GOLDER
MEMBER OF WSP

TECHNICAL MEMORANDUM

DATE June 25, 2021 **Project No.** 20446521-003-TM-Rev0-6000

TO Karyn Lewis
Lupin Mines Inc.

CC Dionne Filiatrault, P.Eng.

FROM Ken Bocking, P.Eng. **EMAIL kbocking@golder.com**

DOME DESIGN ISSUED FOR CONSTRUCTION DRAWINGS

1.0 INTRODUCTION

Attached for Board's review in accordance with Part G, Item 1, are the final design specifications and for construction drawings, signed and stamped by an Engineer for the covered waste rock dome for closure at least sixty (60) days prior to initiating construction. The Issued for Construction drawings for the covered waste rock dome for the closure of the Lupin Mine are: Dwg. 19136158-0002-CM-0001_Rev 1 and Dwg. 19136158-0002-CM-0002_Rev 1.

LMI can confirm during construction engineered earthworks shall be supervised and field-checked by an Engineer. Construction records shall be maintained and made available at the request of the Board. LMI within ninety (90) days of completion of the facility will submit to the Board for review, a Construction Summary Report prepared by a qualified Engineer(s) in accordance with Schedule G of the Licence.

In correspondence to LMI on November 2, 2020, the NWB confirmed that Part E, Item 25 of the Type A water Licence 2AM-LUP2032 requiring LMI to submit to the board for review a technical memorandum that provides design details on the Waste Rock Dome has been complied with. Further clarification in direct response to CIRNAC comments is provided below in italics interspersed into the comments.

2.0 RESPONSE TO CIRNAC COMMENTS

CIRNAC has provided comments on previous revisions of the waste rock dome design drawings. With reference to the current revision (Rev 1), Golder's responses to the various comments are provided in italics below.

CIRNAC requested information:

Information provided for Item 25 "dome design" is insufficient to provide confidence in long term erosion protection and cover stability. Concerns include:

a. lack of detailed grading information for top of "dome";

GOLDER RESPONSE:

Grading details for the top of the dome are provided on Dwg. 19136158-0002-CM-0001_Rev 1. The surface has been modelled in ACAD and layout points were provided for construction. As indicated in Note 7, the final elevation of the top surface will be varied to suit the actual volume of waste rock that is imported from elsewhere on the mill site; however, the design slopes of the surfaces will not be changed.

b. lack of design information on storm / freshet flows;

GOLDER RESPONSE:

The six chutes were hydraulically designed to each accommodate conservative discharge flows in excess of 1 m^3/sec.

c. no protection against rill erosion on long 10% slope surfaces;

GOLDER RESPONSE:

A berm and swale system will be constructed at the perimeter of the top surface to direct runoff into the six chute structures. This will prevent any runoff from the top surface from "spilling over" and running down over the 10% sideslopes. As a result, runoff from the 10% sideslopes will be limited to that generated from rainfall or meltwater from the slopes themselves. It is noted that the esker material is a well graded material that typically contains about 39% gravel. Should incipient rilling erosion occur on the sideslopes, the esker material will tend to exhibit "self-armouring".

d. lack of runoff channels from discharge chutes;

GOLDER RESPONSE:

The former mine and mill were located at the top of a gentle hill which reflected an underlying bedrock high. The dome is a gently sloped structure centred on the top of the hill. As a result, the discharge from each chute will flow radially away from the dome, mirroring the natural drainage pattern. Note 11 on Dwg. 19136158-0002-CM-0001_Rev 1 directs the Contractor to "construct berms or ditches as necessary to direct flow from drainage chutes away from the toe of dome fill." Such berms or ditches will be field fit to the ground surface that surrounds the dome after the waste rock is removed from the surrounding areas.

e. potential for toe erosion from discharge chute runoff flows;

GOLDER RESPONSE:

Each discharge chute will have a stilling basin at the toe to safely dissipate the flow energy. Flow exiting the stilling basins will be low velocity sub-critical flow which will flow over the cleaned natural ground surface, from which any existing waste rock has been removed. The natural ground surface is expected to comprise either bedrock or glacial till.

f. lack of specific notes to address construction constraints that need to be addressed before cover can be placed;

GOLDER RESPONSE:

Notes 1 on Dwg. 19136158-0002-CM-0001_Rev 1 indicates that "the subgrade under the dome area is to be prepared in accordance with the water licence and the final closure and reclamation plan (FCRP) before imported

waste rock or cover materials are placed." Note 2 indicates that "the following materials shall be removed from the existing subgrade before imported waste rock is placed: petroleum hydrocarbon contaminated soils, arsenic "hot spots", soil or waste rock contaminated with cyanide or lead nitrate and any hazardous waste." Cleanup of these areas is under the supervision of Golder technical staff following a protocol for field and laboratory testing that is documented in a written Soil Quality Assurance / Quality Control Plan (Lupin Mines Incorporated, 2021).

g. failure to show where materials to be removed prior to cover placement are located; and

GOLDER RESPONSE:

The areas where known soil contamination is present are shown on a separate drawing: Dwg. 19136158-0005-CM-0001 Rev. D.

h. failure to show locations of shaft, crown pillar area, that will be buried under the dome.

GOLDER RESPONSE:

The locations of the crown pillar area and shafts has been added to Dwg. 19136158-0002-CM-0001_Rev 1 for information.

Comments on Item 25 – Waste rock dome design

Our review of the plans and sections observed that the 10% slopes, about 300m of top edge in the north portion of the "dome" is as much as 10m high and this extends out about 100m to the toe. The west and southwest side of the dome has a height of between 5m and 6m and thus extends out some 50+/- meters in these areas. Other than indicating that a berm will be constructed on the top edge of the dome to direct "dome surface" runoff to drainage chutes, no erosion control measures are included for ensure erosion protection and stability of these long 10% esker slopes. The plans and sections indicate that surface water runoff from the 1.6% surface slope, is expected to be drained off the dome, down the 10% slopes, via 6 runoff "drainage chutes". Surface runoff is to be directed to these "chutes" by a small perimeter berm along the edge of the dome surface (0.5m high, 0.5m crest width, 2:1 slopes) constructed with the same esker material as the 1m dome cover surface. Given the importance of this berm in preventing overland sheet flow to the 10% slopes, we question the long term stability of the berm design as presented.

No information is provided to support the designs of the top perimeter berm, the chutes, or the stilling basins. No drainage elevations are provided with respect to surface grading on the top of the dome edges, and no information is provided with respect to the drainage runoff flows leaving the "stilling basins" at the toe of the dome. No details are provided for the toe of the 10% slopes, nor for runoff from "stilling basins", which in some locations could undercut the toe of the cover (see north central discharge). In the absence of this information, we do not have confidence that the design as shown will be stable in the long term. The proposed designs as shown reinforce our concerns that the 10% slopes will at a minimum be subject to long term rill erosion even if the upper berm controls runoff to the discharge chutes. We are concerned about the long term performance integrity of the up diversion berm if constructed as shown with esker material. We note that any failure along of the top berm would result in additional erosive forces on the 10% slopes. We are concerned that no toe stabilization / armouring measures are included to protect the toe of the 10% slope. Provide information listed in this paragraph to demonstrate how the long-term erosion stability of the designs is being ensured.

GOLDER RESPONSE:

The perimeter berm alignment has been designed to provide a gentle positive gradient towards the entrances to each of the chutes. This will prevent a buildup of deep water against the inside of the perimeter berm. Given the gentle gradient, the flow velocities along the swale towards the entrances to the chutes will be low, and as discussed above the esker material is expected to self-armour. In any case the presence of erosion protection at the entrance to the chutes will prevent erosion from cutting down below the grade of the sills at the top of the chutes.

As discussed above, the discharge from each stilling basin will generally flow radially away from the dome, mirroring the natural drainage pattern. Note 11 on Dwg. 19136158-0002-CM-0001_Rev 1 directs the Contractor to "construct berms or ditches as necessary to direct flow from drainage chutes away from the toe of dome fill." Such berms or ditches will be field fit to the actual ground surface that remains after the waste rock is removed from the areas surrounding the dome.

In reviewing the typical drainage chute details, it appears to us that they are inconsistent as the 0.5 m depth of the drainage chute as shown in cross section is shown as 0.5 m berm on the top of the chute drainage profile detail and the perimeter berm is not shown on this detail. A plan view detail of the top and bottom of the drainage chutes should be provided.

GOLDER RESPONSE:

This has been clarified on Dwg. 19136158-0002-CM-0002_Rev 1, which also includes a section detailing the erosion protection at the entrance to each chute.

The notes on the site plan included:

• Note 1 which states that "subgrade under the dome area is to be prepared in accordance with the Water Licence and FCRP before waste rock or cover materials are placed".

The intent of this statement is correct, but it is not clear to us how LMI will ensure compliance with this note is achieved if it these requirements are not specifically stated on the drawings. Ensure all relevant requirements are specifically referenced.

GOLDER RESPONSE:

As discussed above, the cleanup of these areas will be under the supervision of Golder technical staff following a field and laboratory testing protocol that is documented in a written Soil Quality Assurance / Quality Control Plan (Lupin Mines Incorporated, 2021).

• Drawing Note 2 provides a list of materials that are to be removed before waste rock is placed, but the drawing does not identify the locations of these materials. It is unclear how this will be achieved in the absence of specific references to the dome plan. Include location of materials to be removed before waste rock placement.

GOLDER RESPONSE:

As discussed above, the areas where known soil contamination is present are shown on a separate drawing: Dwg. 19136158-0005-CM-0001 Rev. D.

• Drawing Note 4 states that crown pillar and openings and mine shafts are to be filled before waste rock is placed on top. Provide plans shared with Inspector of Mines to obtain approvals.

GOLDER RESPONSE:

LMI provided the plans and approvals for the crown pillar with their responses to the NWB under Part E, Item 25 review process on October 20, 2020, and their responses to the NWB for the updated FCRP Rev 1 review process on March 19, 2021. CIRNAC advised they were satisfied on October 30, 2020, and the NWB approved the updated FCRP Rev 1 on March 26, 2021.

Moreover, in addition to our specific concerns with the "dome" design concepts, we are also generally concerned that the remedial requirements that need to be undertaken are not specifically identified or referenced on the plan provided. We are concerned for example that in the absence of specific information on where contaminated soils to be removed are located, that confirmation that these soils have been removed may not be considered prior to reworking of the waste rock and placement of the esker cover. Provide specific cross reference to these works to ensure that they are identified in the FCRP and noted as appropriate.

GOLDER RESPONSE:

A copy of Dwg. 19136158-0005-CM-0001 Rev. D is attached. This shows the locations of all test pits where exceedances were identified in the two environmental site assessments (Morrow, 2006 and Golder, 2017). A copy of the August 2020 QA/QC Plan was provided to CIRNAC with LMI's technical responses to the updated FCRP on March 19, 2021. CIRNAC provided comments on the August 2020 QA/QC Plan to the NWB on April 8, 2021, and LMI responded to CIRNAC's comments on June 15, 2021. Furthermore, the QA/QC Plan (Lupin Mines Incorporated, 2021) was attached as Appendix C to the draft PCMP, which was submitted on April 8, 2021.

PERMIT TO PRACTICE
GOLDER ASSOCIATES LTD.
Signature Ken Bocking
Date 25 JUNE 2021
PERMIT NUMBER: P 049
NT/NU Association of Professional Engineers and Geoscientists

Golder Associates Ltd.

REGISTERED PROFESSIONAL ENGINEER
K. A. BOCKING
LICENSEE
25 JUNE 2021
N.W.T.

Ken Bocking, P.Eng.
Principal
KAB/DF/ks

Dionne Filiatrault, P.Eng.
Project Manager

Distribution: Karyn Lewis

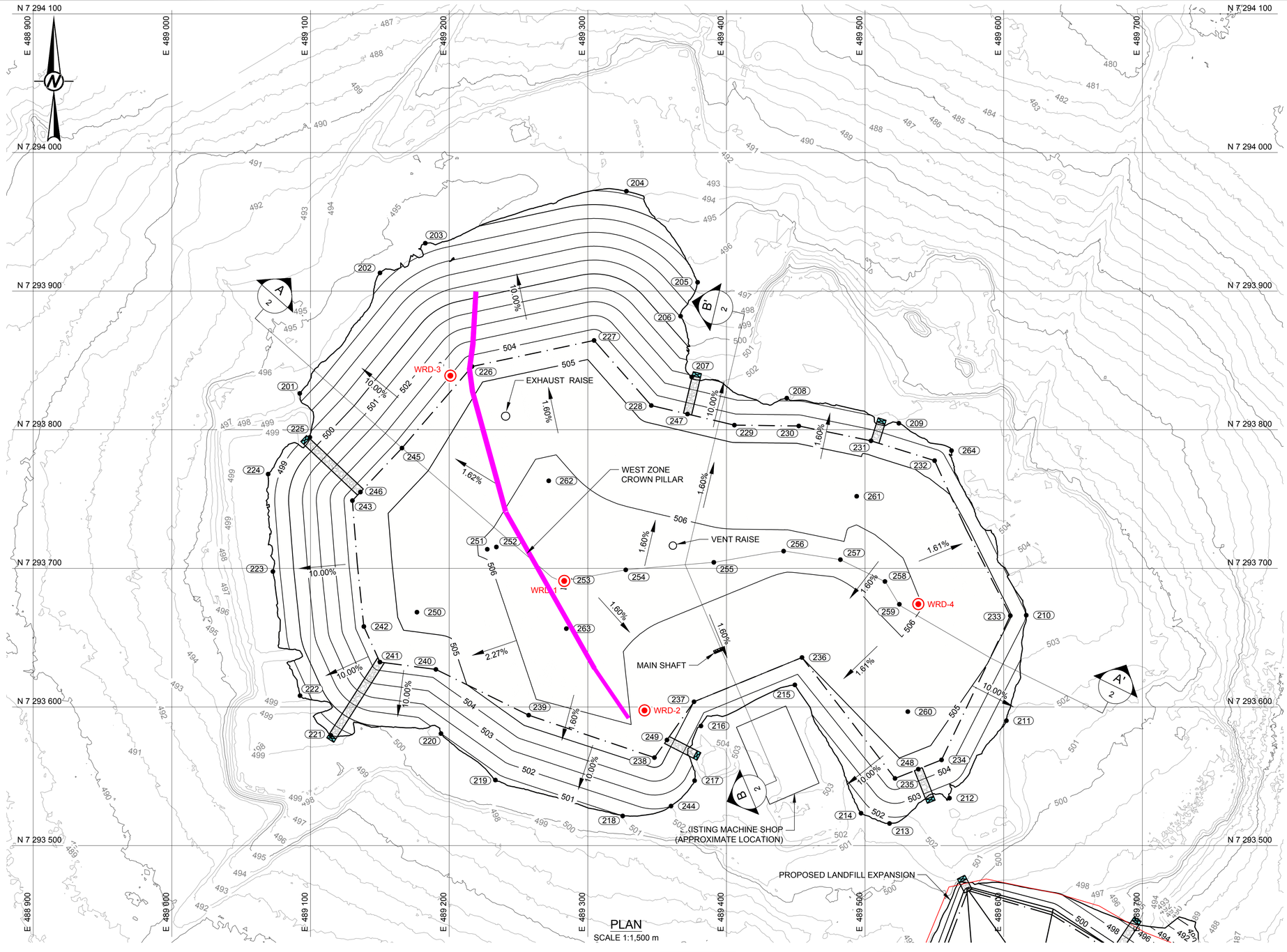
Attachments:
- Dwg. 19136158-0002-CM-0001_Rev 1 and Dwg. 19136158-0002-CM-0002_Rev 1.
- Locations of Contaminated Soils to be Excavated (Dwg. 19136158-0005-CM-0001-Rev D)

REFERENCES:

Golder (2017), Updated Phase I and II Environmental Site Assessment, Lupin Mine, Nunavut, October 2017.

Lupin Mines Incorporated (2021), Water Quality Monitoring Plan and Water and Soil Quality Assurance / Quality Control Plan, Appendix C to Post Closure Monitoring Plan, April 2021.

Morrow Environmental Consultants Inc. (2006), Phase 1 and 2 Environmental Site Assessment, Lupin Mine Site, Nunavut Territory, January 2006.



PLAN
SCALE 1:1,500 m

LEGEND

- EXISTING GROUND SURFACE CONTOUR (1 m INTERVAL)
- PROPOSED WASTE ROCK COVER CONTOUR (2 m INTERVAL)
- PERIMETER BERM
- DRAINAGE CHUTE
- STILLING BASIN
- PROPOSED WASTE ROCK COVER LAYOUT POINT
- PROPOSED THERMISTOR STRING

NOTE(S)

1. THE SUBGRADE UNDER THE DOME AREA IS TO BE PREPARED IN ACCORDANCE WITH THE WATER LICENCE AND WITH THE FINAL CLOSURE AND RECLAMATION PLAN (FCRP) BEFORE IMPORTED WASTE ROCK OR COVER MATERIALS ARE PLACED.
2. THE FOLLOWING MATERIALS SHALL BE REMOVED FROM THE EXISTING SUBGRADE BEFORE IMPORTED WASTE ROCK IS PLACED: DEMOLITION WASTE, PETROLEUM HYDROCARBON CONTAMINATED SOILS, ARSENIC "HOT SPOTS", SOIL OR ROCK MATERIALS IMPACTED WITH CYANIDE OR LEAD NITRATE AND ANY HAZARDOUS WASTE.
3. FLOOR SLABS LEFT IN PLACE IN THE SUBGRADE SHALL BE PUNCTURED WITH A HOE RAM BEFORE WASTE ROCK AND/OR COVER MATERIALS ARE PLACED ON TOP.
4. THE CROWN PILLAR OPENINGS AND MINE SHAFTS ARE TO BE FILLED BEFORE WASTE ROCK IS PLACED ON TOP.
5. NO IMPORTED WASTE ROCK SHALL BE PLACED ON THE PREPARED SUBGRADE UNTIL THE SUBGRADE PREPARATION HAS BEEN APPROVED BY THE ENGINEER.
6. IMPORTED WASTE ROCK OR ESKER COVER MATERIALS SHALL NOT BE PLACED ON TOP OF SNOW OR ICE.
7. THE DESIGN SURFACE SHOWN PROVIDES CAPACITY FOR ABOUT 269,000 m^3 OF IMPORTED WASTE ROCK. IF LESS CAPACITY IS REQUIRED, A LOWER TOP SURFACE ELEVATION SHALL BE USED WHILE MAINTAINING THE GRADES AND DRAINAGE PATTERN SHOWN.
8. TOPOGRAPHY BEYOND THE TOE OF WASTE ROCK DOME IS EXISTING TOPOGRAPHY BEFORE RELOCATION OF WASTE ROCK. WHERE WASTE ROCK IS PRESENT, THE COVER IS TO BE EXTENDED AT THE DESIGN SLOPE TO INTERSECT ORIGINAL GROUND.
9. EXISTING MACHINE SHOP TO BE LEFT IN PLACE TO SUPPORT CLOSURE CONSTRUCTION.
10. CO-ORDINATES OF SETOUT POINTS ARE PROVIDED IN FILE 'SETOUT_POINTS_FOR_ PROPOSED_WASTE_ROCK_DOME_REVC..csv.
11. CONSTRUCT DITCHES OR BERMS AS NECESSARY TO DIRECT FLOW FROM DRAINAGE CHUTES AWAY FROM TOE OF DOME FILL,

REFERENCE(S)

1. EXISTING GROUND SURFACE TOPOGRAPHY FROM STANTEC, SURVEYED AUGUST 23 TO 25, 2019.
2. COORDINATES ARE IN METRES TO UTM NAD83, NRCS ZONE 12N.
3. FOR PLAN VIEW OF EXPANDED LANDFILL REFER TO DRAWING 19136158-0001-1.
4. UNDERGROUND WORKINGS INFORMATION PROVIDED BY CLIENT FILENAME 180125 draft_Figure 6 Surface Projection of Underground Mine Workings.DWG

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GOLDER ASSOCIATES LTD.
Signature
Date 18 JUN 2021
PERMIT NUMBER: P 049
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0 50 100
1:1,500 METRES

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
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0	2021-05-18	ISSUED FOR CONSTRUCTION	DB	TDR	KAB	KAB
C	2021-05-03	ISSUED FOR REVIEW	DB	TDR	KAB	KAB
B	2020-06-19	ISSUED FOR REVIEW	DB	MR	KAB	KAB
A	2020-06-08	ISSUED FOR REVIEW	DB	MR	KAB	KAB

SEAL

CLIENT
LUPIN MINES INCORPORATED

CONSULTANT
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MEMBER OF WSP
GOLDER ASSOCIATES LTD.
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PROJECT
WASTE ROCK DOME DESIGN
LUPIN MINE CLOSURE
NUNAVUT, CANADA

TITLE
PROPOSED WASTE ROCK DOME

PROJECT NO.	CONTROL	REV.	DRAWING
19136158	0002	1	1 of 2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

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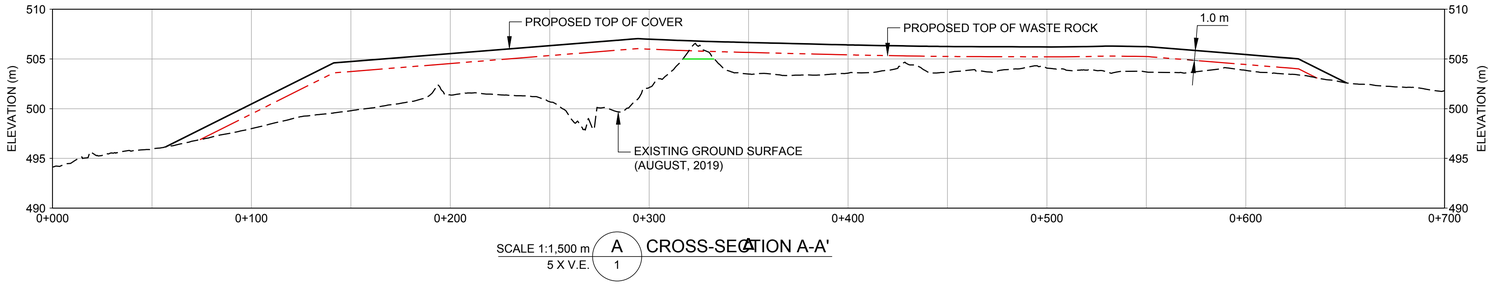
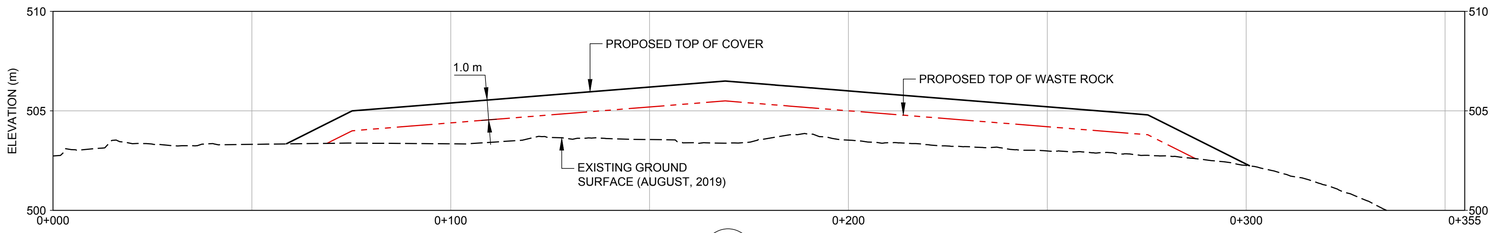


SCALE 1:1,500 m
5 X V.E.

A
1

CROSS-SECTION A-A'



SCALE 1:750 m
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B
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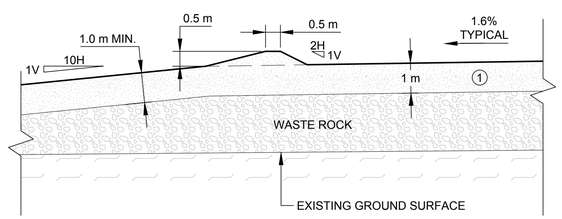
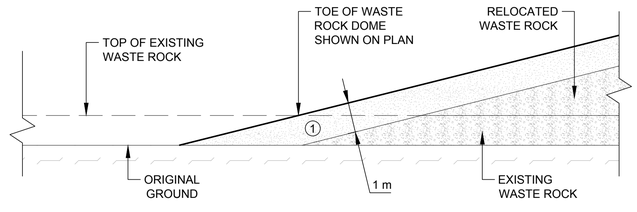
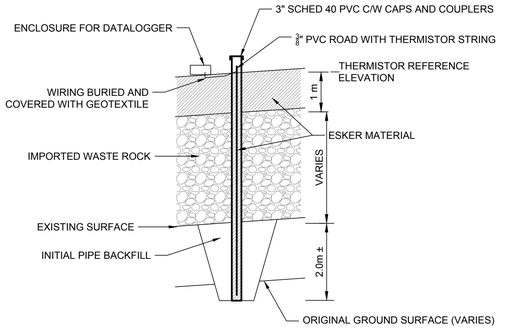
CROSS-SECTION B-B'



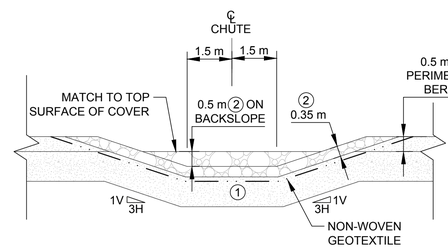
TYPICAL DETAIL OF PERIMETER BERM
N.T.S.



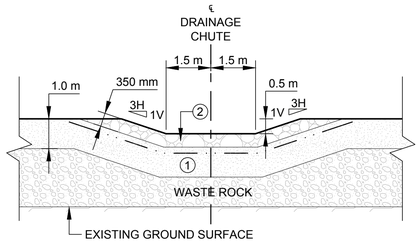
TYPICAL DETAIL OF EDGE OF WASTE ROCK DOME
N.T.S.



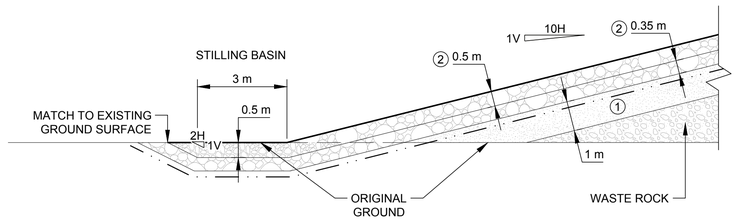
TYPICAL DETAIL OF THEMISTOR STRING INSTALLATION
N.T.S.



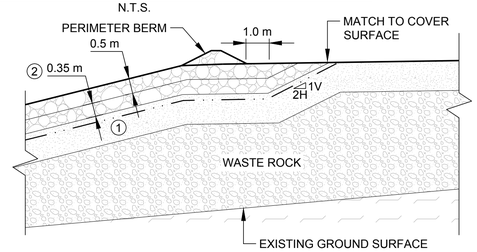
SECTION OF ENTRANCE TO DRAINAGE CHUTE
N.T.S.



DRAINAGE CHUTE TYPICAL CROSS-SECTION
N.T.S.



DRAINAGE CHUTE TYPICAL PROFILE
N.T.S.



LEGEND

- PROPOSED TOP OF COVER IN SECTION
- PROPOSED TOP OF WASTE ROCK IN SECTION
- PROPOSED BASE REGRADE
- EXISTING GROUND SURFACE (AUGUST, 2019)

MATERIAL ZONATION

- 1 — ESKER SAND AND GRAVEL
- 2 — 10 kg EROSION PROTECTION
- NON-WOVEN GEOTEXTILE

NOTES

1. REFER TO DRAWING 1 FOR LOCATIONS OF CROSS-SECTIONS, PERIMETER BERMS, DRAINAGE CHUTES, STILLING BASINS AND INSTRUMENTATION.
2. GEOTEXTILE TO BE NON-WOVEN NEEDLE-PUNCHED MINIMUM 350 g/m^2.
3. 10 kg EROSION PROTECTION TO HAVE D_{50} OF 190 mm MINIMUM AND MAXIMUM SIZE 350 mm.

INSTRUMENTATION NOTES

1. THE REFERENCE LEVEL FOR EACH THERMISTOR STRING SHALL BE THE FINAL FINISHED GRADE OF THE ESKER COVER. THIS GRADE MAY VARY FROM THE CURRENT DESIGN ELEVATION DUE TO VARIATIONS IN THE AMOUNT OF WASTE ROCK RELOCATED; THEREFORE THE THERMSITOR STRINGS SHALL BE INSTALLED IN THE TUBES ONLY AFTER THE COVER GRADE IS FINALIZED.
2. PITS UP TO 2-M DEEP SHALL BE EXCAVATED INTO THE EXISTING GROUND SURFACE (EXISTING WASTE ROCK OR SOIL) AT ALL FOUR LOCATIONS.
3. A 2-M LONG 3" PVC PIPE SHALL BE PLACED UPRIGHT IN THE CENTER OF THE PIT, WITH EXISTING GROUND MATERIAL PLACED AROUND THE PIPE TO SUPPORT IT. ONCE THE PIPE IS STABLE AND IN AN UPRIGHT POSITION, THE PIT SHALL BE BACKFILLED USING EXISTING GROUND MATERIAL UNTIL ABOUT 0.3 M OF PIPE LENGTH IS LEFT STICKING OUT.
4. 1-M LONG 3" PVC EXTENSION SEGMENTS SHALL BE ATTACHED PROGRESSIVELY TO THE PIPE DURING PLACEMENT OF IMPORTED WASTE ROCK DOME UNTIL THE FINAL GRADE OF THE DOME IS REACHED. PLACEMENT OF WASTE ROCK SURROUNDING THE PIPE SHALL BE CONDUCTED CAREFULLY TO PREVENT DAMAGE OR BENDING OF THE PVC PIPE.
5. PRIOR TO PLACEMENT OF THE 1-M THICK ESKER COVER, ADDITIONAL PVC PIPE EXTENSION SEGMENTS SHALL BE ATTACHED WITH AT LEAST 1 M OF PIPE LEFT ABOVE THE COVER SURFACE.
6. ALL THERMISTOR STRINGS SHALL BE CALIBRATED AGAINST AMBIENT TEMPERATURE BEFORE THE STRINGS ARE LOWERED INTO THE PVC PIPE.
7. EACH STRING SHALL BE ATTACHED TO A 3/8" PVC ROD ENSURING THAT THE CABLE IS STRAIGHT AND BEAD SPACINGS ARE AS PER DESIGN. THE ROD WITH THE ATTACHED STRING SHALL THEN BE LOWERED INTO THE 3" PVC PIPE ENSURING THAT THE UPPERMOST BEAD IS 0.25 M BELOW THE SURFACE OF THE COVER.
8. THE PVC PIPE SHALL THEN BE BACKFILLED TO THE LEVEL OF THE TOP OF COVER USING A 1" MINUS ESKER COVER MATERIAL. THE TOP OF THE PVC PIPE SHALL BE CAPPED TO PREVENT INGRESS OF WATER OR SNOW.
9. INSTALL A ROBUST STANDARD ENCLOSURE TO HOUSE THE BATTERY AND DATALOGGER ADJACENT TO THE PVC PIPES AT EACH MONITORING LOCATION. WIRING CONNECTING THE PVC PIPE AND THE ENCLOSURE SHALL BE BURIED IN THE ESKER COVER AND COVERED WITH GEOTEXTILE TO REDUCE THE RISK OF CABLES BEING DAMAGED BY WILDLIFE.

REFERENCE(S)

1. EXISTING GROUND TOPOGRAPHY FROM STANTEC, SURVEYED AUGUST 23 TO 25, 2019.

PERMIT TO PRACTICE
GOLDER ASSOCIATES LTD.
Signature
Date 15 June 2021
PERMIT NUMBER: P 049
NT/NU Association of Professional Engineers and Geoscientists

0 20 40
1:500 METRES

0 25 50
1:750 METRES

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
1	2021-06-18	ISSUED FOR CONSTRUCTION	DB	TDR	KAB	KAB
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SEAL

CLIENT
LUPIN MINES INCORPORATED

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PROJECT
WASTE ROCK DOME DESIGN
LUPIN MINE CLOSURE
NUNAVUT, CANADA

TITLE
PROPOSED WASTE ROCK DOME SECTIONS AND DETAILS

PROJECT NO.	CONTROL	REV.		DRAWING
19136158	0002	1	2 of 2	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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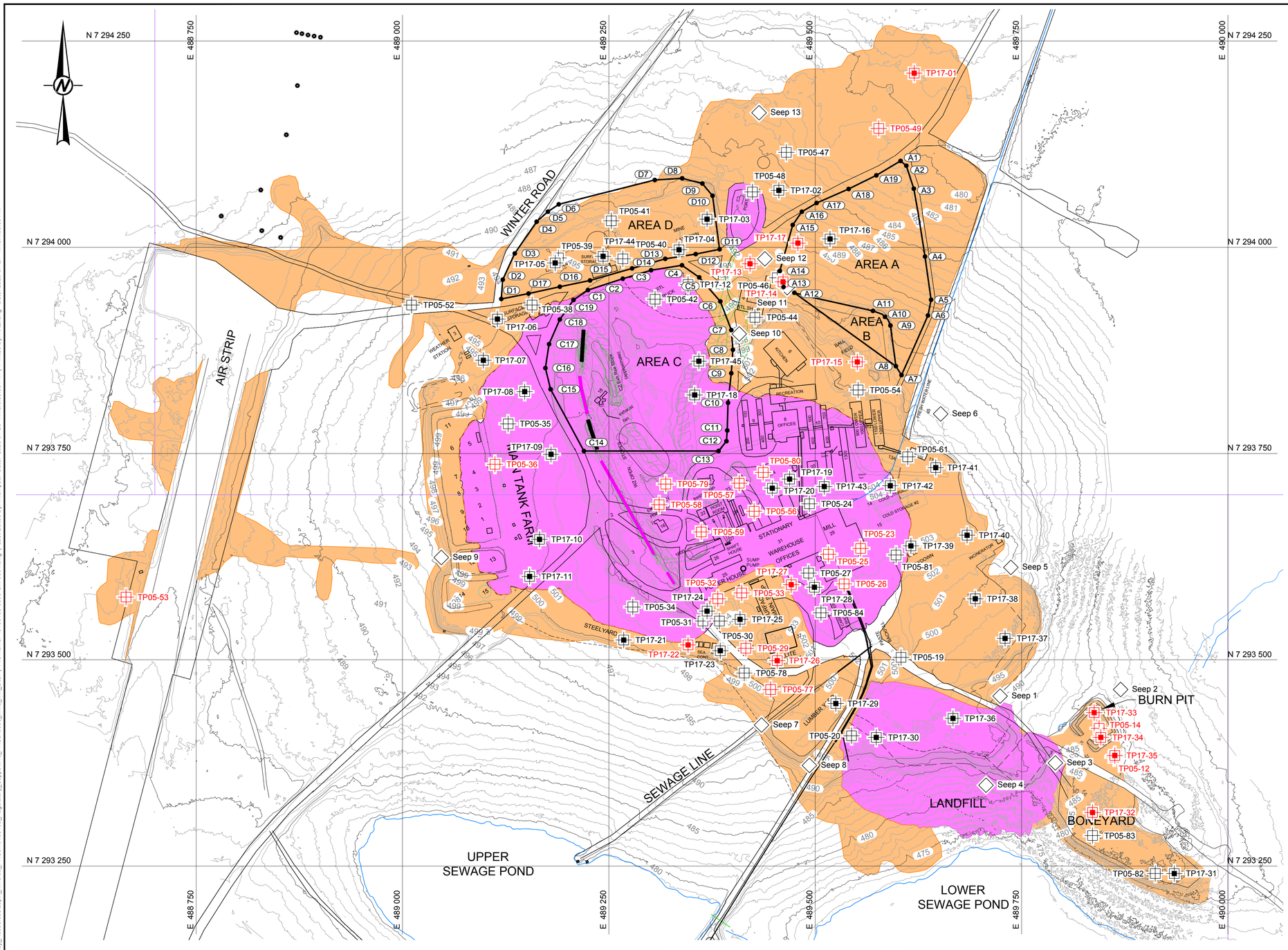

LEGEND

- EXISTING GROUND SURFACE CONTOUR (1 m INTERVAL)
- PROPOSED WASTE ROCK REMOVAL AREA
- PROPOSED WASTE ROCK PLACEMENT AND COVER AREA
- AREA CLEARED FOR WASTE ROCK REMOVAL
- A4 — PROPOSED WASTE ROCK REMOVAL AREA LAYOUT POINT
- TP17-02 — 2017 ESA TEST PIT LOCATION
- TP17-32 — 2017 ESA TEST PIT WITH EXCEEDANCE
- TP05-83 — 2005 ESA TEST PIT LOCATION
- TP05-36 — 2005 ESA TEST PIT WITH EXCEEDANCE
- Seep 13 — 2017 SEEP SAMPLE LOCATION

NOTE(S)

1. LIMITS FOR PROPOSED WASTE ROCK REMOVAL AREA ARE BASED ON AIR PHOTOGRAPHS AND ARE APPROXIMATE ONLY. ACTUAL LIMITS TO BE DETERMINED IN THE FIELD BY OBSERVATION.
2. THE LIMITS SHOWN FOR THE WASTE ROCK PLACEMENT AREAS ARE AT INTERSECTIONS WITH EXISTING GROUND SURFACE. WHERE WASTE ROCK IS PRESENT THE COVER IS TO BE EXTENDED AT THE DESIGN SLOPE TO INTERSECT ORIGINAL GROUND.
3. THE COVER AREA SHOWN AROUND THE PORTAL IS PRELIMINARY AND WILL BE BETTER DEFINED.
4. AS PER THE FINAL CLOSURE AND RECLAMATION PLAN, THE FOLLOWING FEATURES ARE TO BE LEFT IN PLACE: THE GUEST HOUSE, THE AIRSTRIP AND ACCESS ROADS AS SHOWN.
5. THE SURFACE MAIN SHOP IS TO BE LEFT IN PLACE UNTIL THE COMPLETION OF CLOSURE CONSTRUCTION AND THEN REMOVED.
6. THE FOLLOWING MATERIALS SHALL BE REMOVED FROM THE EXISTING SUBGRADE AND PLACED IN THE CROWN PILLAR OR SHAFTS BEFORE THE WASTE ROCK IS RELOCATED OR COVERED: PETROLEUM HYDROCARBON CONTAMINATED SOILS, ARSENIC "HOT SPOTS", SOIL OR WASTE ROCK MATERIALS IMPACTED BY CYANIDE OR LEAD NITRATE, OR ANY HAZARDOUS WASTE. SUCH REMOVAL SHALL BE APPROVED BY THE OWNER/ENGINEER BEFORE WASTE ROCK RELOCATION OR COVERING PROCEEDS.
7. FLOOR SLABS LEFT IN PLACE IN THE SUBGRADE SHALL BE PUNCTURED WITH A HOE RAM BEFORE WASTE ROCK AND COVER IS PLACED ON TOP.
8. THE CROWN PILLAR OPENINGS AND MINE SHAFTS ARE TO BE FILLED WITH DESIGNATED MATERIALS BEFORE WASTE ROCK IS PLACED ON TOP.
9. CO-ORDINATES OF SETOUT POINTS ARE PROVIDED IN A SEPARATE .csv FILE.

REFERENCE(S)

1. EXISTING GROUND SURFACE TOPOGRAPHY FROM STANTEC, SURVEYED AUGUST 23 TO 25, 2019.
2. BASE PLAN DATA PROVIDED BY NORTHWEST CORP., FILE NO. 180125 draft_Figure 6 Surface Projection of Underground Mine Workings.dwg, RECEIVED JANUARY 1, 2018.
3. COORDINATES ARE IN METRES TO UTM NAD83, NRCS ZONE 12N.
4. FOR PLAN VIEW OF EXPANDED LANDFILL REFER TO DRAWING 19136158-0001-1.
5. FOR PLAN VIEW OF PROPOSED WASTE ROCK DOME REFER TO DRAWING 19136158-0002-1.

0 100 200
1:2,500 METRES

NOT FOR CONSTRUCTION

DRAFT

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2020-07-27	EXCEEDANCES IN RED	KAB	MR	KAB	KAB
C	2020-07-15	AREAS C AND D, TEST PITS	KAB	MR	KAB	KAB
B	2020-07-02	AREAS A AND B ADDED	KAB	MR	KAB	KAB
A	2020-06-23	ISSUED DRAFT FOR REVIEW	KAB	MR	KAB	KAB

SEAL

CLIENT
LUPIN MINES INCORPORATED

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PROJECT
LUPIN MINE CLOSURE
NUNAVUT, CANADA

TITLE
PROPOSED WASTE ROCK REMOVAL AND PLACEMENT

PROJECT NO.	CONTROL	REV.		DRAWING
19136158	0003	D	1 of 1	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\gal\Mississauga\SIM\Clients\Mandalay_Resources\Lupin_Mine\99_PRO\19136158_Regulatory_Support\40_PRO\0003_Mine_Mill_Shtl | File Name: 19136158-0003-CM-0001.dwg | Last Edited By: mramjaul Date: 2020-07-26 Time:6:33:08 PM | Printed By: AXZhang Date: 2020-07-27 Time:4:03:03 PM