

# **Progressive Rehabilitation Report**

## **Concrete Cap**

### **Fatima (Texmont, New Texmont) Mine Site Vent Raise Cap**

**Timmins, Ontario**



Prepared For:

Ministry of Northern  
Development Mines  
and Forestry

Fletcher Nickel Inc.

Prepared by:

Rivard Engineering  
2090 Riverside Drive  
P.O. Box 223  
Timmins, ON.  
P4N 7C9

**R.E.#: 12-191**

**April 8, 2013 Rev. 1**

# **Progressive Rehabilitation Report**

**For**

**Fatima (Texmont, New Texmont) Mine Site  
(AMIS# 00039)**

**Vent Raise  
South of Timmins, ON**

**Submitted under Section 139.1 (1) of the Mining  
Act and Part 1 of the Mine Rehabilitation  
Code of Ontario**

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**1.0 Proponent:**

Fletcher Nickel Inc.  
141 Adelaide Street West, Suite 420  
Toronto, ON  
M5H 3L5

**2.0 Site Name and Location:**

The Fatima (Texmont, New Texmont) Mine site, situated in Bartlett and Geikie Townships is located approximately 35 kilometers south of the city of Timmins, Ontario via Pine Street South to the upper end of the Lower Scott Lake. Upon arrival to the access route and travelling eastward for approximately 5 kilometers leads to the Fatima (Texmont, New Texmont) Mine Site vent raise as per the coordinates below.

UTM NAD 83 Co-ordinates: E 484854 (NAD83-U17)  
N 5334599 (NAD83-U17)

**3.0 Authorized Contact Person:**

Joerg Kleinboeck  
Vice President Exploration  
Fletcher Nickel Inc.  
141 Adelaide Street West, Suite 420  
Toronto, ON  
M5H 3L5  
Tel. 1-705-358-1139  
[joerg@ontera.net](mailto:joerg@ontera.net)

**4.0 Rehabilitation Contractors / Engineers:**

Consultants:

Rivard Engineering (Structural)  
1687978 Ontario Limited  
P.O. Box 223  
2090 Riverside Drive  
Timmins, Ontario  
P4N 7C9  
Tel: 1-705-268-5501  
Fax: 1-705-268-5502

Contractor:

Gorf Contracting Limited  
6855 Hwy. 101 East Porcupine, ON  
P0N 1C0  
Tel: 1-705-235-3278  
Fax: 1-705-235-2625  
Email: info@gorfcontracting.com

**5.0 Rehabilitation:**

Background:

In 1959 Fatima Mining Company Limited began sinking a shaft down to the 240m level. Mining and exploration then continued through to 1972 when active mining operations ceased.

One specific concern to date, remedied as of September 13, 2012, has been the vent raise opening located at the north part of the Fatima (Texmont, New Texmont) Mine Site. At the time of the inspection site visit, the Fatima (Texmont, New Texmont) Mine Site was not secured and it was noted that a geocache (public GPS treasure hunt) site was located at the vent raise opening location. The vent raise was covered with a fractured concrete slab which could be moved. As such, the opening to surface had not been protected from access and presented a risk to public safety.

5.1 Details:

A new reinforced concrete cap, constructed as prescribed by the Mining Act as outlined in Schedule 1, Part1, Section 3 of the Mine Rehabilitation Code of Ontario, was constructed above the existing concrete vent raise collar and tied into the perimeter of the collar. A copy of the as built drawing of the cap, complete with a 76 mm (3”) diameter monitoring pipe is enclosed in Appendix B. Construction of the cap was completed on September 13, 2012.

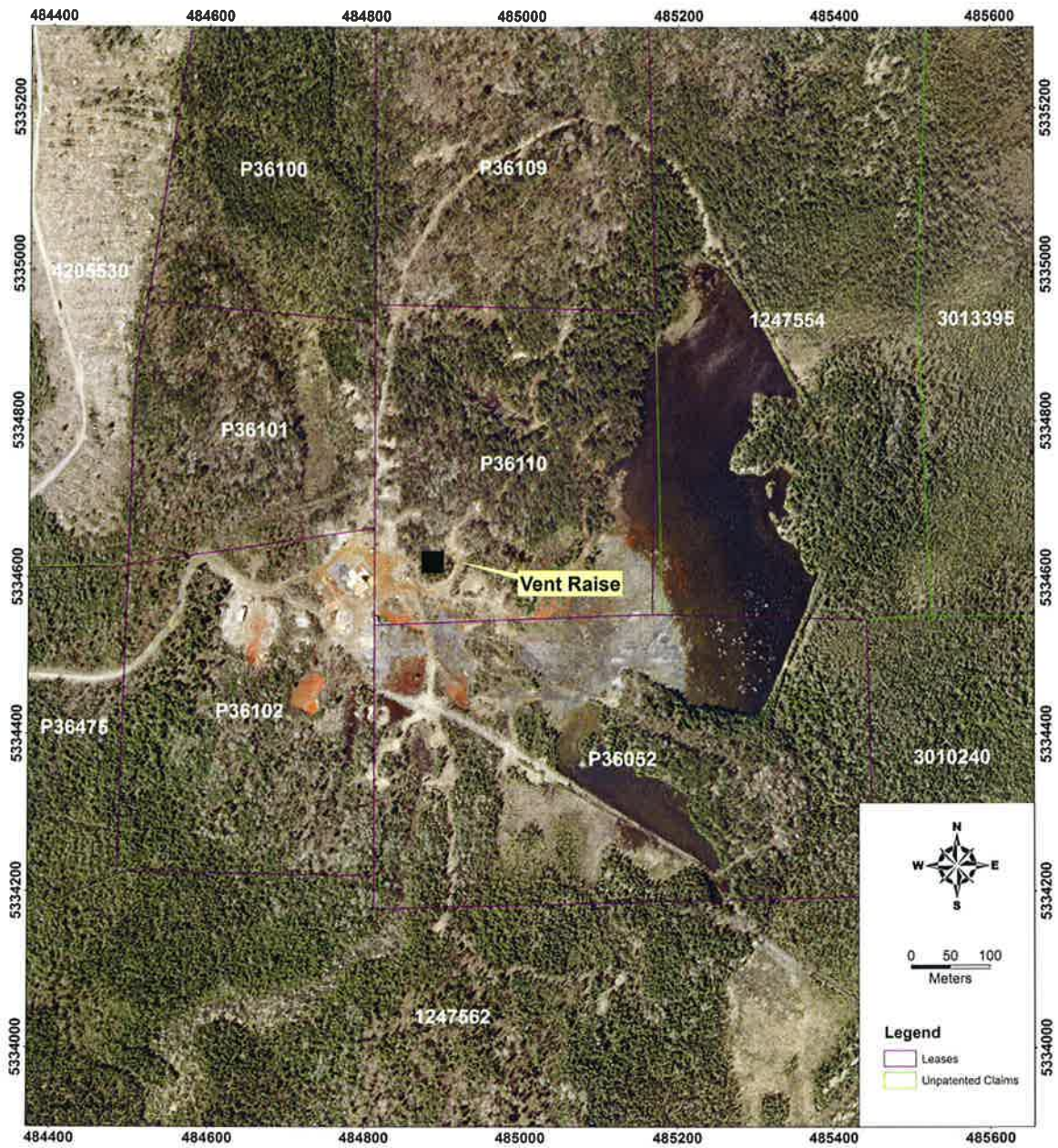
Concrete was tested by EXP, with 28 day compressive strengths ranging from 30.5 MPa to 37.5 MPa, for a resultant strength greater than 30 MPa. Test report is included in Appendix “C”.

Conclusions:

Rivard Engineering as the structural designer reviewed and inspected the cap throughout the construction process.

- 1- The new cap was designed and constructed by/under the supervision of a professional engineer registered in the Province of Ontario.
- 2- The reinforced concrete cap was designed and constructed in accordance with The Mining Act, Ontario Regulation 240/00, as outlined in Schedule 1 of the Mine Rehabilitation Code of Ontario.
- 3- The 34 MPa concrete strength is greater than the required 30 MPa, therefore is acceptable.

## 6.0 Location Map:



**7.0 Monitoring Program:**

Yearly inspections should be completed at this location by a competent person for distress to the new concrete cap (signs of movement or damage) and to ensure that the requirement to prevent inadvertent access has been achieved. As well, inspections should confirm no tampering or blockage in the pipe.

We trust that the above will clearly convey the relevant data with respect to the Fatima (Texmont, New Texmont) Mine Vent Raise cap rehabilitation located south of Timmins, ON.

Sincerely,



Ron Mann, P.Eng.,  
Structural Engineer  
Rivard Engineering

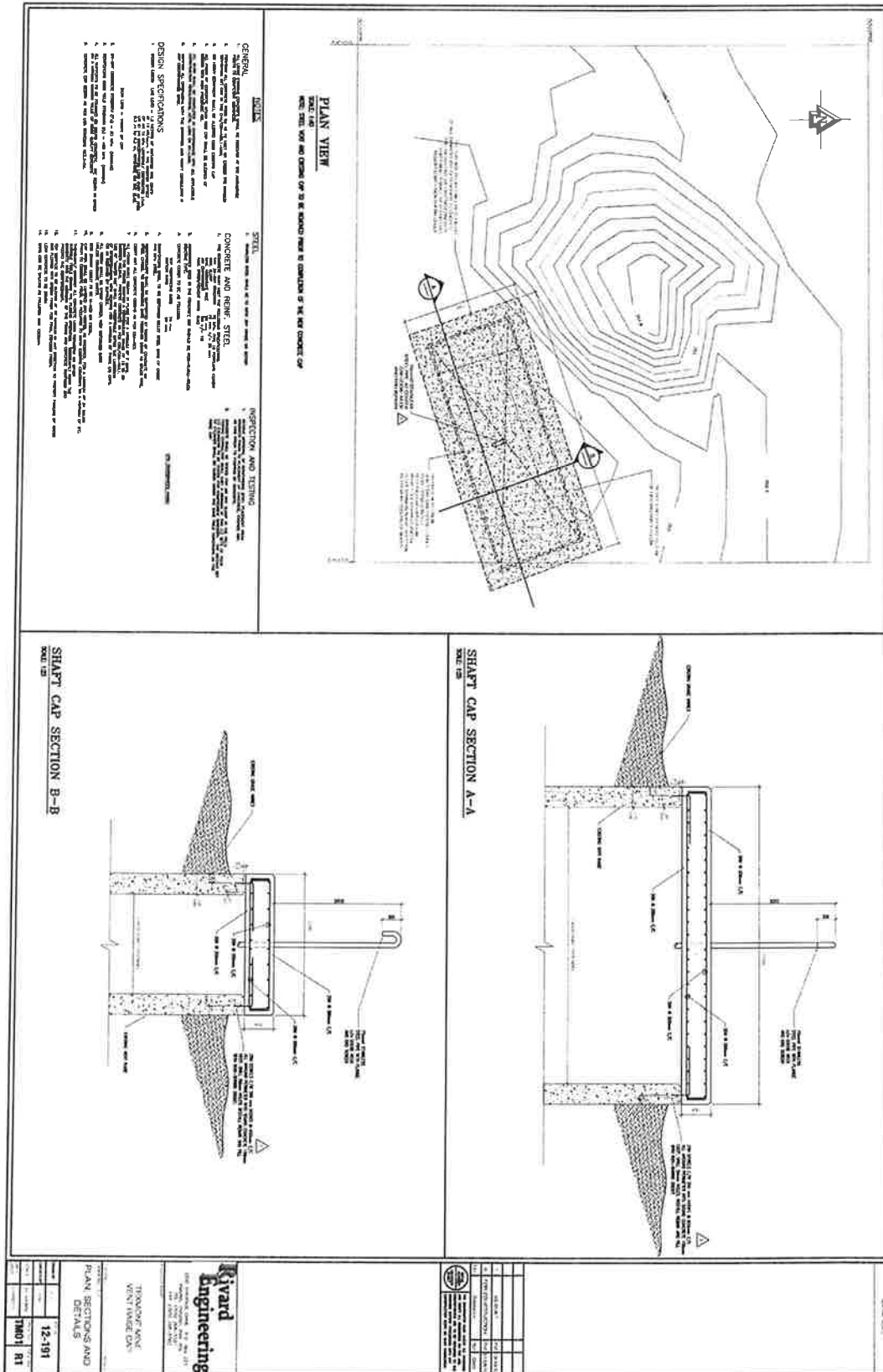


# **Appendix**

## **A**

# **Rivard Engineering Drawings**

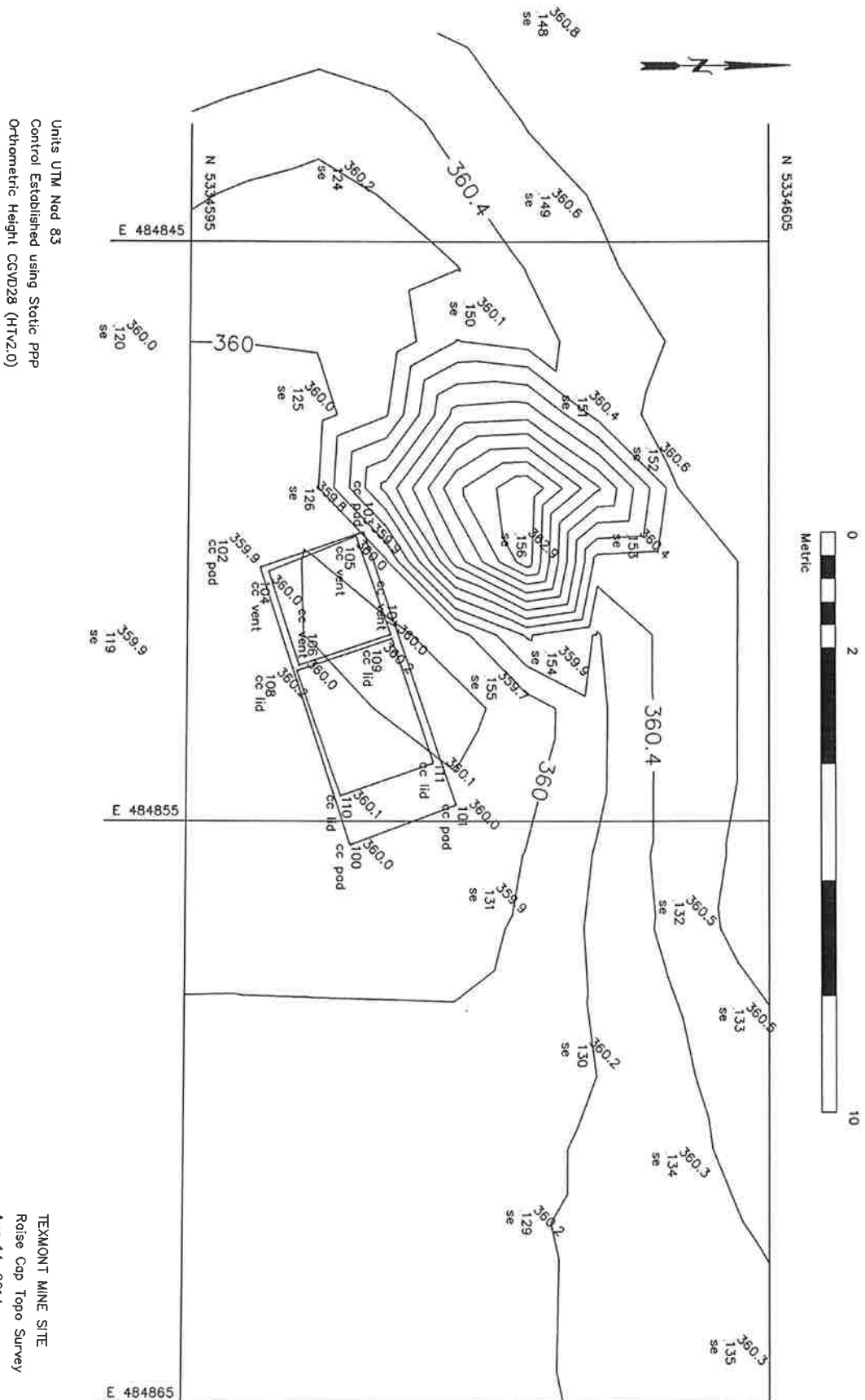




## **Appendix**

### **B**

## **Talbot Location Survey**



Units UTM Ncd 83  
Control Established using Static PPP  
Orthometric Height CGVD28 (HTV2.0)

TEXMONT MINE SITE  
Raise Cap Topo Survey  
Aug 14, 2014  
Tabbot Surveys Ltd.

# **Appendix**

## **C**

### **Concrete test results**



690 River Park Road, Suite 401  
 Timmins, Ontario  
 P4P 1B4  
 Telephone: (705) 268.4351  
 Facsimile: (705) 264.5125

**COMPRESSIVE STRENGTH CYLINDER TEST REPORT**

LAB NO.	BET NO.	DATE CAST	DATE RECEIVED IN LABORATORY	DATE TESTED	* T.D.P.	DENSITY kg/m <sup>3</sup>	SPECIFIED 28 DAY STRENGTH	7 DAY STRENGTH MPa	14 DAY STRENGTH MPa	28 DAY STRENGTH MPa
484A	L	Sept. 13, 2012	Sept. 15, 2012	Sept. 20, 2012	1	2320	32	25.5		
484B	L	Sept. 13, 2012	Sept. 15, 2012	Sept. 27, 2012	1	2302	32		32.9	
484C	L	Sept. 13, 2012	Sept. 15, 2012	Oct. 11, 2012	1	2301	32			37.5
484D	L	Sept. 13, 2012	Sept. 15, 2012	Oct. 11, 2012	1	2301	32			37.5
484E	F	Sept. 13, 2012	Sept. 15, 2012	Oct. 11, 2012	1	2276	32			30.5
484F	F	Sept. 13, 2012	Sept. 15, 2012	Oct. 11, 2012	1	2304	32			32.2

CONTRACTOR: Rivard Engineering  
 PROJECT: Texmont Mine  
 LOCATION ON STRUCTURE: Vent Raise Shaft Cover  
 CONCRETE SUPPLIER: Custom  
 CYLINDERS CAST BY: Dan Wafer  
 TIME MIXER CHARGED: 10:31 am  
 TYPE OF MOULD USED: Plastic 100 x 200 mm  
 TEMP. OF CONCRETE: 19 °C  
 SPECIFIED AIR %: —  
 WATER ADDED ON THE JOB: —  
 TRUCK NO: 179  
 NOM. SIZE OF AGG: 19mm  
 TYPE OF ADMXTURE: —  
 INITIAL 24 HOUR CURING TEMPERATURES: MAXIMUM: 20.0°C MINIMUM: 3.0°C

OF: exp. Services Inc.  
 TIME CYLINDER CAST: 12:20 pm  
 MEASURED SLUMP: 60 mm  
 AIR TEMPERATURE: 12 °C  
 MEASURED AIR %: 6.2  
 BY WHAT AUTHORITY: —  
 LOAD NO: 73770  
 DRUM COUNT REVS.: —  
 AIR ENT. AGENT: —

Comments: Cylinders 484E and F are field cure cylinders and will be retrieved on October 11, 2012 to be broken.

DIST:

JOB NO. SUD-00012959

7 DAY RESULTS           P            
 14 DAY RESULTS           P            
 28 DAY RESULTS           P          



# **Appendix**

## **D**

# **Photographs**



1. View of original shaft looking north.



2. View of original shaft looking east.



3. View of formwork and rebar prior to pour.



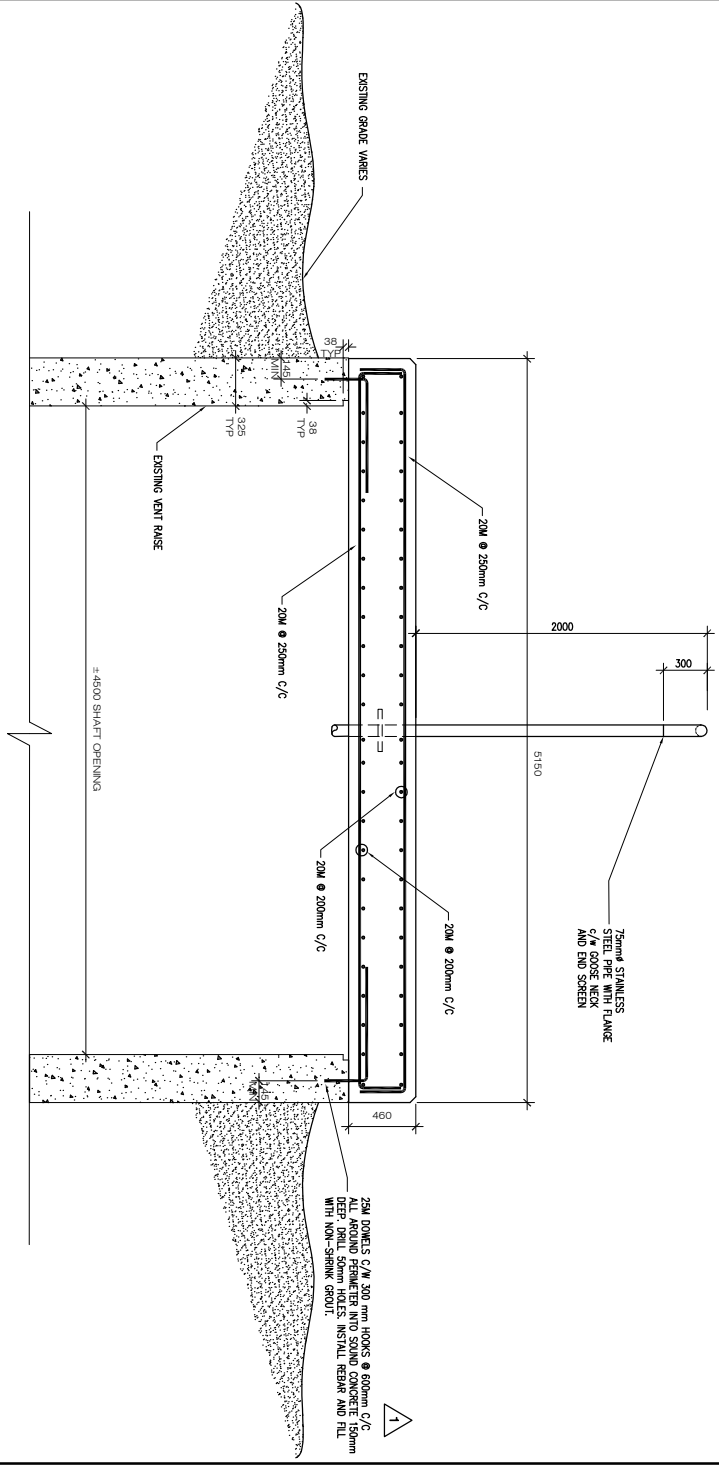
4. Cap dowel installation being completed.



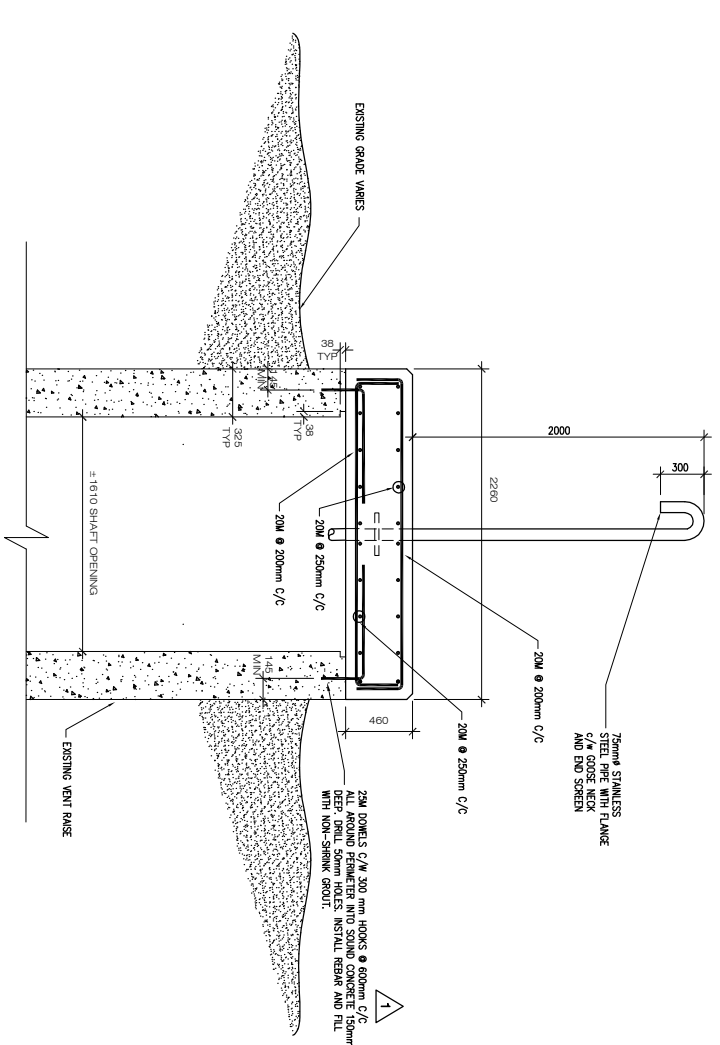


5. Concrete pour and surface finishing is completed.

DATE	2019/03/12	REV. NO.	R1
SCALE	AS SHOWN	DWG. NO.	TM01
DESIGNED BY	EV	PROJECT NO.	12-191
DRAWN BY	RAM	PROJECT NAME	TEKMONT MINE VENT RAISE CAP
CHECKED BY	RAM	PROJECT TITLE	PLAN, SECTIONS AND DETAILS
DATE	2019/03/12	PROJECT NAME	TEKMONT MINE VENT RAISE CAP
SCALE	AS SHOWN	PROJECT TITLE	PLAN, SECTIONS AND DETAILS
DESIGNED BY	EV	PROJECT NO.	12-191
DRAWN BY	RAM	PROJECT NAME	TEKMONT MINE VENT RAISE CAP
CHECKED BY	RAM	PROJECT TITLE	PLAN, SECTIONS AND DETAILS
DATE	2019/03/12	PROJECT NAME	TEKMONT MINE VENT RAISE CAP



SHAFT CAP SECTION A-A  
SCALE: 1:25



SHAFT CAP SECTION B-B  
SCALE: 1:25



PLAN VIEW  
SCALE: 1:40  
NOTE: STEEL VENT AND EXISTING CAP TO BE REMOVED PRIOR TO COMPLETION OF THE NEW CONCRETE CAP

NOTES

- GENERAL**
- ALL EXISTING CONCRETE SHALL BE REMOVED AT THE ANCHORAGE POINTS TO COMPETENT CONCRETE.
  - PERFORM ALL CONCRETE WORK SO AS TO MEET OR EXCEED THE MINIMUM STRENGTHS SET OUT IN THE CAN/CSA-23.1-04.
  - NO HEAVY EQUIPMENT SHALL BE ALLOWED OVER EXISTING CAP.
  - ALL AREAS OF CONCRETE WITHIN NEW CAP SHALL BE CLEARED OF DEBRIS WITH HIGH PRESSURE WATER.
  - ALL AREAS OF CONCRETE WITHIN NEW CAP SHALL BE CLEARED OF CONSTRUCTION REGULATIONS, ETC., LONG OR 87-LINE.
  - CONFORM ALL DIMENSIONS WITH THE DRAWINGS AND NOTIFY CONSULTANT IF ANY DISCREPANCIES EXIST.

DESIGN SPECIFICATIONS

- DESIGN LOADS:** LIVE LOAD = 1.5 KIPERS OF SATURATED SOIL COVER AT 1.9 M/6.6 FT. THE GRAVITY EFFECT OF AN 18 PER UNIFORM DISTRIBUTED LOAD OF 0.3 M BY 0.3 M NUMBERED ON THE SLAB.
- DEAD LOAD = WEIGHT OF CAP**
- 28-DAY CONCRETE STRENGTH (f'c) = 30 MPa (MINIMUM)
  - REINFORCING BARS YIELD STRENGTH (fy) = 400 MPa (MINIMUM)
  - ALL SUPPORTS TO BE PROVIDED ON SOUND CONCRETE. THE DESIGN IS BASED ON A MINIMUM BEARING VALUE OF 6000 KPa QUALITY CONCRETE.
  - CONCRETE CAP DESIGN AS PER CSA STANDARD A23.1-04.

STEEL

- STAINLESS STEEL SHALL BE TO ASTM 304 GRADE OR BETTER

CONCRETE AND REINF. STEEL

- THE CONCRETE AND REINF. SHALL BE TO THE FOLLOWING SPECIFICATIONS:
  - MAX. SLAB THICKNESS: 75 mm
  - MAX. SLAB SPACING: 25 mm
  - MAX. WASTE/CLUMP: 10 mm

INSPECTION AND TESTING

- RECEIVE APPROVAL OF REINFORCING STEEL PLACEMENT FROM THE CONSULTANT PRIOR TO POURING OF CONCRETE.
- CONCRETE SHALL BE TESTED FOR AIR AND SLUMP IN THE FIELD OF FOUR SETS OF CYLINDERS SHALL BE CAST AT A MINIMUM OF THREE (3) DAYS AFTER POURING. THE TESTS SHALL BE CONDUCTED UNDER THE SAME FIELD CONDITIONS AS THE RAISE CAP.

UNIT CONVERSIONS

- REINFORCING STEEL TO BE DETONATED BELT STEEL BARS OF GRADE 400 MPa STEEL.
- REINFORCEMENT SHALL BE SUPPORTED BY MEANS OF CONCRETE OR STEEL CHAIRS. THE REINFORCING BARS TOGETHER USING 18 GAUGE WIRE.
- CARRY OUT ALL CONCRETE CURING AS PER CSA-403.
- ALL FORMS SHALL REMAIN IN PLACE FOR A MINIMUM OF 7 DAYS.
- MINIMUM CURING PERIOD SHALL BE 7 DAYS.
- DESIGNER'S DESIGN SHALL BE PROTECTED BY A MINIMUM OF THREE (3) DAYS OF OPERATIONS, WITH HEAVY FOR A MINIMUM OF THREE (3) DAYS OR AS REQUIRED BY SURVEYOR.
- UNLESS OTHERWISE NOTED.
- NON-SHRINK GROUT TO BE M-BED OR EQUAL.
- FORMS SHALL BE COVERED AND WATERED AS REQUIRED FOR A MINIMUM OF 24 HOURS PRIOR TO REMOVAL.
- THOROUGHLY COMPACT ALL CONCRETE USING VIBRATORS OR OTHER SUITABLE TOOLS DURING THE PLACING OPERATION. THROUGHOUT WORK THE AROUND THE REINFORCEMENT OF THE FORMS AND CONCRETE SURFACES AND TOP SURFACE TO BE STORED AT 1% MINIMUM IN ANY DIRECTION TO PREVENT POOLING OF WATER.
- LEAN CONCRETE TO BE 20mm.
- BARS CAN BE SPACED AS FOLLOWS: 200 x 1200mm.