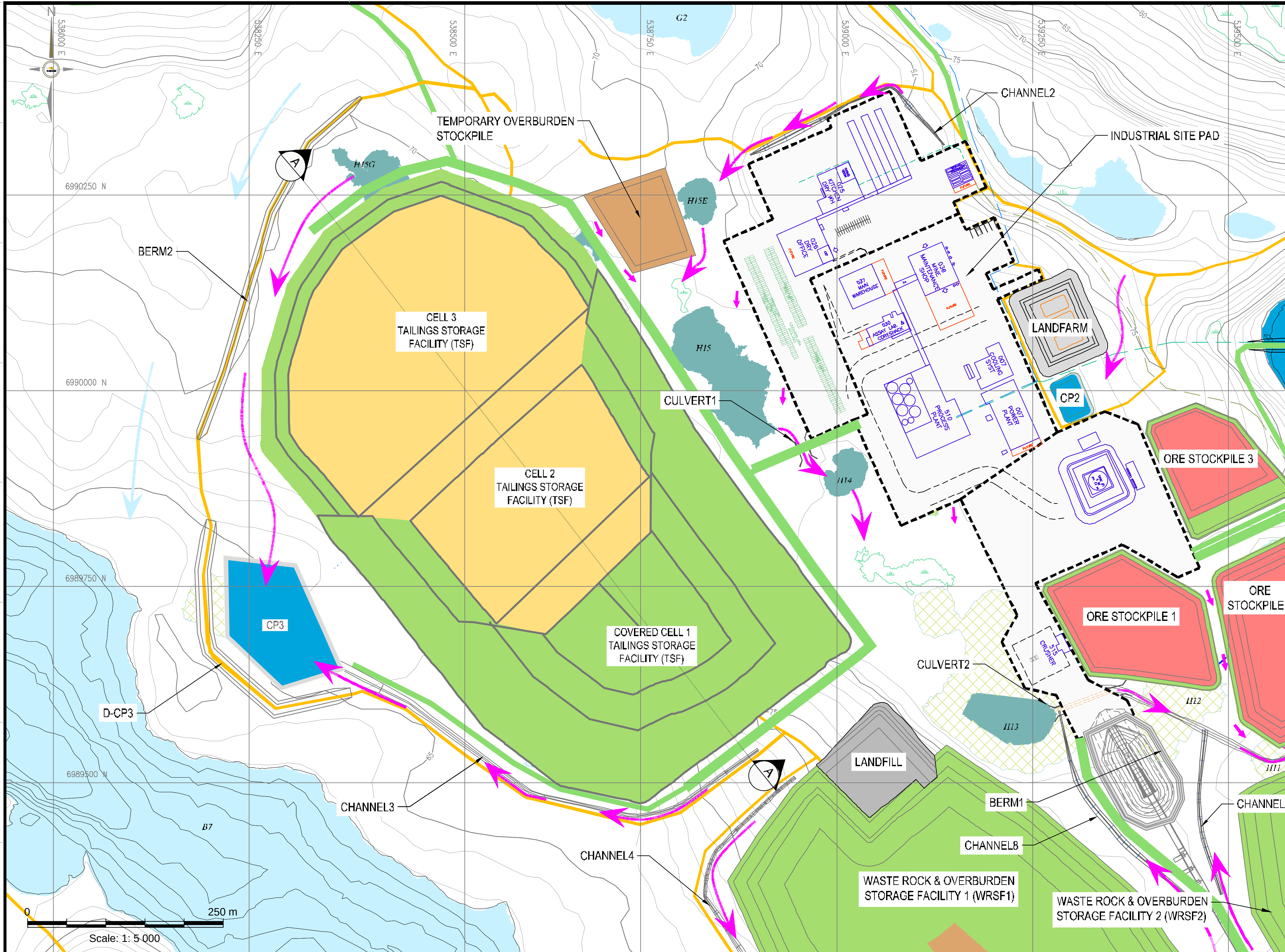
Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\FIGURE 5.15.dwg

NO. DESSIN
DRAWING NO.

FORMAT ANSI B-11x17



LEGEND

- CATCHMENT BOUNDARY
- SERVICE ROAD
- HAUL ROAD
- NON CONTACT WATERBODY
- CONTACT WATERBODY
- WATER COLLECTION POND
- DRAINED POND AREA
- OVERBURDEN
- WASTE ROCK
- ORE
- TAILINGS
- INDUSTRIAL SITE PAD
- WATER FLOW DIRECTION
- STREAM

AGNICO EAGLE

TETRA TECH EBA

TITRE / TITLE	# DWG
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DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY

REVISIONS

DESSINÉ PAR DRAWN BY	HX/EP	DATE	2014-11-28
VÉRIFIÉ PAR CHECKED BY	GZ/NG		2014-11-28
APPROUVÉ PAR APPROVED BY			
No. PROJET PROJECT NO.			
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 6.1 TAILINGS PLACEMENT PLAN IN CELLS

ÉCHELLE/ SCALE	1:5000	FICHIER FILE	.DWG
No. DESSIN/ DRAWING NO.	6509-610-210-201	REVISION 0	FEUILLE/SHT 1 / 1

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DRAWING NO.

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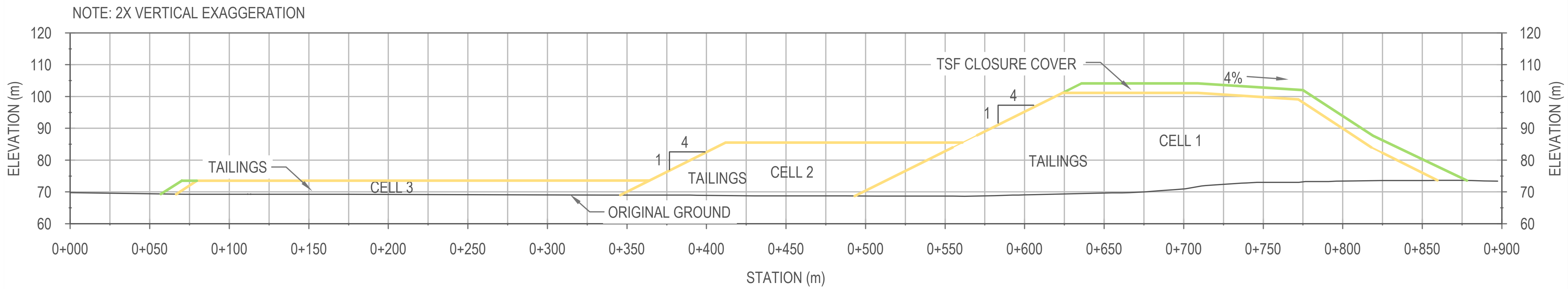
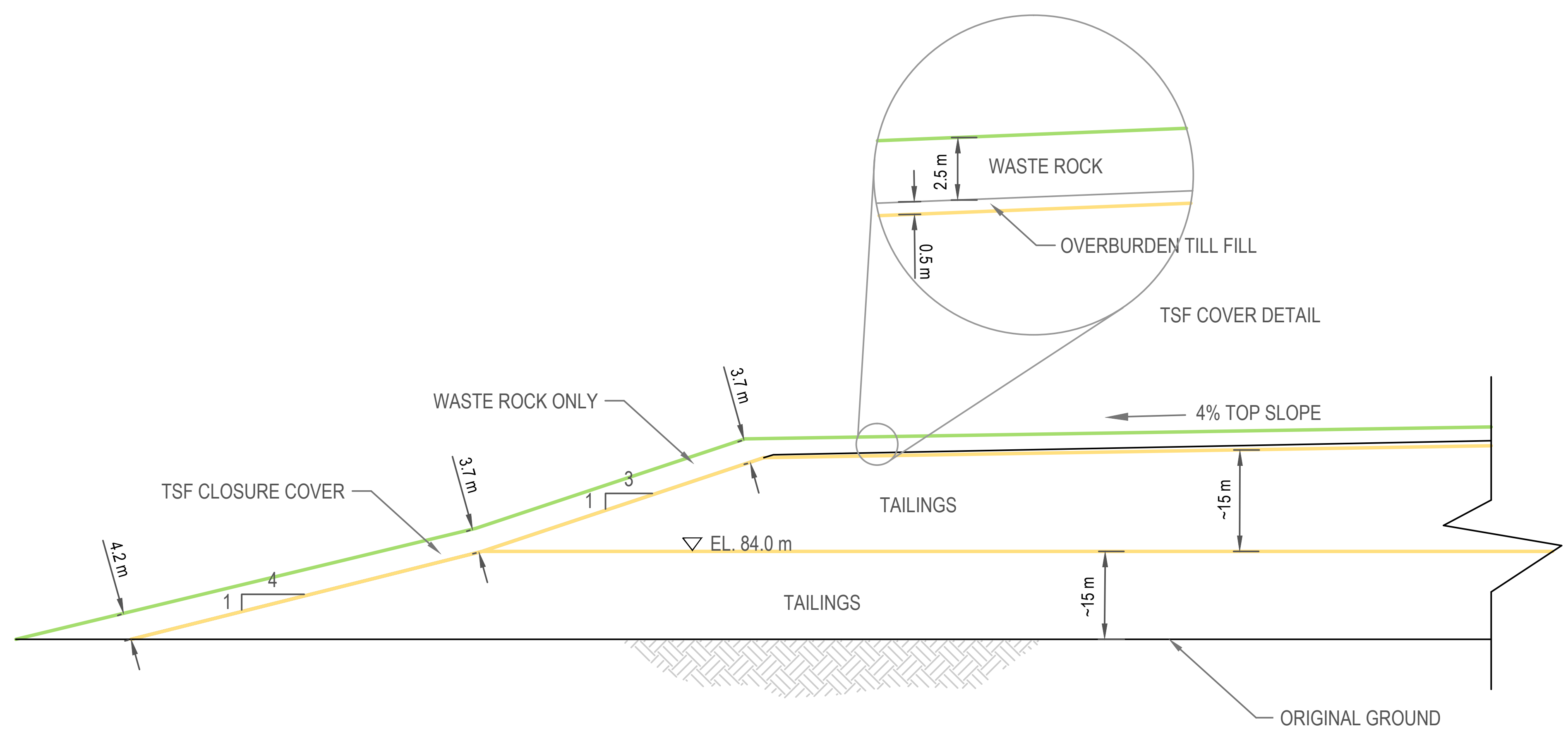


SECTION A–A TSF DURING OPERATION (YEAR 6 SHOWN)



TYPICAL DESIGN SECTION FOR TSF

NOTES:

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TETRA TECH EBA

TITRE / TITLE	# DWG
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DESSINS EN RÉFÉRENCE/REFERENCE DRAWINGS

REV	DESCRIPTION	DATE	PAR BY
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REVISIONS

DESSINÉ PAR DRAWN BY	EP	DATE	2014–08–29
VÉRIFIÉ PAR CHECKED BY	GZ/HX		2014–08–29
APPROUVÉ PAR APPROVED BY			
No. PROJET PROJECT NO.	6509		
DATE			

TITRE / TITLE
AGNICO EAGLE – MELIADINE GOLD PROJECT
FIGURE 6.2 TYPICAL DESIGN CROSS SECTION FOR TSF

ÉCHELLE/ SCALE	FICHIER FILE .DWG		
No. DESSIN/ DRAWING NO. 6509–610–210–202		REVISION 0	FEUILLE/SHT 1 / 1

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Q:\Edmonton\Engineering\E141\Projects\E14103209_Meladine_Mgmt_Plans\EBA Drawings\Mine Waste MP\CAD_Feb_2015\Figure 6.2.dwg