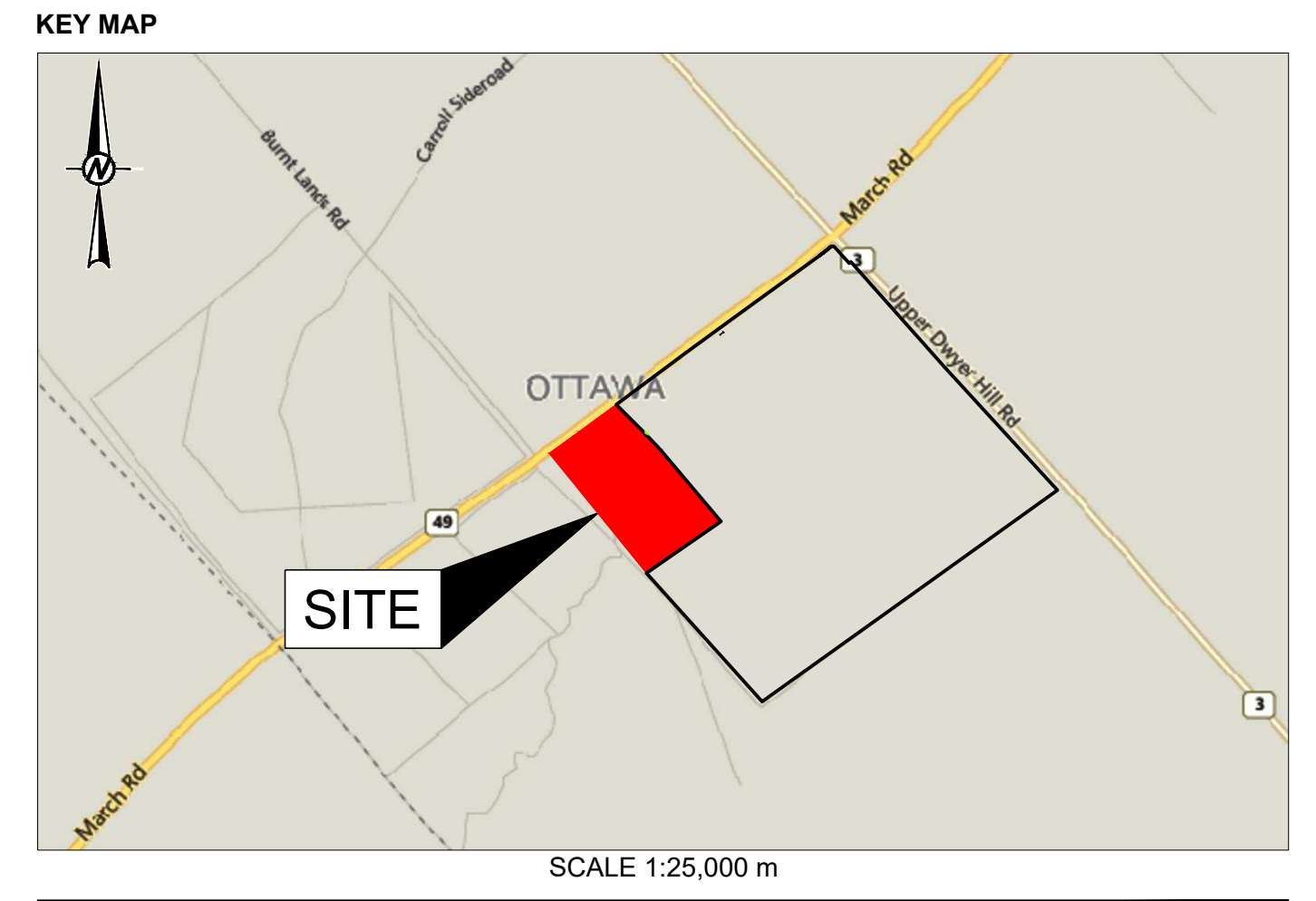


EXISTING FEATURES - GENERAL
SCALE 1:2 mm



WEST CARLETON QUARRY EXTENSION
PART OF LOT 15, CONCESSION 11
FORMER GEOGRAPHIC TOWNSHIP OF HUNTLEY,
CITY OF OTTAWA

APPLICANT:
THOMAS CAVANAGH CONSTRUCTION LIMITED
9094 CAVANAGH ROAD
ASHTON, ONTARIO
K0A 1B0

QUARRY LICENSE NO. _____

- NOTE(S)**
- LICENCED AREA, WEST CARLETON QUARRY EXTENSION 18.2 HECTARES.
 - AREA OF OPERATION, WEST CARLETON QUARRY EXTENSION 16.5 HECTARES.
 - THIS SITE PLAN IS PREPARED FOR SUBMISSION TO THE MINISTRY OF NATURAL RESOURCES AND FORESTRY IN CONJUNCTION WITH AN APPLICATION FOR A CLASS 'A', CATEGORY 2 QUARRY BELOW WATER UNDER THE AGGREGATE RESOURCES ACT AND REGULATIONS.
 - THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
 - LOT, CONCESSION AND BOUNDARY LINES ON THIS PLAN ARE APPROXIMATE.
 - THIS IS NOT A LEGAL SURVEY DRAWING IN ACCORDANCE WITH THE PROVINCE OF ONTARIO SURVEYORS ACT 1987. THIS DRAWING WAS PRODUCED USING STANDARD PHOTOGRAMMETRIC PRACTICES.

- LEGEND**
- BOUNDARY OF AREA TO BE LICENCED
 - LIMIT OF EXTRACTION
 - 120-METRE SURROUND
 - ⊕ BOREHOLE / MONITORING WELL
 - ▲ PRIVATE WELL (AS PER MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS WATER WELL INFORMATION SYSTEM)
 - CON 12, LOT 15
CON 12, LOT 14
--- LOTS AND CONCESSION LINES
 - ME[725r] LAND ZONING BY-LAW
 - H BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE, A-AUTO
 - PAGE WIRE FENCE/GATE
 - UTILITY POLE
 - ▲ PRIMARY ENTRANCE
 - ▲ PRIMARY EXIT

- REFERENCE(S)**
- KEY PLAN: Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.
 - LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2016.
 - CITY OF OTTAWA 2012 TOPO LIDAR TILES.
 - MAPPING AND GROUND CONTROL FOR THE SITE PLAN COMES FROM LAND INFORMATION ONTARIO (LIO) DATA AVAILABLE FROM THE MINISTRY OF NATURAL RESOURCES AND FORESTRY, CITY OF OTTAWA 2012 TOPO LIDAR TILES AND A GROUND SURVEY CONDUCTED BY CAVANAGH IN NOVEMBER 2019. THE BACKGROUND AERIAL IMAGE ON PLAN 1 OF 5 (EXISTING FEATURES - GENERAL) IS FROM THE CITY OF OTTAWA 2017 AERIAL MAPPING AND WAS EXPORTED FROM GEOOTTAWA.
 - PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28.

EXISTING FEATURES - GENERAL (PAGE 1 OF 5)

NOTE: THE NUMBERS BELOW REFER TO AGGREGATE RESOURCES OF ONTARIO: SITE PLAN STANDARDS (AUGUST 2020)

16 EXISTING ZONING

THE EXISTING ZONING OF LAND ON AND WITHIN 120 METRES OF THE SITE IS SHOWN ON THIS PLAN (PAGE 1 OF 5).

CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT
WEST CARLETON QUARRY EXTENSION

TITLE
EXISTING FEATURES - GENERAL

APPLICANT
YYYY-MM-DD 2021-02-17

THOMAS CAVANAGH CONSTRUCTION LIMITED

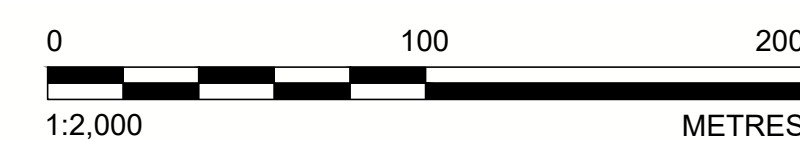
DESIGNED: ---
PREPARED: JM
REVIEWED: JPAO
APPROVED: KAM
PROJECT NO. 1899975 CONTROL 0009 REV. 0 FIGURE 1 OF 5

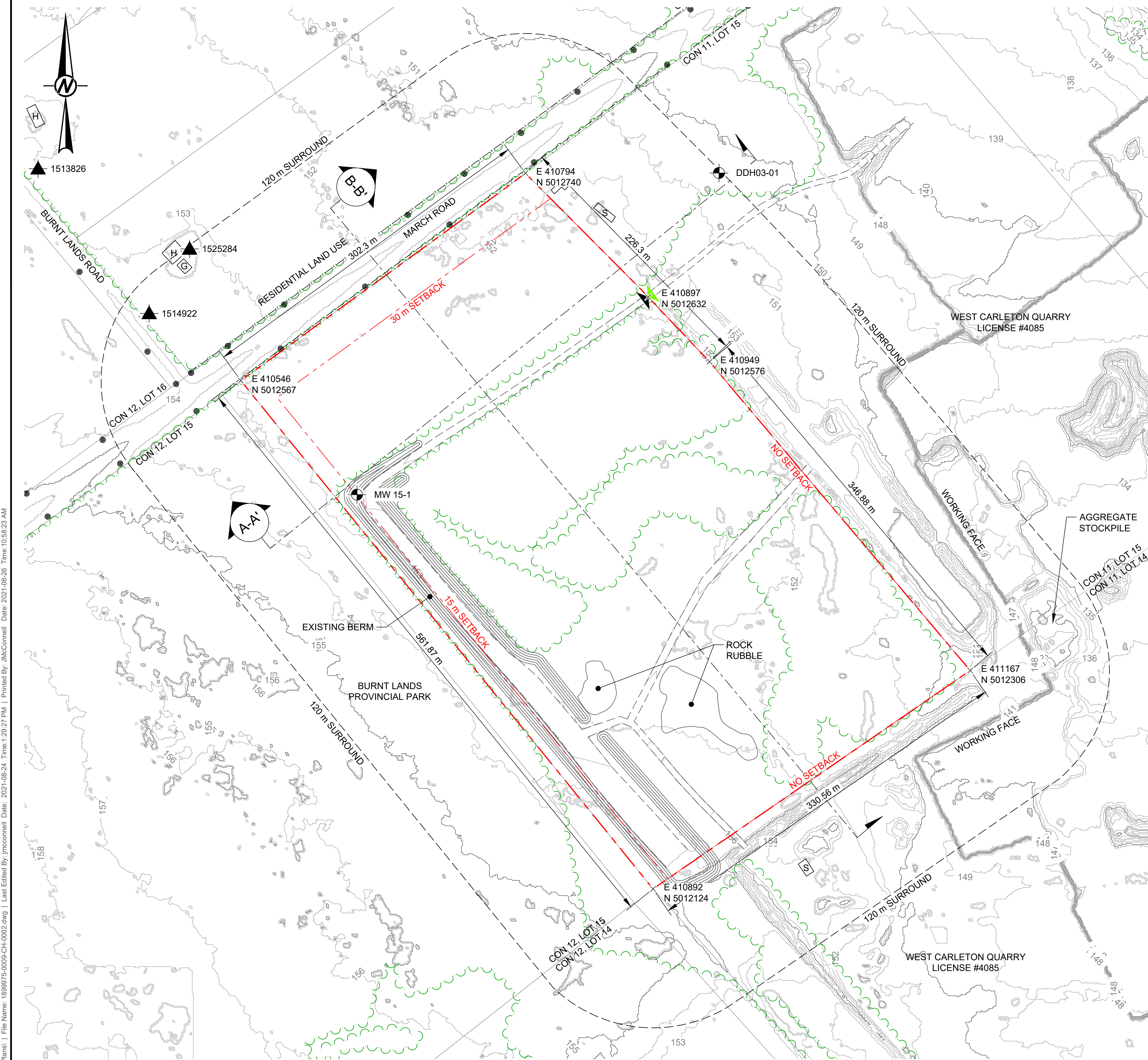
LAND USE / ZONING CITY OF OTTAWA BY-LAW NO. 2008-250 CONSOLIDATION	ENVIRONMENTAL PROTECTION ZONE SUBZONE 3
EP3	MINERAL EXTRACTION ZONE RURAL EXCEPTION 725
ME[725r]	

AMENDMENTS	DATE	APPROVAL DATE
SITE PLANS APPROVED BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY.		
SIGNATURE _____		DATE _____

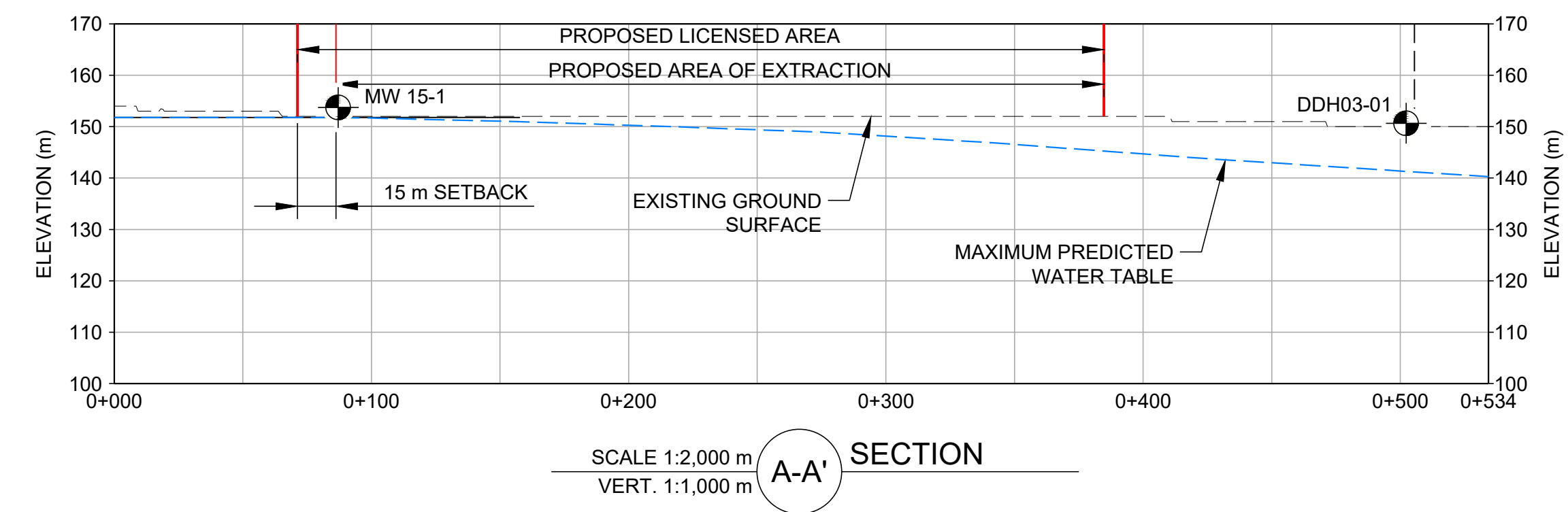


SIGNATURE OF APPLICANT/LICENSEE _____	DATE 2021-08-26
PREPARED UNDER THE DIRECTION OF: JAIME OXTOBEE	DATE 2021-08-26
THOMAS CAVANAGH CONSTRUCTION LIMITED	

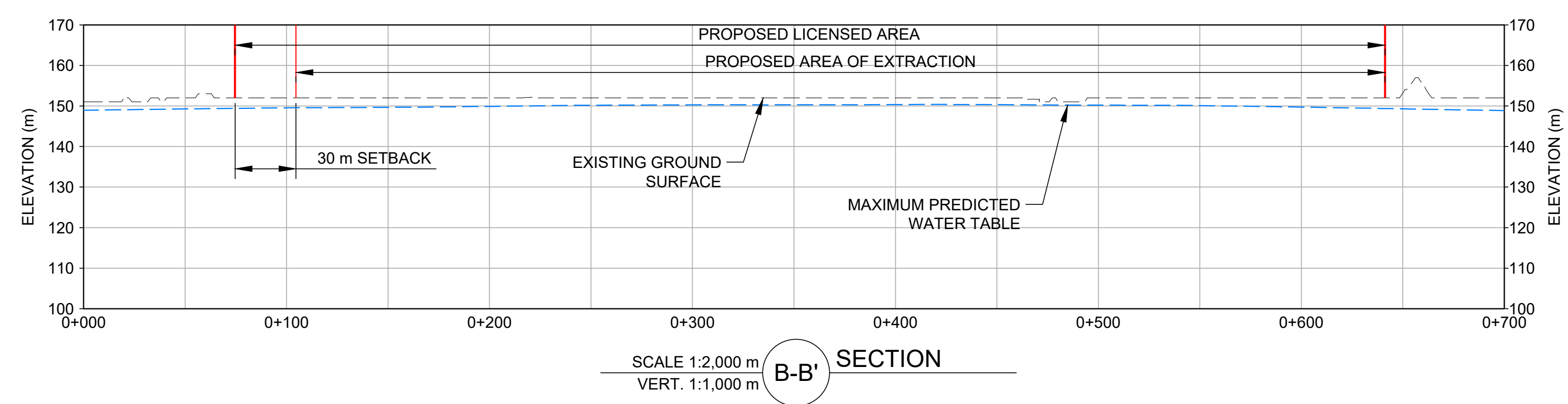




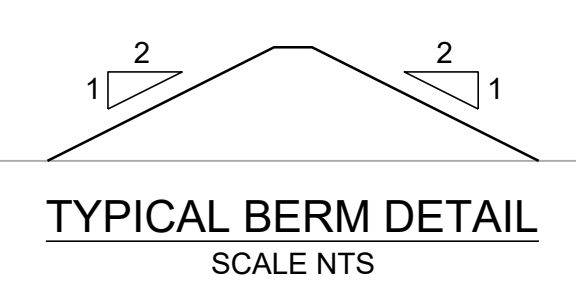
EXISTING FEATURES - SITE
SCALE 1:2,000 m



SCALE 1:2,000 m
VERT. 1:1,000 m
A-A' SECTION



SCALE 1:2,000 m
VERT. 1:1,000 m
B-B' SECTION



TYPICAL BERM DETAIL
SCALE NTS

EXISTING FEATURES - SITE (PAGE 2 OF 5)
NOTE: THE NUMBERS BELOW REFER TO AGGREGATE RESOURCES OF ONTARIO: SITE PLAN STANDARDS (AUGUST 2020)

17 EXISTING LAND USE
TO THE EAST AND SOUTH OF THE SITE, THE EXISTING LAND USE IS AGGREGATE EXTRACTION (CAVANAGH'S WEST CARLETON QUARRY LICENSE NUMBER 4085). TO THE NORTH OF THE SITE BEYOND MARCH ROAD THE LAND USE IS RESIDENTIAL AND THE BURNT LANDS PROVINCIAL PARK IS LOCATED TO THE WEST OF THE SITE. THE EXISTING LAND USE ON THE SITE IS VACANT.

18 MAXIMUM PREDICTED WATER TABLE
BASED ON THE AVAILABLE GROUNDWATER ELEVATION DATA, THE MAXIMUM PREDICTED WATER TABLE WITHIN THE SITE IS 151.8 M ASL ON THE WEST SIDE (AS MEASURED AT MW15-1). BASED ON THE GROUNDWATER ELEVATION DATA MEASURED AT DD03-01 LOCATED JUST EAST OF THE SITE, THE WATER TABLE SLOPES DOWN MOVING FROM WEST TO EAST, AND THE MAXIMUM PREDICTED WATER TABLE ON THE EAST SIDE OF THE SITE IS APPROXIMATELY 143 M ASL. BECAUSE THE HORIZONTAL GROUNDWATER FLOW DIRECTION IS FROM WEST TO EAST ACROSS THE SITE, THE GROUNDWATER ELEVATIONS ARE GENERALLY CONSISTENT IN THE NORTH-SOUTH DIRECTION. THE MAXIMUM PREDICTED WATER TABLE IS SHOWN ON THE EXISTING FEATURES CROSS-SECTIONS ON THIS PLAN (PAGE 2 OF 5).

19 LOCATION OF EXISTING ENTRANCES TO AND EXITS FROM THE SITE
THERE ARE CURRENTLY NO EXTERNAL ENTRANCES/EXITS FOR THE SITE. THE SITE IS ACCESSED THROUGH THE ENTRANCES/EXITS ASSOCIATED WITH THE EXISTING WEST CARLETON QUARRY (LICENSE NUMBER 4085). THE CURRENT INTERNAL ENTRANCE/EXIT POINT FOR THE SITE IS SHOWN ON THIS PLAN (PAGE 2 OF 5).

20 SIGNIFICANT NATURAL FEATURES ON AND WITHIN 120 METRES OF THE SITE
BASED ON BACKGROUND REVIEW AND FIELD SURVEYS, FOUR ENDANGERED OR THREATENED SPECIES AND/OR THEIR HABITAT WERE IDENTIFIED ON-SITE AND/OR WITHIN 120 METRES FROM THE SITE: EASTERN WHIP-POOR-WILL, LITTLE BROWN MYOTIS, EASTERN SMALL-FOOTED MYOTIS, AND BLANDING'S TURTLE. OF THESE SPECIES, ONLY EASTERN WHIP-POOR-WILL WAS DETERMINED TO HAVE HABITAT THAT OCCURS ON THE SITE (APPROXIMATELY 2.2 HECTARES).
THE WOODLANDS IN THE NORTHERN PORTION OF THE SITE ARE CONSIDERED SIGNIFICANT. THE BURNT LANDS ALVAR AREA OF NATURAL AND SCIENTIFIC INTEREST IS LOCATED ON-SITE AND WITHIN 120 METRES OF THE SITE BOUNDARY.

21 SIGNIFICANT HUMAN-MADE FEATURES ON AND WITHIN 120 METRES OF THE SITE
THERE ARE NO SIGNIFICANT HUMAN-MADE FEATURES ON THE SITE. SIGNIFICANT HUMAN-MADE FEATURES WITHIN 120 METRES OF THE SITE INCLUDE THE EXISTING WEST CARLETON QUARRY (LICENSE NUMBER 4085) LOCATED TO THE EAST AND SOUTH OF THE SITE, MARCH ROAD TO THE NORTH OF THE SITE, ONE PRIVATE RESIDENCE LOCATED NORTH OF THE INTERSECTION OF MARCH ROAD AND BURNT LANDS ROAD AND ONE PORTABLE TRAILER OWNED BY CAVANAGH LOCATED ON THE SOUTH SIDE OF MARCH ROAD JUST EAST OF THE SITE ON THE EXISTING WEST CARLETON QUARRY PROPERTY.

22 THE LOCATION AND USE OF ALL BUILDINGS AND STRUCTURES EXISTING ON AND WITHIN 120 METRES OF THE SITE
THERE ARE CURRENTLY NO EXISTING PERMANENT BUILDINGS OR STRUCTURES LOCATED ON THE SITE. WITHIN 120 METRES OF THE SITE THERE IS ONE HOUSE LOCATED ON BURNT LANDS ROAD TO THE NORTH OF THE SITE AND ONE PORTABLE TRAILER OWNED BY CAVANAGH LOCATED ON THE SOUTHWEST SIDE OF MARCH ROAD JUST EAST OF THE SITE ON THE EXISTING WEST CARLETON QUARRY PROPERTY.

23 SITE TOPOGRAPHY
THE EXISTING SITE TOPOGRAPHY, ILLUSTRATED BY A ONE-METRE CONTOUR INTERVAL, EXPRESSED IN METRES ABOVE SEA LEVEL IS PRESENTED ON THIS PLAN (PAGE 2 OF 5).

24 EXISTING SURFACE WATER AND DRAINAGE FACILITIES ON AND WITHIN 120 METRES OF THE SITE
SURFACE WATER FEATURES ON THE SITE ARE LIMITED TO DITCHES ALONG ACCESS ROADS, AND MINOR PONDING IN DISTURBED AREAS AND LOW-LYING AREAS. WATER POOLS AND/OR FLOWS THROUGH THESE FEATURES DURING FRESHET, BUT BASED ON SITE OBSERVATIONS, THESE FEATURES TYPICALLY DRY UP WITH NO FLOW BY THE END OF APRIL OR EARLY MAY. BASED ON TOPOGRAPHY AND SITE OBSERVATIONS, WHEN PRESENT, DRAINAGE FROM THE SITE FLOWS TOWARDS THE EXISTING WEST CARLETON QUARRY AND IS HANDLED AS PART OF THE ONGOING WATER MANAGEMENT FOR THE WEST CARLETON QUARRY.
WITHIN 120 METRES OF THE SITE, SHALLOW ROADSIDE DITCHES EXIST ALONG THE NORTH AND SOUTH SIDES OF MARCH ROAD.

25 LOCATION OF EXISTING TREE COVER
THE EXISTING ON-SITE AND OFF-SITE TREE COVER IS SHOWN ON THIS PLAN (PAGE 2 OF 5). THE NORTHERN HALF OF THE SITE AND THE SOUTHEAST PORTION OF THE SITE ARE TREE COVERED. THE OFF-SITE LANDS TO THE WEST AND NORTH OF THE SITE ARE TREE COVERED.

26 LOCATION/TYPE OF EXISTING FENCING
EXISTING LOCATIONS FOR FENCING AROUND THE SITE ARE SHOWN ON THIS PLAN (PAGE 2 OF 5). PAGE WIRE FENCING EXISTS ON THE NORTHERN LICENSE BOUNDARY ADJACENT TO MARCH ROAD. THERE IS NO FENCING PRESENT ON THE EASTERN AND SOUTHERN BOUNDARIES OF THE SITE, WHICH ARE SHARED BOUNDARIES WITH THE EXISTING WEST CARLETON QUARRY, AND NO FENCING IS PRESENT ALONG THE WESTERN BOUNDARY OF THE SITE.

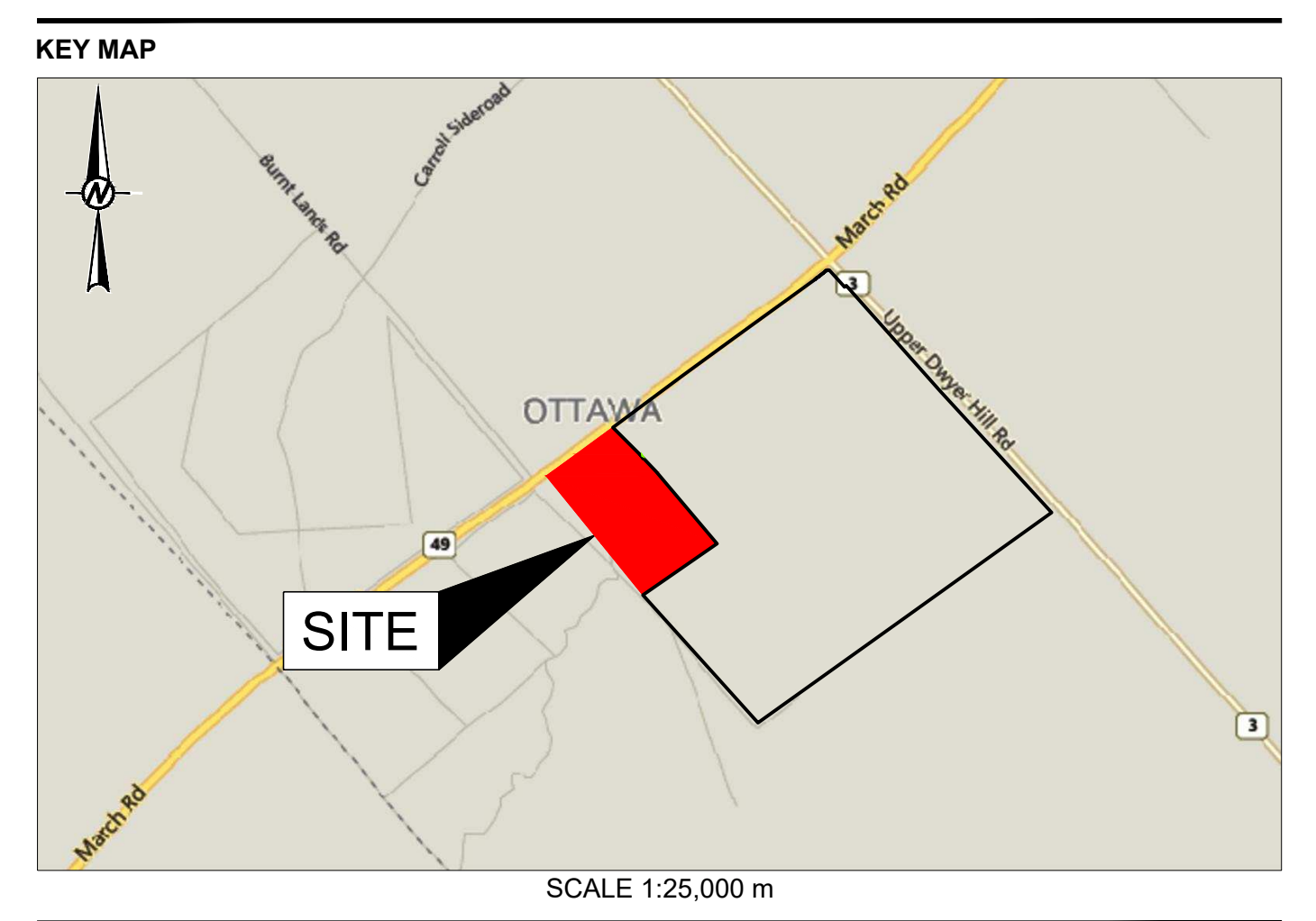
EXISTING FEATURES CROSS-SECTIONS
69 LOCATION OF CROSS-SECTIONS
REFER TO DRAWING (THIS PLAN) FOR LOCATION OF EXISTING FEATURES CROSS-SECTIONS.

70 HORIZONTAL AND VERTICAL SCALES
APPROPRIATE HORIZONTAL AND VERTICAL SCALES ARE MARKED ON THE CROSS-SECTIONS.

71 EXISTING FEATURES CROSS-SECTIONS
TWO EXISTING FEATURES CROSS-SECTIONS ARE PROVIDED ON THE EXISTING FEATURES PLAN (PAGE 2 OF 5).

72 MAXIMUM PREDICTED WATER TABLE
THE MAXIMUM PREDICTED WATER TABLE IS IDENTIFIED ON THE EXISTING FEATURE CROSS-SECTIONS (PAGE 2 OF 5).

73 TYPICAL BERM DESIGN
A CROSS-SECTION OF A TYPICAL BERM DESIGN IS SHOWN ADJACENT TO THE EXISTING FEATURE CROSS-SECTIONS (PAGE 2 OF 5).



WEST CARLETON QUARRY EXTENSION
PART OF LOT 15, CONCESSION 11
FORMER GEOGRAPHIC TOWNSHIP OF HUNTLEY,
CITY OF OTTAWA

APPLICANT:
THOMAS CAVANAGH CONSTRUCTION LIMITED
9094 CAVANAGH ROAD
ASHTON, ONTARIO
K0A 1B0

QUARRY LICENSE NO. _____

- NOTE(S)**
- LICENSED AREA, WEST CARLETON QUARRY EXTENSION 18.2 HECTARES.
 - AREA OF OPERATION, WEST CARLETON QUARRY EXTENSION 16.5 HECTARES.
 - THIS SITE PLAN IS PREPARED FOR SUBMISSION TO THE MINISTRY OF NATURAL RESOURCES AND FORESTRY IN CONJUNCTION WITH AN APPLICATION FOR A CLASS 'A', CATEGORY 2 QUARRY BELOW WATER UNDER THE AGGREGATE RESOURCES ACT AND REGULATIONS.
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 - THIS IS NOT A LEGAL SURVEY DRAWING IN ACCORDANCE WITH THE PROVINCE OF ONTARIO SURVEYORS ACT 1987. THIS DRAWING WAS PRODUCED USING STANDARD PHOTOGRAMMETRIC PRACTICES.

- LEGEND**
- BOUNDARY OF AREA TO BE LICENSED
 - LIMIT OF EXTRACTION
 - 120-METRE SURROUND
 - BOREHOLE / MONITORING WELL
 - PRIVATE WELL (AS PER MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS WATER WELL INFORMATION SYSTEM)
 - CON 12, LOT 15
 - CON 12, LOT 14
 - LOTS AND CONCESSION LINES
 - BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE, A-AUTO
 - PAGE WIRE FENCE/GATE
 - UTILITY POLE
 - ROADSIDE DITCH
 - WOODED AREA
 - CONTOURS/INDEX CONTOURS
 - CROSS-SECTIONS
 - PRIMARY ENTRANCE
 - PRIMARY EXIT

- REFERENCE(S)**
- KEY PLAN: Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.
 - LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENSE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2016.
 - CITY OF OTTAWA 2012 TOPO LIDAR TILES.
 - MAPPING AND GROUND CONTROL FOR THE SITE PLAN COMES FROM LAND INFORMATION ONTARIO (LIO) DATA AVAILABLE FROM THE MINISTRY OF NATURAL RESOURCES AND FORESTRY, CITY OF OTTAWA 2012 TOPO LIDAR TILES AND A GROUND SURVEY CONDUCTED BY CAVANAGH IN NOVEMBER 2019.
 - PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28.



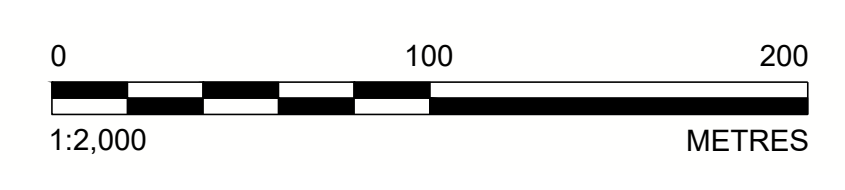
SIGNATURE OF APPLICANT/LICENSEE: *[Signature]* DATE: 2021-08-26
 PREPARED UNDER THE DIRECTION OF: *[Signature]* DATE: 2021-08-26
 JAIME OXTOBEE

THOMAS CAVANAGH CONSTRUCTION LIMITED

AMENDMENTS	DATE	APPROVAL DATE

SITE PLANS APPROVED BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY.

SIGNATURE: _____ DATE: _____



CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

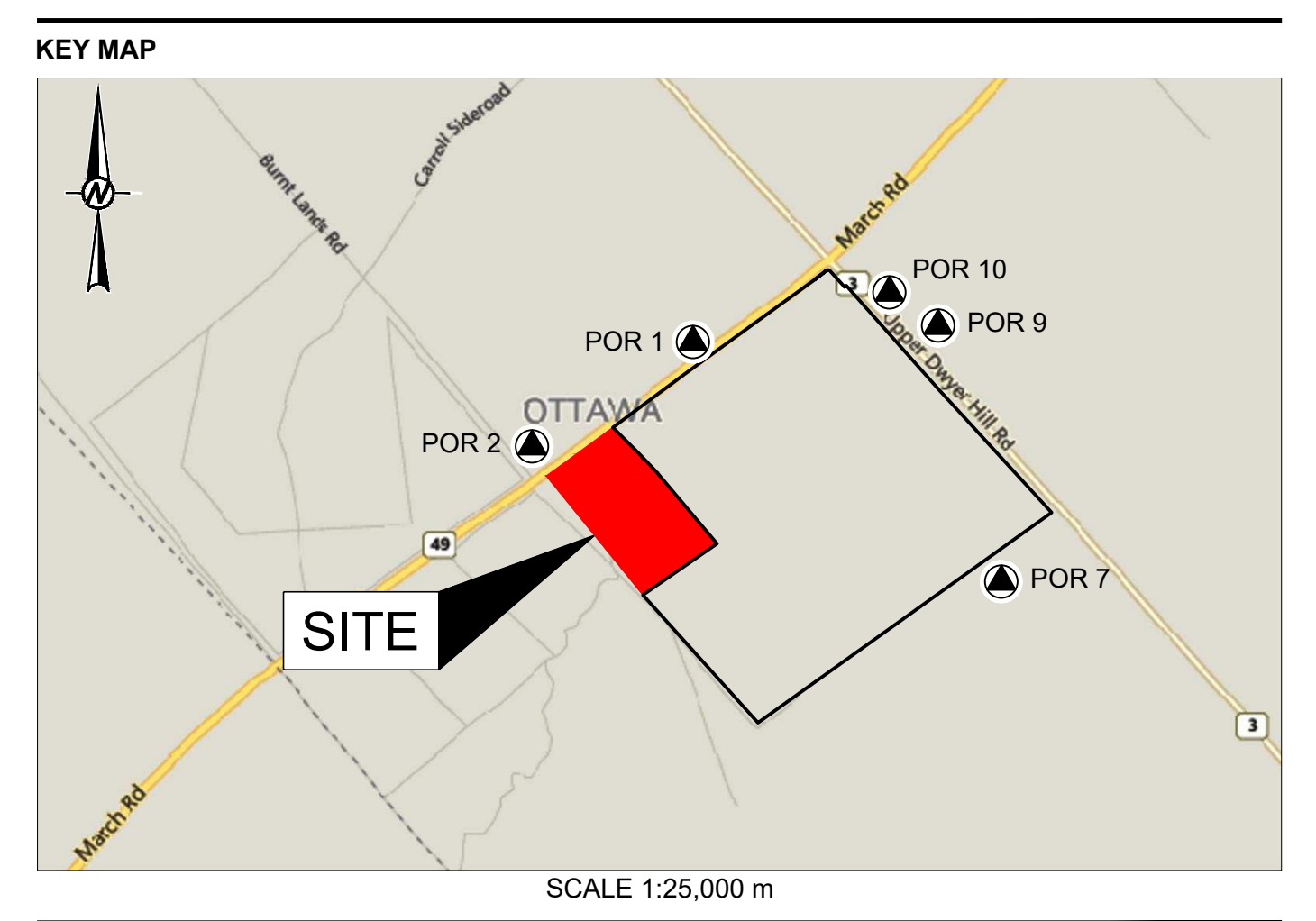
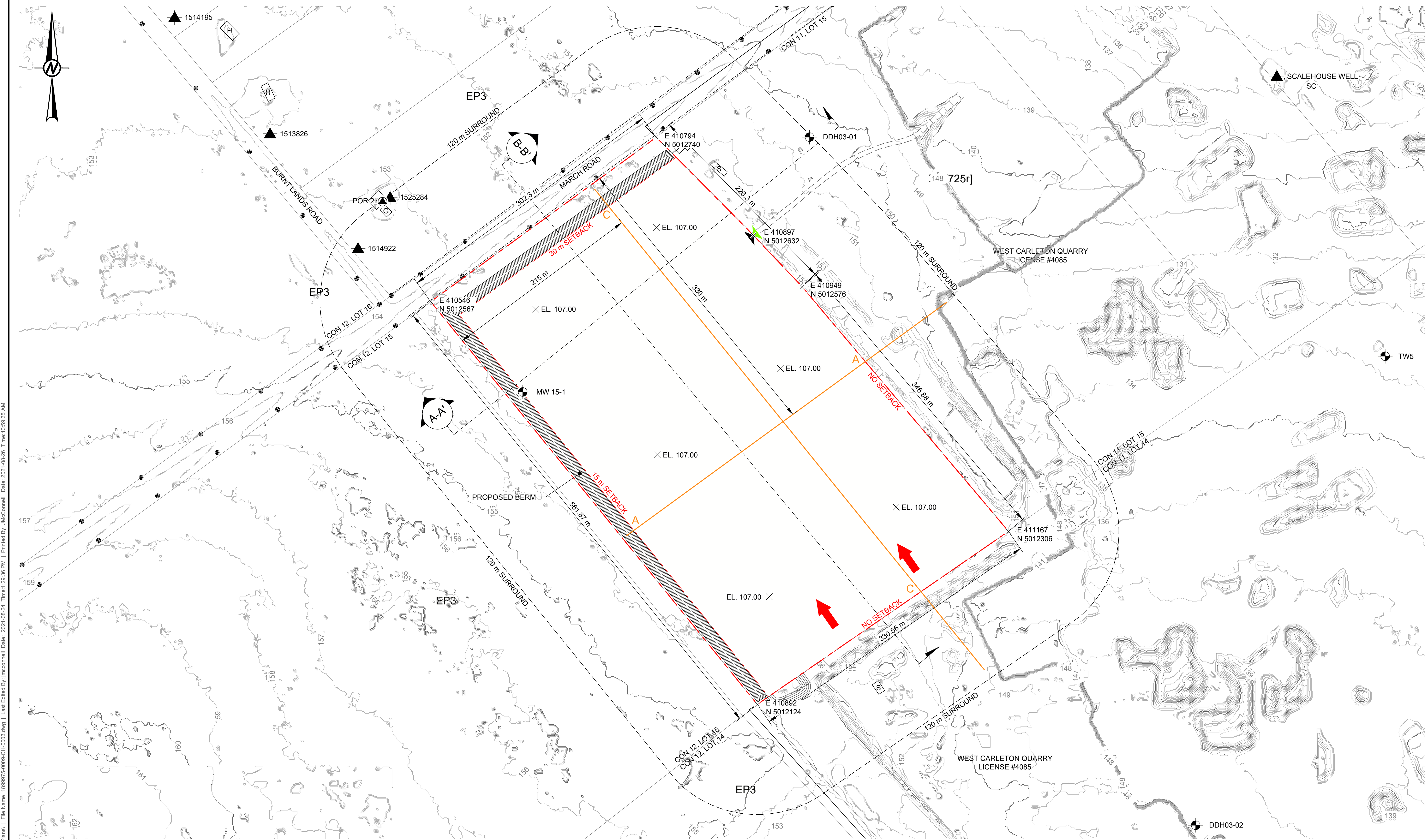
PROJECT
WEST CARLETON QUARRY EXTENSION

TITLE
EXISTING FEATURES - SITE

APPLICANT	YYYY-MM-DD	2021-02-17
DESIGNED	----	----
PREPARED	JM	----
REVIEWED	JPAO	----
APPROVED	KAM	----

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3.



WEST CARLETON QUARRY EXTENSION
 PART OF LOT 15, CONCESSION 11
 FORMER GEOGRAPHIC TOWNSHIP OF HUNTLEY,
 CITY OF OTTAWA

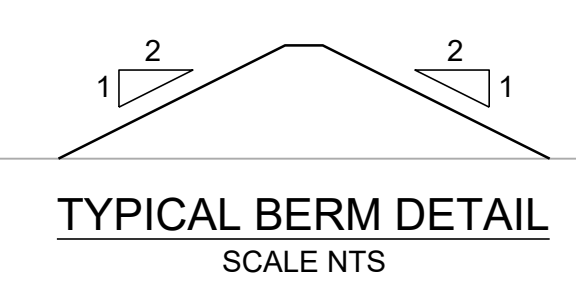
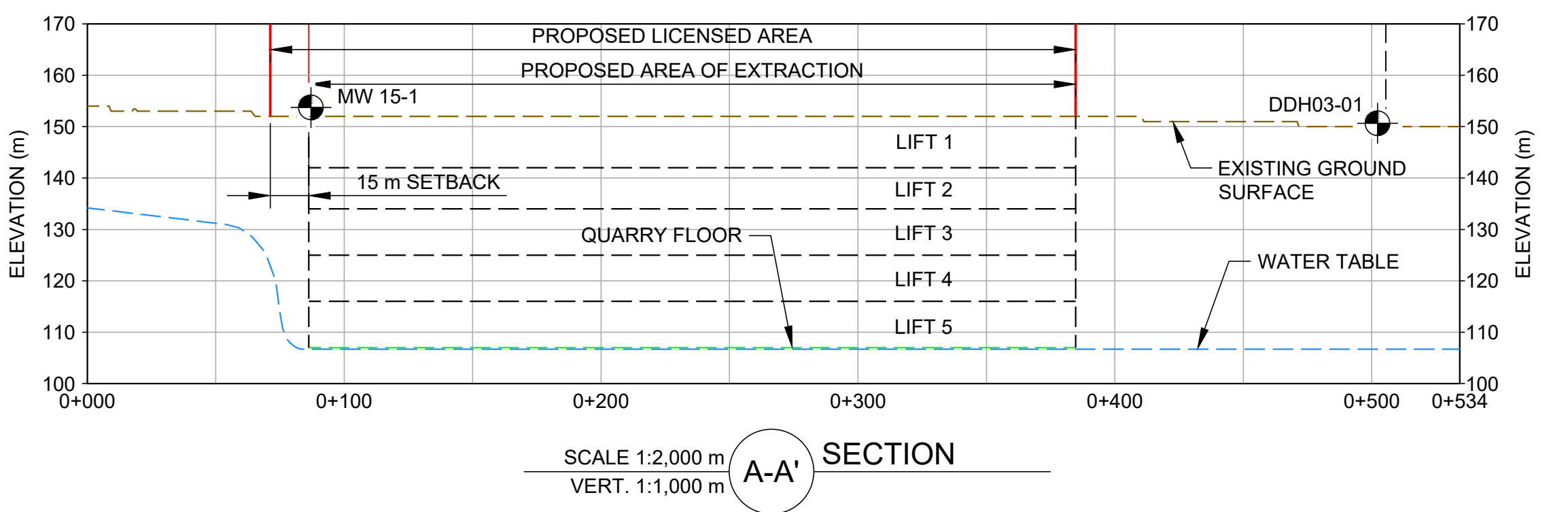
APPLICANT:
 THOMAS CAVANAGH CONSTRUCTION LIMITED
 9094 CAVANAGH ROAD
 ASHTON, ONTARIO
 K0A 1B0

QUARRY LICENSE NO. _____

- NOTE(S)**
- LICENCED AREA, WEST CARLETON QUARRY EXTENSION 18.2 HECTARES.
 - AREA OF OPERATION, WEST CARLETON QUARRY EXTENSION 16.5 HECTARES.
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 - THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
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 - THIS IS NOT A LEGAL SURVEY DRAWING IN ACCORDANCE WITH THE PROVINCE OF ONTARIO SURVEYORS ACT 1987. THIS DRAWING WAS PRODUCED USING STANDARD PHOTOGRAMMETRIC PRACTICES.

- LEGEND**
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 - CON 12, LOT 15
 - CON 12, LOT 14
 - CON 12, LOT 14
 - CON 12, LOT 15
 - CON 12, LOT 14
 - LOT AND CONCESSION LINES
 - BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE, A-AUTO
 - PAGE WIRE FENCE/GATE
 - UTILITY POLE
 - ROADSIDE DITCH
 - WOODED AREA
 - 137
 - CONTOURS/INDEX CONTOURS
 - CROSS-SECTIONS
 - PRIMARY ENTRANCE
 - PRIMARY EXIT
 - GENERAL DIRECTION OF EXCAVATION FOR LIFTS 1 AND 2
 - EL. 107.00
 - PROPOSED QUARRY FLOOR SPOT ELEVATION, mASL
 - POINTS OF RECEPTION (PORs)

OPERATIONS PLAN
 SCALE 1:2,000 m



SIGNATURE OF APPLICANT/LICENSEE: _____ DATE: 2021-08-26

PREPARED UNDER THE DIRECTION OF: _____ DATE: 2021-08-26

DATE: 2021-08-26

THOMAS CAVANAGH CONSTRUCTION LIMITED

AMENDMENTS	DATE	APPROVAL DATE

SITE PLANS APPROVED BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY.

SIGNATURE: _____ DATE: _____

OPERATIONS PLAN - DRAWING (PAGE 3 OF 5)

OPERATIONS CROSS-SECTIONS
 NOTE: THE NUMBERS BELOW REFER TO AGGREGATE RESOURCES OF ONTARIO: SITE PLAN STANDARDS (AUGUST 2020)

69 LOCATION OF CROSS-SECTIONS
 REFER TO DRAWING (THIS PLAN) FOR LOCATION OF OPERATIONS CROSS-SECTIONS.

70 HORIZONTAL AND VERTICAL SCALES
 APPROPRIATE HORIZONTAL AND VERTICAL SCALES ARE MARKED ON THE CROSS-SECTIONS.

71 OPERATIONS CROSS-SECTIONS
 TWO OPERATIONS CROSS-SECTIONS ARE PROVIDED ON THE OPERATIONS PLAN (PAGE 3 OF 5).

72 PREDICTED WATER TABLE UNDER OPERATIONAL CONDITIONS
 DURING OPERATIONS, THE WATER TABLE WITHIN THE DEWATERED SITE AND THE ADJACENT WEST CARLETON QUARRY WILL BE SLIGHTLY BELOW THE QUARRY FLOOR. THE PREDICTED WATER TABLE DURING OPERATIONS IS SHOWN ON THE CROSS-SECTIONS ON THIS PLAN (PAGE 3 OF 5).

73 TYPICAL BERM DESIGN
 A CROSS-SECTION OF A TYPICAL BERM DESIGN IS SHOWN ADJACENT TO THE OPERATIONS CROSS-SECTIONS (PAGE 3 OF 5).

ITEM/OPERATIONAL STANDARD	VARIATION TO OPERATIONAL STANDARDS	RATIONALE
SETBACKS/ 0.13 (1) 10	NO SETBACK ALONG THE EASTERN AND SOUTHERN EDGES OF THE SITE WHERE COMMON BOUNDARIES EXIST WITH THE ADJACENT QUARRY (LICENSE #4085)	REDUCTION OF SETBACK ALONG COMMON BOUNDARY TO ALLOW FOR CONTINUOUS EXTRACTION OF THE EXISTING QUARRY (LICENSE #4085) AND THIS LICENSE.
STOCKPILES OF AGGREGATE, TOPSOIL, OVERBURDEN AND PROCESSING PLANTS/0.13 (1) 13	STOCKPILES OF AGGREGATE, TOPSOIL AND OVERBURDEN AND PROCESSING PLANTS MAY BE LOCATED WITHIN 30 METRES OF THE COMMON BOUNDARY BETWEEN THE SITE AND THE EXISTING QUARRY (LICENSE #4085).	THIS WILL ALLOW FOR STOCKPILES AND PROCESSING WITHIN 30 m OF THE COMMON BOUNDARY AREAS.
TRANSFER OF MATERIAL/0.13 (1) 17 AND 0.13 (1) 18	TOPSOIL AND/OR OVERBURDEN AND/OR AGGREGATE MAY BE TRANSFERRED BETWEEN THIS LICENSE AND EXISTING LICENSE #4085.	THIS WILL ALLOW STRIPPED MATERIAL FROM SITE PREPARATION TO BE USED FOR BERM CONSTRUCTION AND/OR PROGRESSIVE REHABILITATION.
FENCING/ 0.13 (3) (e)	NO FENCING ALONG THE EASTERN AND SOUTHERN BOUNDARIES OF THE SITE WHERE COMMON BOUNDARIES EXIST WITH THE ADJACENT QUARRY LICENSE #4085. NO FENCING ALONG THE WESTERN SITE BOUNDARY WHERE THERE IS AN EXISTING BERM.	FENCING ALONG THE COMMON BOUNDARY WOULD INTERFERE IN THE OPERATION OF THE SITE. THE BERM CURRENTLY PRESENT ALONG THE WESTERN BOUNDARY IS HIGH ENOUGH TO IMPEDE ACCESS TO THE SITE.

- REFERENCE(S)**
- KEY PLAN: Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.
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 - PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28.

CLIENT: THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT: WEST CARLETON QUARRY EXTENSION

TITLE: OPERATIONS PLAN

APPLICANT	DATE
THOMAS CAVANAGH CONSTRUCTION LIMITED	2021-02-17
DESIGNED	JPAO
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

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OPERATION PLAN - NOTES (PAGE 4 OF 5)

OPERATIONS PLAN - NOTES (PAGE 4 OF 5)
NOTE: THE NUMBERS BELOW REFER TO AGGREGATE RESOURCES OF ONTARIO: SITE PLAN STANDARDS (AUGUST 2020)

33 PROPOSED ENTRANCE AND EXIT
 ACCESS TO THE SITE FOR HAULAGE PURPOSES WILL BE FROM UPPER DWYER HILL ROAD AND MARCH ROAD THROUGH THE ENTRANCES/EXITS OF THE EXISTING WEST CARLETON QUARRY. THE CURRENT INTERNAL ENTRANCE/EXIT POINT FOR THE SITE IS SHOWN ON THIS PLAN. THIS ENTRANCE/EXIT POINT TO THE SITE MAY VARY ALONG THE COMMON BOUNDARIES BETWEEN THE SITE AND LICENSE #4085.

ACCESS TO THE SITE WILL BE CONTROLLED BY THE EXISTING GATES ERECTED AND MAINTAINED AT THE ENTRANCES/EXITS OF THE EXISTING WEST CARLETON QUARRY. THESE GATES WILL BE KEPT CLOSED WHEN THE SITE IS NOT IN OPERATION.

34 AREA TO BE EXTRACTED

AREA OF EXTRACTION IS 16.5 HECTARES. THE BOUNDARY OF THE AREA OF EXTRACTION IS SHOWN ON THE OPERATIONS PLAN (PAGE 3 OF 5).

35 PROPOSED FENCING

THE EXISTING FENCING ON THE NORTH SIDE OF THE SITE ALONG MARCH ROAD WILL BE REPAIRED, AS NECESSARY. NO NEW FENCING IS PROPOSED FOR THE SITE. THE EASTERN AND SOUTHERN BOUNDARIES OF THE SITE ARE COMMON BOUNDARIES WITH THE EXISTING WEST CARLETON QUARRY AND NO FENCING IS PROPOSED ALONG THESE BOUNDARIES. THERE IS AN EXISTING BERM ALONG THE MAJORITY OF THE WESTERN PROPERTY BOUNDARY AND NO ADDITIONAL FENCING IS PROPOSED ALONG THIS BOUNDARY.

37 PROPOSED BUILDINGS AND STRUCTURES, SCRAP STORAGE, STOCKPILES AND INTERNAL HAUL ROAD

A. NO BUILDINGS OR PERMANENT STRUCTURES ARE PROPOSED FOR THE SITE.
 B. NO SCRAP WILL BE STORED ON SITE. SCRAP FROM THE SITE WILL BE TEMPORARILY STORED WITHIN THE AREA DESIGNATED ON THE OPERATIONS SITE PLAN FOR THE EXISTING WEST CARLETON QUARRY.
 C. LOCATIONS OF THE AGGREGATE STOCKPILES WILL FOLLOW OPERATION AND THEREFORE VARY ON SITE. STOCKPILES WILL BE LOCATED NO CLOSER THAN 30 METRES TO THE LICENSED BOUNDARY EXCEPT WHERE THERE IS A COMMON BOUNDARY WITH THE EXISTING WEST CARLETON QUARRY. STOCKPILES WILL BE LOCATED NO CLOSER THAN 90 METRES OF RESIDENTIAL LAND USE/LAND ZONED FOR RESIDENTIAL PURPOSES (WITH THE EXCEPTION OF PROPERTY OWNED BY CAVANAGH).
 EXCESS TOPSOIL AND OVERBURDEN MATERIAL WILL BE STOCKPILE WITHIN THE LICENSED AREA AS IT BECOMES AVAILABLE.
 D. INTERNAL HAUL ROADS WITHIN THE EXISTING WEST CARLETON QUARRY WILL BE EXTENDED INTO THE SITE FOLLOWING THE DIRECTION OF EXCAVATION. DUST WILL BE MITIGATED ON SITE: WATER OR ANOTHER PROVINCIALY APPROVED DUST SUPPRESSANT WILL BE APPLIED TO INTERNAL HAUL ROADS AS OFTEN AS REQUIRED TO MITIGATE DUST.

38 LOCATION OF ANY PROPOSED PERMANENT AND/OR TEMPORARY PROCESSING AREA(S) ON THE SITE
 PROCESSING WILL OCCUR IN ACCORDANCE WITH THE ACOUSTIC ASSESSMENT REPORT OF THE SITE PREPARED BY FREEFIELD LTD. AND THE OTHER TECHNICAL REPORTS. PROCESSING AREAS WILL OPERATE BELOW GRADE WITHIN THE EXTRACTION AREA AND FOLLOW ADVANCEMENT OF THE QUARRY FACES.

DUST WILL BE MITIGATED ON SITE. WATER OR ANOTHER PROVINCIALY APPROVED DUST SUPPRESSANT WILL BE APPLIED TO PROCESSING AREAS AS OFTEN AS NECESSARY TO MITIGATE DUST. PROCESSING EQUIPMENT WILL BE EQUIPPED WITH DUST SUPPRESSION OR COLLECTION DEVICES WHERE THE EQUIPMENT CREATES DUST AND IS BEING OPERATED WITHIN 300 METRES OF A SENSITIVE RECEPTOR. PROCESSING EQUIPMENT WILL NOT BE LOCATED WITHIN 30 METRES OF THE LICENSED BOUNDARY.

39 LOCATION OF ANY PROPOSED RECYCLABLE MATERIALS

AGGREGATE STOCKPILES MAY INCLUDE RECYCLABLE MATERIALS AND IMPORTED AGGREGATE MATERIALS REQUIRED FOR BLENDING PROCESSES. LOCATIONS OF THE RECYCLABLE MATERIALS STOCKPILES WILL FOLLOW OPERATION AND THEREFORE VARY ON SITE. STOCKPILES WILL BE LOCATED NO CLOSER THAN 30 METRES TO THE LICENSED BOUNDARY EXCEPT WHERE THERE IS A COMMON BOUNDARY WITH THE EXISTING WEST CARLETON QUARRY. STOCKPILES WILL BE LOCATED NO CLOSER THAN 90 METRES OF RESIDENTIAL LAND USE/LAND ZONED FOR RESIDENTIAL PURPOSES (WITH THE EXCEPTION OF PROPERTY OWNED BY CAVANAGH).

RECYCLING OF CONCRETE AND ASPHALT WILL BE PERMITTED AS AN ACCESSORY ACTIVITY ON THIS SITE. ASPHALT MATERIALS WILL BE STORED AT LEAST 30 METRES HORIZONTALLY AND 2 METRES VERTICALLY FROM ANY WATER SOURCE, ANY REBAR AND OTHER STRUCTURAL METAL REMOVED FROM THE MATERIAL DURING PROCESSING WILL BE STORED IN THE DESIGNATED SCRAP AREA (ON THE EXISTING WEST CARLETON QUARRY SITE) AND WILL BE REMOVED ON AN ONGOING BASIS. RECYCLING ACTIVITIES MUST NOT PRECLUDE OR HINDER THE PROGRESSIVE OR FINAL REHABILITATION REQUIREMENTS OF THIS PLAN. ONCE FINAL REHABILITATION HAS BEEN COMPLETED, ALL RECYCLING ACTIVITIES WILL CEASE AND RECYCLABLE MATERIALS WILL BE REMOVED.

40 SEQUENCE/DIRECTION OF OPERATION

THE SITE WILL BE ACCESSED FROM THE EXISTING WEST CARLETON QUARRY LOCATED IMMEDIATELY TO THE EAST AND SOUTH, AS DESCRIBED IN THE ACOUSTIC ASSESSMENT REPORT, FOR LIFTS 1 AND 2. THE DIRECTION OF EXTRACTION SHALL BE FROM SOUTH TO NORTH, TOWARDS MARCH ROAD. FOR LIFTS 3, 4 AND 5 THE DIRECTION OF EXTRACTION SHALL BE FROM NORTH TO SOUTH, AWAY FROM MARCH ROAD.

41 STRIPPING AND STOCKPILING OF TOPSOIL/OVERBURDEN

TOPSOIL OR OVERBURDEN STRIPPED IN THE OPERATION OF THE SITE WILL STORED IN BERMS WITHIN THE SETBACK ALONG THE WESTERN AND NORTHERN BOUNDARIES OF THE SITE AND WILL BE USED IN THE REHABILITATION OF THE SITE.
 DURING CONSTRUCTION AND EARTH-MOVING OPERATIONS, SEDIMENT CONTROL MEASURES WILL BE PUT IN PLACE TO PREVENT RUNOFF OF SUSPENDED SOLIDS FROM LEAVING THE SITE.

42 EXTRACTION LIFTS

THE EXTRACTION WILL TAKE PLACE IN FIVE LIFTS, WITH THE BOTTOM LIFT REACHING A FINAL ELEVATION OF 107 M ASL AS INDICATED ON THE OPERATIONS PLAN (PAGE 3 OF 5). THE MAXIMUM LIFT HEIGHT WOULD BE NINE METRES. THE APPROXIMATE FLOOR ELEVATIONS OF LIFT 1, LIFT 2, LIFT 3, LIFT 4 AND LIFT 5 ARE 142 M ASL, 134 M ASL, 125 M ASL, 116 M ASL AND 107 M ASL, RESPECTIVELY.

EXTRACTION LIFTS AND BENCH HEIGHTS WILL BE IN COMPLIANCE WITH MINISTRY OF LABOUR REQUIREMENTS. THE QUARRY MAY OPERATE MULTIPLE LIFTS AND BENCHES IN ORDER TO MEET MARKET DEMAND AND/OR CONTRACT REQUIREMENTS FOR SPECIFIC MATERIALS.

43 SURFACE WATER DIVERSION/DISCHARGE

BASED ON TOPOGRAPHY, WATER FROM THE SITE CURRENTLY FLOWS INTO THE EXISTING WEST CARLETON QUARRY. DURING OPERATIONS, THE WATER FROM THE SITE WILL CONTINUE TO DISCHARGE TO THE EXISTING WEST CARLETON QUARRY AND WILL BE HANDLED AS PART OF THE ONGOING WATER MANAGEMENT FOR THE EXISTING WEST CARLETON QUARRY. THE EXISTING WEST CARLETON QUARRY HAS A PERMIT TO TAKE WATER AND ENVIRONMENTAL COMPLIANCE APPROVAL UNDER THE ONTARIO WATER RESOURCES ACT AUTHORIZING THE TAKING AND DISCHARGE OF WATER ASSOCIATED WITH QUARRY OPERATIONS.

44 SOURCE WATER PROTECTION POLICIES

BASED ON GROUNDWATER MODELLING COMPLETED FOR THE MISSISSIPPI VALLEY SOURCE PROTECTION AREA ASSESSMENT REPORT (2011) WHPA-D (5- TO 25-YEAR TIME OF TRAVEL) FOR THE VILLAGE OF ALMONTÉ SUPPLY WELLS WAS MAPPED ON THE LANDS IMMEDIATELY TO THE WEST OF THE SITE AND ON THE SOUTHWESTERN MOST CORNER OF THE SITE. BECAUSE THE NEPEAN FORMATION IS THE PRIMARY SOURCE OF WATER FOR THE ALMONTÉ WELLS, THE WHPAS FOR THE ALMONTÉ WELLS ARE MAPPED WITHIN THE NEPEAN FORMATION.

THE PROPOSED EXTRACTION WITHIN THE EXTENSION LANDS WILL OCCUR WITHIN THE BOBAYGEON AND GULL RIVER FORMATIONS, BENEATH, AND IMMEDIATELY TO THE WEST OF THE SITE THERE IS A SIGNIFICANT SEPARATION BETWEEN THE BOBAYGEON AND GULL RIVER FORMATIONS AND THE DEEPER NEPEAN FORMATION (I.E., THE NEPEAN FORMATION IS AT A DEPTH OF GREATER THAN 80 METRES BENEATH THE BASE OF THE PROPOSED QUARRY WITHIN THE SITE). IN ADDITION, THERE WILL BE NO FUEL STORAGE WITHIN THE SITE. AS SUCH, IMPACTS TO THE GROUNDWATER QUALITY OR QUANTITY AT THE VILLAGE OF ALMONTÉ SUPPLY WELLS AS A RESULT OF THE PROPOSED DEVELOPMENT OF THE SITE IS NOT PREDICTED.

45 PROPOSED FUEL STORAGE AREAS

NO PERMANENT OR TEMPORARY FUEL STORAGE WILL OCCUR AT THE SITE.

46 LOCATION OF ALL EXCAVATION SETBACKS

EXCAVATION SETBACKS INCLUDE A 30-METRE SETBACK ON THE NORTH SIDE OF THE SITE ADJACENT TO MARCH ROAD AND A 15-METRE SETBACK ON THE WESTERN SIDE OF THE SITE. NO SETBACKS ARE PRESENT ON THE SHARED BOUNDARIES WITH THE EXISTING WEST CARLETON QUARRY ON THE EAST SIDE AND SOUTH SIDE OF THE SITE. THE EXCAVATION SETBACKS ARE AS SHOWN ON THE OPERATIONS PLAN (PAGE 3 OF 5).

47 FINAL ELEVATION

THE FINAL FLOOR ELEVATION OF THE SITE IS APPROXIMATELY 107 M ASL AS INDICATED BY THE SPOT ELEVATIONS ON THE OPERATIONS PLAN (PAGE 3 OF 5).

48 PROPOSED BERMS

STORAGE BERMS FOR TOPSOIL AND OVERBURDEN WILL BE LOCATED WITHIN THE SETBACK ALONG THE WESTERN AND NORTHERN BOUNDARIES OF THE SITE. THE BERMS ARE NOT REQUIRED FOR NOISE ATTENUATION, AND THE MINIMUM HEIGHT FOR THE STORAGE BERMS IS 2 METRES.

49 BERM VEGETATION AND MAINTENANCE

EXISTING AND PROPOSED BERMS WILL BE KEPT BACK AT LEAST 3 METRES FROM THE LICENSE BOUNDARY AND WILL HAVE AN APPROXIMATE SLOPE OF 2:1. THE SLOPES WILL BE SEEDED WITH NATIVE VEGETATION TO ENSURE THAT ADEQUATE VEGETATION IS ESTABLISHED AND MAINTAINED TO CONTROL EROSION.

50 METHOD OF EXTRACTION AND EQUIPMENT TO BE USED

THE ROCK MATERIAL AT THE SITE WILL BE EXTRACTION USING DRILLING AND BLASTING TECHNIQUES. THE EQUIPMENT TO BE LOCATED ON SITE WILL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING: LOADERS, DUMP TRUCKS, WATER TRUCKS, TRACTORS, DRILLS, EXCAVATORS, COMPRESSORS, BULLDOZERS, HYDRAULIC DRILLS, BACKHOES, HAULAGE TRUCKS, SCRAPERS, MAINTENANCE/WELDING VEHICLES AND CRUSHING/SCREENING PLANT.
 THE PLANT WILL INCLUDE A CRUSHING OPERATION CONSISTING OF, BUT NOT LIMITED TO, THE FOLLOWING:

- PRIMARY CRUSHER WITH PRIMARY SCREEN
- SECONDARY CRUSHER WITH SECONDARY SCREEN
- ASSORTED CONVEYORS AND CRUSHERS

51 PROPOSED TREE SCREENS

NO ADDITIONAL TREE SCREENS ARE PROPOSED AT THIS TIME. NATURAL TREE SCREENS CURRENTLY EXIST ON THE NORTH AND WEST SIDES OF THE SITE.

52 HOURS OF OPERATION

HOURS OF OPERATION SHALL BE DAILY FROM 7:00 TO 19:00 FOR EXTRACTION AND PROCESSING AND DAILY FROM 7:00 TO 23:00 FOR SHIPPING/DELIVERY. FURTHER DETAILS ARE PROVIDED WITHIN THE RECOMMENDATIONS OF THE ACOUSTIC ASSESSMENT REPORT (SEE RECOMMENDATIONS IN ACOUSTIC ASSESSMENT SECTION FOLLOWING SITE PLAN NOTE 58).

RESPONSES TO EMERGENCIES AND REQUIRED MAINTENANCE IS NOT LIMITED BY THE HOURS OF OPERATION LISTED IN THE ACOUSTIC ASSESSMENT REPORT.

53 TREES AND STUMPS

WITHIN THE AREA TO BE EXTRACTION, ALL TREES WITHIN 5 METRES OF THE EXCAVATION FACE WILL BE REMOVED. ANY TREES PRESENT WITHIN THE EXTRACTION AREA ARE TO BE HARVESTED AND UTILIZED IN THE MOST APPROPRIATE MANNER. SMALL TREES AND STUMPS REMAINING ONSITE WILL BE GROUND UP OR BROKEN DOWN USING AN EXCAVATOR AND MIXED WITH TOPSOIL TO BE UTILIZED DURING REHABILITATION OF THE SITE. LARGE PIECES OF WOOD MATERIAL MAY BE LEFT IN THE REHABILITATED AREAS AS HABITAT STRUCTURE AND COVER FOR SMALL MAMMALS AS WELL AS BASKING AREAS FOR REPTILES AND PERCHING AREAS FOR WATERFOWL.

OPERATION PLAN - NOTES (PAGE 4 OF 5)

54 VARIATIONS FROM OPERATIONAL REQUIREMENTS

REFER TO VARIATIONS FROM OPERATIONAL REQUIREMENTS TABLE ON THE OPERATIONS PLAN (PAGE 3 OF 5).

55 MAXIMUM ANNUAL TONNAGE

THE NUMBER OF TONNES TO BE REMOVED FROM THE SITE IN A CALENDAR YEAR WILL NOT EXCEED 2,000,000. IF THE EXISTING WEST CARLETON QUARRY IS IN OPERATION, THE COMBINED ANNUAL TONNAGE LIMIT FOR THE TWO LICENSES WOULD BE 2,000,000 TONNES.

57 FREQUENCY AND TIMING OF BLASTS

BLASTING WILL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE BLASTING IMPACT ANALYSIS STUDY PREPARED BY EXPLOTECH (SEE RECOMMENDATIONS IN SECTION FOLLOWING SITE PLAN NOTE 58). ALL BLASTS WILL BE MONITORED FOR GROUND VIBRATIONS AND BLAST OVERPRESSURE AND WILL OPERATE TO ENSURE COMPLIANCE WITH CURRENT PROVINCIAL GUIDELINES. ALL BLAST MONITORING REPORTS WILL BE RETAINED BY THE LICENSEE AND MADE AVAILABLE UPON REQUEST BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY.

58 SENSITIVE RECEPTORS WITHIN 500 METRES

THERE ARE A TOTAL OF FIVE (5) SENSITIVE RECEPTORS WITHIN 500 METRES OF THE SITE BOUNDARY. THE TABLE BELOW PROVIDES THE DISTANCE FROM THE SITE BOUNDARY TO THE SENSITIVE RECEPTORS.

LOCATION OF RECEPTOR	DISTANCE TO RECEPTOR (m)	DIRECTION FROM EXTRACTION LIMIT
1616 BURNT LANDS ROAD	135	NORTHWEST
1644 BURNT LANDS ROAD	305	NORTHWEST
1654 BURNT LANDS ROAD	385	NORTHWEST
1674 BURNT LANDS ROAD	480	NORTHWEST
4061 MARCH ROAD	420	NORTH

TECHNICAL REPORT RECOMMENDATIONS AND/OR MONITORING

HYDROGEOLOGY AND HYDROLOGY:

- PRIOR TO THE START OF WATER TAKING FOR THE EXTENSION LANDS, THE PERMIT TO TAKE WATER FOR THE EXISTING WEST CARLETON QUARRY SHALL BE AMENDED TO INCLUDE THE WATER TAKING ASSOCIATED WITH PROPOSED QUARRY EXTENSION AND TO INCREASE THE FREQUENCY OF THE GROUNDWATER AND SURFACE WATER LEVEL MEASUREMENTS FOR LOCATIONS INCLUDED IN THE MONITORING PROGRAM TO MONTHLY.
- THE MONITORING PROGRAM FOR THE SITE SHALL BE COMPLETED IN ACCORDANCE WITH THE PERMIT TO TAKE WATER AND ENVIRONMENTAL COMPLIANCE APPROVAL.
- IN THE EVENT OF A WELL INTERFERENCE COMPLAINT, THE LICENSEE SHALL IMPLEMENT THE COMPLAINTS RESPONSE PROGRAM OUTLINED IN THE HYDROGEOLOGICAL AND HYDROLOGICAL ASSESSMENTS REPORT.

NATURAL ENVIRONMENT:

- ESTABLISH A MINIMUM 30 M SETBACK TO MARCH ROAD AND 15 M ALONG THE WESTERN BOUNDARY OF THE SITE, TO BE CLEARLY DEMARCATED AND RESPECTED. IT IS UNDERSTOOD THAT A BERM WILL NEED TO BE CREATED IN THIS AREA. EXISTING VEGETATION NORTH AND WEST OF THE BERM SHOULD BE RETAINED WHERE FEASIBLE, AND UNVEGETATED AREAS WHERE VEGETATION WAS REMOVED FOR BERM CREATION SHOULD BE REPLANTED, WHERE FEASIBLE.
- NO CLEARING OF VEGETATION WITHIN THE CORE BREEDING BIRD SEASON (APRIL 1 - AUGUST 15) UNLESS A NESTING SURVEY HAS BEEN COMPLETED BY A QUALIFIED BIOLOGIST WITHIN 24 HOURS OF THE CLEARING, AND NO ACTIVE NESTS WERE OBSERVED.
- SURFACE WATER THAT CURRENTLY FLOWS FROM THE WEST, ACROSS THE WETLAND AND OTHER AREAS OF THE SITE, THROUGH THE EXISTING QUARRY, INTO THE PSW, SHOULD BE MAINTAINED.
- PREPARATION OF AN AWARENESS PACKAGE HIGHLIGHTING SAR THAT MAY BE PRESENT AT OR NEAR THE SITE, INCLUDING INFORMATION ON IDENTIFICATION, LEGAL PROTECTION, AND ENCOUNTER PROCEDURES TO BE FOLLOWED IN THE EVENT THAT A SAR OR ANY WILDLIFE IS ENCOUNTERED. THE AWARENESS PACKAGE IS TO BE AVAILABLE AT THE SITE, AND ALL STAFF SHOULD BE MADE AWARE OF THE CONTENT THROUGH SPECIFIC TRAINING.
- STANDARD BEST MANAGEMENT PRACTICES TO REDUCE DUST AND NOISE MITIGATION AT THE QUARRY, AS ARE CURRENTLY IMPLEMENTED IN THE ADJACENT OPERATION, WILL BE CONTINUED DURING OPERATION OF THE PROJECT.

ACOUSTIC ASSESSMENT:

NOISE MITIGATION DETAILED IN THIS SECTION APPLIES TO OPERATIONS IN THE EXTENSION AREA.
 THE PREDICTED NOISE IMPACTS WITHIN THE ACOUSTIC ASSESSMENT REPORT ARE BASED ON THE IMPLEMENTATION OF THE FOLLOWING MITIGATION MEASURES.

ASSUMPTIONS:

- THESE MITIGATION MEASURES SHALL APPLY TO THE EXTRACTION OF THE EXTENSION AREA.
- FOR LIFTS 1 AND 2, THE DIRECTION OF EXTRACTION SHALL BE FROM SOUTH TO NORTH, TOWARDS MARCH ROAD.
- FOR LIFTS 3, 4 AND 5 THE DIRECTION OF EXTRACTION SHALL BE FROM NORTH TO SOUTH, AWAY FROM MARCH ROAD.

8.1 NOISE BARRIERS AND BERMS

- NOISE BARRIERS AND BERMS SHALL BE PROVIDED AS PER SECTIONS 8.2 AD 8.3 BELOW.
- NOISE BARRIERS AND BERMS MUST BE SOLID, HAVING NO GAPS, AND MUST HAVE A SURFACE DENSITY OF NO LESS THAN 20 KG/M². EXAMPLES OF SUITABLE BARRIERS OR BERMS ARE AS FOLLOWS:
 - LIFT FACE OR EXISTING TERRAIN;
 - EARTH, GRAVEL OR AGGREGATE BERMS OR STOCKPILES;
 - CONCRETE OR BRICK WALLS;
 - COMMERCIAL NOISE BARRIERS;
 - SHIPPING CONTAINERS OR BUILDINGS;
 - A PORTABLE BARRIER SUCH AS A TRUCK TRAILER EQUIPPED WITH MOVABLE FLAPS TO BLOCK THE SPACE BETWEEN THE GROUND AND THE BOTTOM OF THE TRAILER AND INCREASE HEIGHT IF REQUIRED;
 - NOISE BARRIERS SHIELDING PORTABLE EQUIPMENT MAY BE PROGRESSIVELY ESTABLISHED TO PROVIDE SHIELDING FROM LOCATION OF OPERATION TO THE IDENTIFIED NOISE SENSITIVE POINT OF RECEPTION (POR). THE PORS ASSOCIATED WITH THE EXTENSION AREA (POR 1, POR 2, POR 7, POR 9 AND POR 10) ARE SHOWN ON THE KEY PLAN LOCATED IN THE UPPER RIGHT CORNER OF THE OPERATIONS PLAN.

8.2 ROCK DRILLING:

- THE OPERATION OF A STANDARD HYDRAULIC ROCK DRILL SHALL TAKE PLACE ONLY DURING THE DAYTIME PERIOD (07:00 - 19:00) AND SHALL COMPLY WITH THE FOLLOWING.
 - POINTS OF RECEPTION POR 1, POR 2, POR 9 AND POR 10 MUST BE SHIELDED FROM THE NOISE OF ROCK DRILLING BY A PORTABLE NOISE BARRIER WHEN ROCK DRILLING IS OCCURRING IN THE AREAS AND LIFTS DESCRIBED IN THE FOLLOWING TABLE.
 - THE PORTABLE NOISE BARRIER SHALL BE A MINIMUM 6 M HIGH AND A MINIMUM OF 12 M LONG AND LOCATED NO MORE THAN 5 M FROM THE ROCK DRILL IN THE DIRECTION OF THE SHIELDED POINT OF RECEPTION.
 - IN SOME LOCATIONS, MULTIPLE POINTS OF RECEPTION NEED SHIELDING, HENCE MULTIPLE PORTABLE BARRIERS MUST BE PROVIDED AT THESE LOCATIONS. LINES OF SIGHT TO POINTS OF RECEPTION IN THE TABLE BELOW SHALL BE FULLY SHIELDED FROM ROCK DRILLING.

POINT OF RECEPTION	EXTENSION AREA LIFT 1 (ROCK DRILL AT APPROX 150 MASL)	EXTENSION AREA LIFT 2 (ROCK DRILL AT APPROX 142 MASL)	EXTENSION AREA LIFT 3 (ROCK DRILL AT APPROX 134 MASL)	EXTENSION AREA LIFTS 4 & 5 (ROCK DRILL BELOW APPROX 134 MASL)
POR 1	NORTH OF LINE AA	NORTH OF LINE AA	BARRIER REQUIRED	BARRIER NOT REQUIRED
POR 2	BARRIER REQUIRED	BARRIER REQUIRED	BARRIER REQUIRED	BARRIER NOT REQUIRED
POR 9	EAST OF LINE CC	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED
POR 10	EAST OF LINE CC	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED

8.3 PORTABLE CRUSHING AND SCREENING PLANT AND GENERATOR

- THE OPERATION OF THE PORTABLE CRUSHING AND SCREENING PLANT AND ASSOCIATED DIESEL GENERATOR (CRUSHING PLANT) SHALL TAKE PLACE ONLY DURING THE DAYTIME PERIOD (07:00 TO 19:00) AND SHALL COMPLY WITH THE FOLLOWING:
 - THE CRUSHING PLANT SHALL BE LOCATED ON THE QUARRY FLOOR AT A MAXIMUM ELEVATION OF 142 MASL.
- THE CRUSHING PLANT SHALL BE LOCATED WITHIN 30 M OF THE ADVANCING LIFT FACE SUCH THAT THE LIFT FACE PROVIDES ACOUSTIC SHIELDING AS FOLLOWS:
 - SHIELDING FOR POR 1 AND POR 2 WHEN THE LIFT FACE IS ADVANCING TO THE NORTH, AS IN LIFTS 1 AND 2.
 - SHIELDING FOR POR 7 WHEN THE LIFT FACE IS ADVANCING SOUTH AS IN LIFTS 3, 4 AND 5 WITHIN THE EXTENSION AREA.
- POR 9 AND POR 10 SHALL BE SHIELDED FROM PORTABLE CRUSHING PLANT BY A BARRIER, BERM OR STOCKPILE WHEN REQUIRED AS DETAILED IN THE FOLLOWING TABLE AND LINES SHOWN ON THE OPERATIONS PLAN.
 - THE NOISE BARRIER, BERM OR STOCKPILE SHALL BE A MINIMUM 6 M HIGH AND A MINIMUM OF 30 M LONG AND LOCATED NO MORE THAN 30 M FROM THE PLANT IN THE DIRECTION OF POR 9 AND POR 10. LINES OF SIGHT TO POINTS OF RECEPTION POR 9 AND POR 10 MUST BE FULLY SHIELDED FROM THE PORTABLE CRUSHING PLANT AND THE GENERATOR.

OPERATION PLAN - NOTES (PAGE 4 OF 5)

POINT OF RECEPTION	A BARRIER, BERM OR STOCKPILE MUST SHIELD LINE OF SIGHT FROM THE CRUSHING PLANT AND GENERATOR TO POR 9 AND POR 10 IN THE AREAS DESCRIBED (REFER TO OPERATIONS PLAN FOR LINE LOCATIONS)	EXTENSION AREA LIFT 1 (PLANT AT APPROX 142 MASL)	EXTENSION AREA LIFT 2 (PLANT AT APPROX 134 MASL)	EXTENSION AREA LIFT 3 (PLANT AT APPROX 125 MASL)	EXTENSION AREA LIFTS 4 & 5 (PLANT AT/OR BELOW APPROX 115 MASL)
POR 9	EAST OF LINE CC	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED
POR 10	EAST OF LINE CC	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED	BARRIER NOT REQUIRED

- THE GENERATOR EXHAUST SHALL BE FITTED WITH AN EXHAUST SILENCER WITH MINIMUM INSERTION LOSS GIVEN IN TABLE 9. (THE GENERATOR IS CURRENTLY FITTED WITH AN EXHAUST SILENCER WHICH MEETS THIS REQUIREMENT.)
- THE GENERATOR TRAILER REAR OPENING AND SIDE VENTS SHALL BE FITTED WITH ACOUSTIC LOUVRES THAT MEET THE MINIMUM INSERTION LOSS REQUIREMENTS LISTED IN THE ACOUSTIC ASSESSMENT REPORT. THE LOUVRES SHALL BE CONSTRUCTED OF WEATHER RESISTANT MATERIAL AND FULLY SEAL ALL OPENINGS IN THE GENERATOR TRAILER.

8.4 LOADERS

- DURING THE DAYTIME PERIOD (07:00 TO 19:00): A MAXIMUM OF TWO LOADERS SHALL BE IN OPERATION CARRYING OUT EXTRACTION, STOCKPILING AND LOADING OPERATIONS.
- DURING THE EVENING PERIOD (19:00 TO 23:00): A MAXIMUM OF ONE LOADER SHALL BE IN OPERATION CARRYING OUT STOCKPILING AND LOADING OPERATIONS. EXTRACTION OPERATIONS SHALL NOT OCCUR DURING THE EVENING (19:00 TO 23:00) AND NIGHTTIME (23:00 TO 07:00) PERIODS.

8.5 HIGHWAY TRUCKS

- THE LOADING AND SHIPPING OF PRODUCT USING HIGHWAY TRUCKS SHALL TAKE PLACE ONLY DURING THE DAYTIME (07:00 TO 19:00) AND EVENING (19:00 TO 23:00) PERIODS AND SHALL COMPLY WITH THE FOLLOWING:
 - WHEN OPERATING ON-SITE, HIGHWAY TRUCKS SHALL NOT EXCEED 20 KM/H AND SHALL NOT USE COMPRESSION BRAKING (JAKE BRAKES).

8.6 QUARRY TRUCKS (ROCK TRUCKS)

- THE DELIVERY OF AGGREGATE FINES FROM THE CRUSHING AND SCREENING PLANT AREA TO THE WASH PLANT ON THE ORIGINAL WEST CARLETON QUARRY USING QUARRY TRUCKS SHALL TAKE PLACE ONLY DURING THE DAYTIME PERIOD (07:00 TO 19:00) AND SHALL COMPLY WITH THE FOLLOWING:
 - WHEN OPERATING ON-SITE, HIGHWAY TRUCKS SHALL NOT EXCEED 20 KM/H AND SHALL NOT USE COMPRESSION BRAKING (JAKE BRAKES).

8.7 PORTABLE CONSTRUCTION EQUIPMENT

- PORTABLE CONSTRUCTION EQUIPMENT USED FOR SITE PREPARATION (E.G. LAND CLEARING AND CONSTRUCTION OF BERMS) AND REHABILITATION SHALL COMPLY WITH MECP PUBLICATION NPC-115, CONSTRUCTION EQUIPMENT, AUGUST 1978. (THIS PUBLICATION GIVES NOISE STANDARDS TO BE MET BY CONSTRUCTION EQUIPMENT IN ONTARIO.) SITE PREPARATION AND REHABILITATION ACTIVITIES SHALL TAKE PLACE ONLY DURING DAYTIME HOURS (07:00 - 19:00).

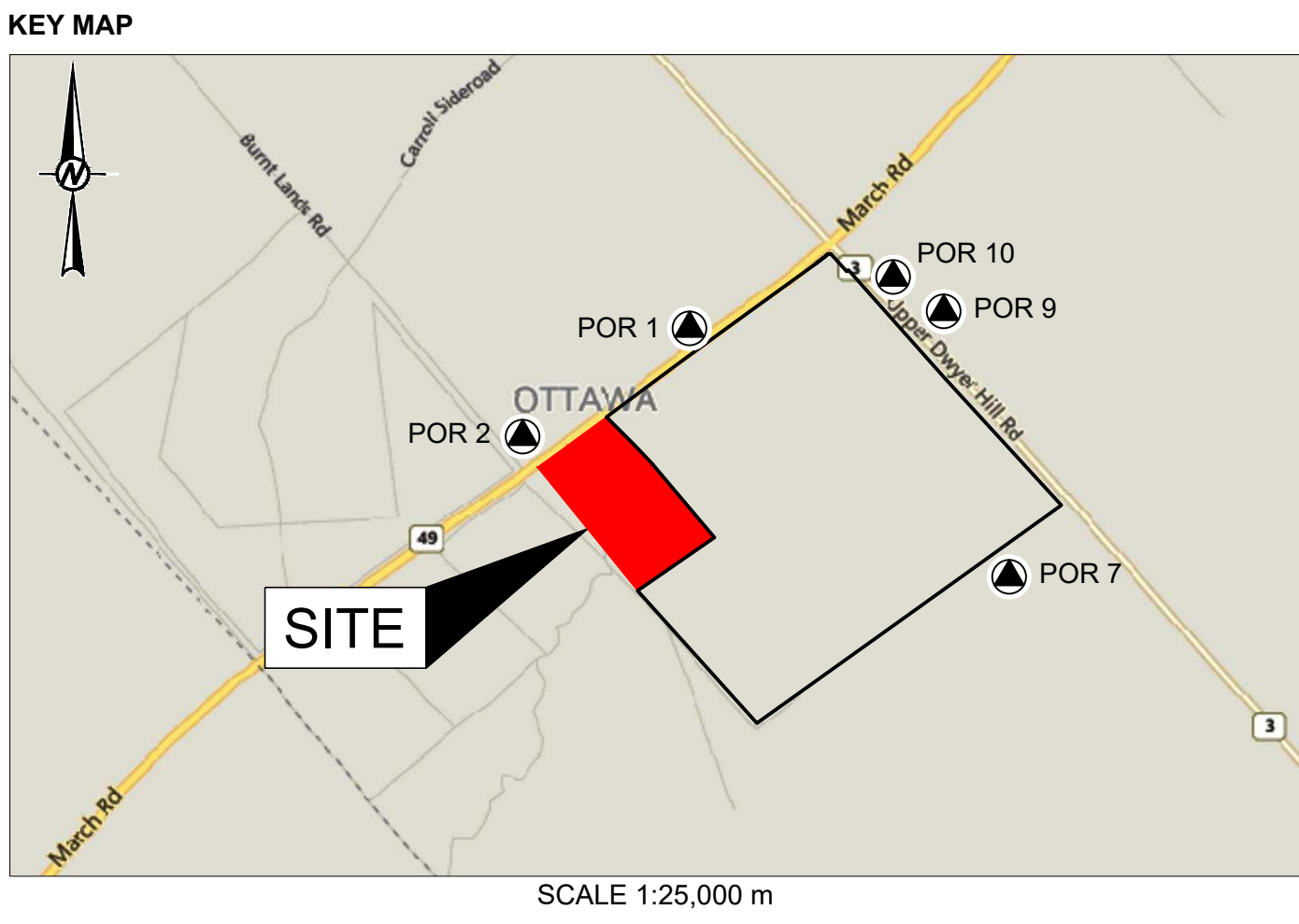
8.8 NEW PROCESS AND ALTERNATIVE EXTRACTION PROCEDURES

- IF A NEW PROCESS OR ALTERNATIVE EXTRACTION PROCEDURE NOT DESCRIBED IN THIS REPORT IS INTRODUCED TO THE SITE, THEN THIS PROCESS OR ALTERNATIVE PROCEDURE SHALL BE ASSESSED BY A QUALIFIED ACOUSTICAL CONSULTANT PRIOR TO IMPLEMENTATION. NOISE MITIGATION MEASURES SHALL BE REVIEWED, AND ALTERED IF NECESSARY, TO ENSURE THAT MECP SOUND LEVEL LIMITS ARE MET AT ALL POINTS OF RECEPTION.

BLASTING IMPACT ANALYSIS:

IT IS RECOMMENDED THAT THE FOLLOWING CONDITIONS BE APPLIED FOR ALL BLASTING OPERATIONS AT THE PROPOSED WEST CARLETON QUARRY EXTENSION AREA.

- ALL BLASTS SHALL BE MONITORED FOR BOTH GROUND VIBRATION AND OVERPRESSURE AT THE CLOSEST PRIVATELY OWNED SENSITIVE RECEPTORS ADJACENT THE SITE, OR CLOSER, WITH A MINIMUM OF TWO (2) INSTRUMENTS - ONE INSTALLED IN FRONT OF THE BLAST AND ONE INSTALLED BEHIND THE BLAST.
- IN ORDER TO SAFEGUARD THE STRUCTURAL INTEGRITY OF NON-SENSITIVE RECEPTORS, WE RECOMMEND THAT VIBRATIONS AT THESE PROPERTIES BE MAINTAINED BELOW 50MM/S (>40HZ) IN ACCORDANCE WITH RESEARCH PERFORMED BY THE UNITED STATES BUREAU OF MINES (USBM R18507).
- THE GUIDELINE LIMITS FOR VIBRATION AND OVERPRESSURE SHALL ADHERE TO STANDARDS AS OUTLINED IN THE MECP MODEL MUNICIPAL NOISE CONTROL BY-LAW PUBLICATION NPC 119 (1978) OR ANY SUCH DOCUMENT, REGULATION OR GUIDELINE WHICH SUPERSEDES THIS STANDARD.
- IN THE EVENT OF AN EXCEEDANCE OF NPC 119 LIMITS OR ANY SUCH DOCUMENT, REGULATION OR GUIDELINE WHICH SUPERSEDES THIS STANDARD, BLAST DESIGNS AND PROTOCOL SHALL BE REVIEWED PRIOR TO ANY SUBSEQUENT BLASTS AND REVISED ACCORDINGLY IN ORDER TO RETURN THE OPERATIONS TO COMPLIANT LEVELS.
- ORIENTATION OF THE AGGREGATE EXTRACTION OPERATION WILL BE DESIGNED AND MAINTAINED SO THAT THE DIRECTION OF THE OVERPRESSURE PROPAGATION WILL BE AWAY FROM STRUCTURES AS MUCH AS POSSIBLE.
- BLAST DESIGNS SHALL BE CONTINUALLY REVIEWED WITH RESPECT TO FRAGMENTATION, GROUND VIBRATION AND OVERPRESSURE. BLAST DESIGNS SHALL BE MODIFIED AS REQUIRED TO ENSURE COMPLIANCE WITH CURRENT APPLICABLE GUIDELINES AND REGULATIONS.
- BLASTING PROCEDURES SUCH AS DRILLING, AND LOADING SHALL BE REVIEWED ON A YEARLY BASIS AND MODIFIED AS REQUIRED TO ENSURE COMPLIANCE WITH INDUSTRY STANDARDS.
- DETAILED BLAST RECORDS SHALL BE MAINTAINED IN ACCORDANCE WITH CURRENT INDUSTRY BEST PRACTICES.

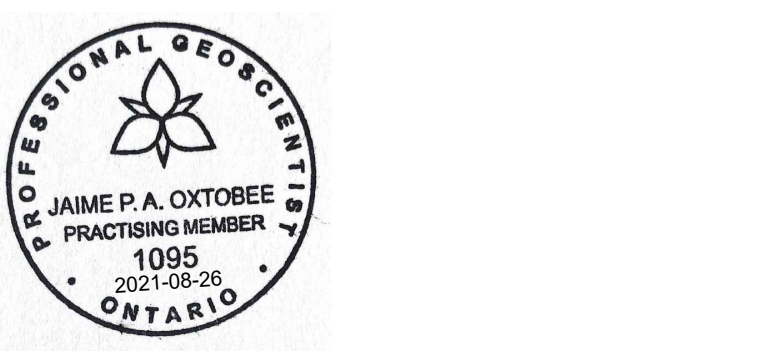


WEST CARLETON QUARRY EXTENSION
 PART OF LOT 15, CONCESSION 11
 FORMER GEOGRAPHIC TOWNSHIP OF HUNTLEY,
 CITY OF OTTAWA

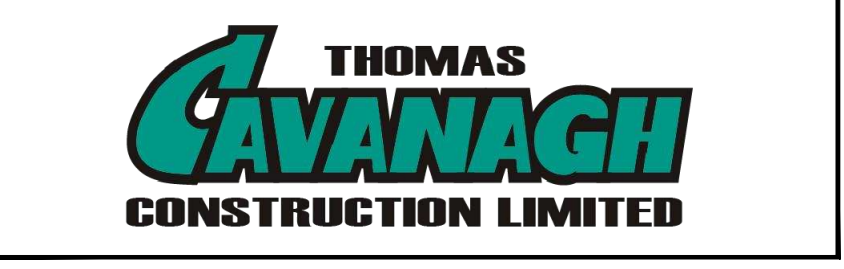
APPLICANT:
 THOMAS CAVANAGH CONSTRUCTION LIMITED
 9094 CAVANAGH ROAD
 ASHTON, ONTARIO
 K0A 1B0

QUARRY LICENSE NO. _____

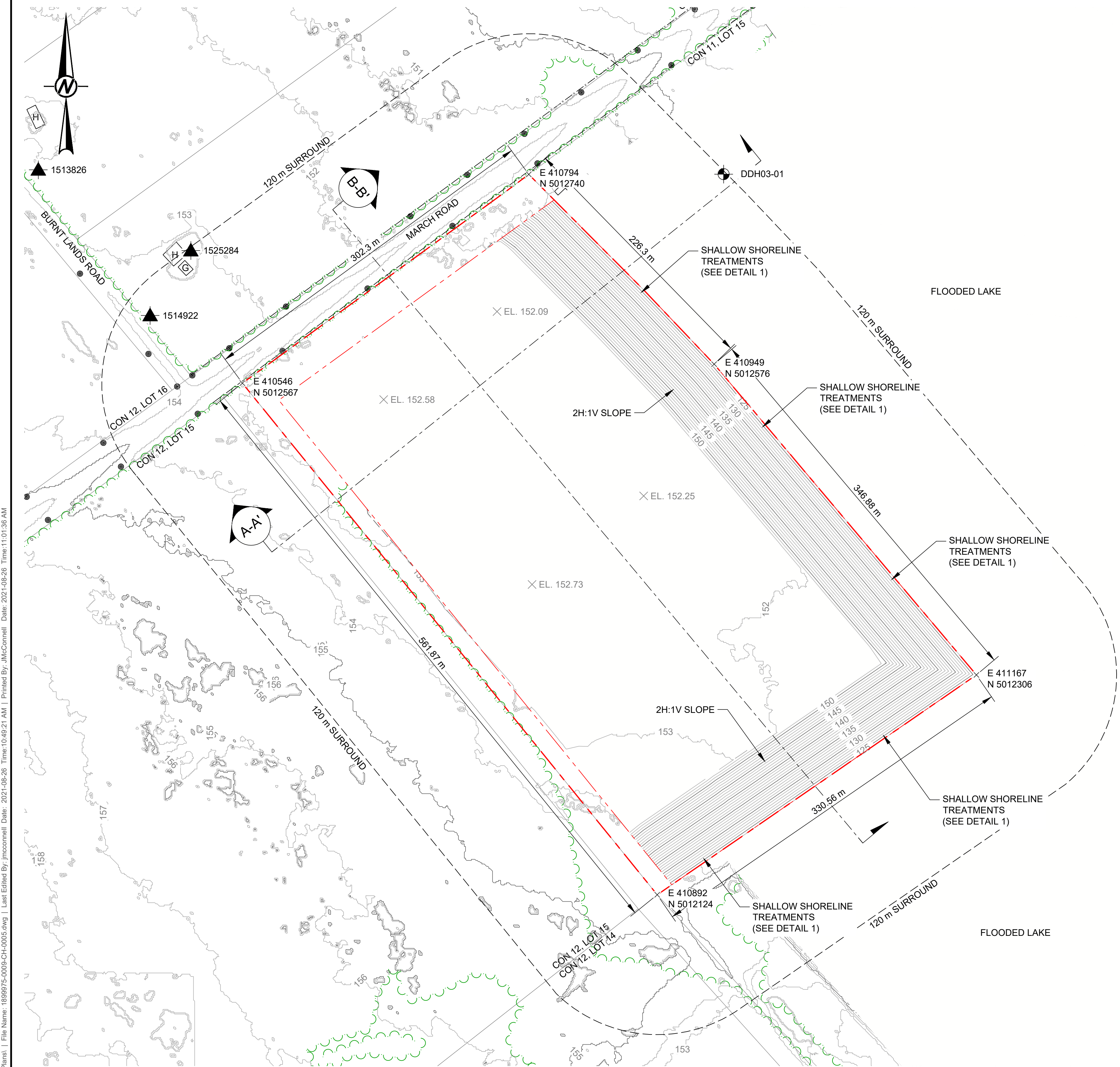
- NOTE(S)**
- LICENSED AREA, WEST CARELTON QUARRY EXTENSION 18.2 HECTARES.
 - AREA OF OPERATION, WEST CARELTON QUARRY EXTENSION 16.5 HECTARES.
 - THIS SITE PLAN IS PREPARED FOR SUBMISSION TO THE MINISTRY OF NATURAL RESOURCES AND FORESTRY IN CONJUNCTION WITH AN APPLICATION FOR A CLASS 'A', CATEGORY 2 QUARRY BELOW WATER UNDER THE AGGREGATE RESOURCES ACT AND REGULATIONS.
 - THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
 - LOT, CONCESSION AND BOUNDARY LINES ON THIS PLAN ARE APPROXIMATE.
 - THIS IS NOT A LEGAL SURVEY DRAWING IN ACCORDANCE WITH THE PROVINCE OF ONTARIO SURVEYORS ACT 1987. THIS DRAWING WAS PRODUCED USING STANDARD PHOTOGRAMMETRIC PRACTICES.



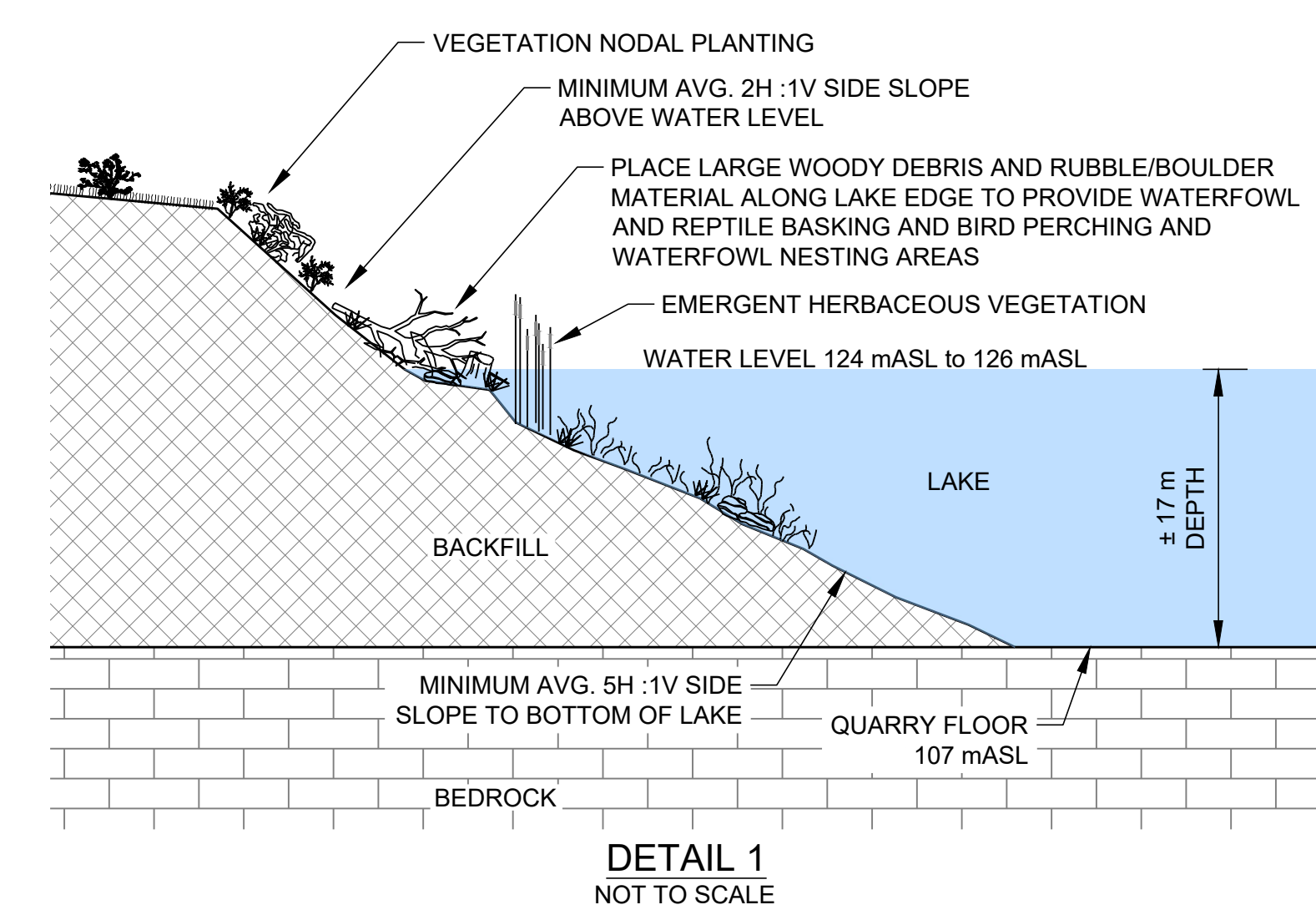
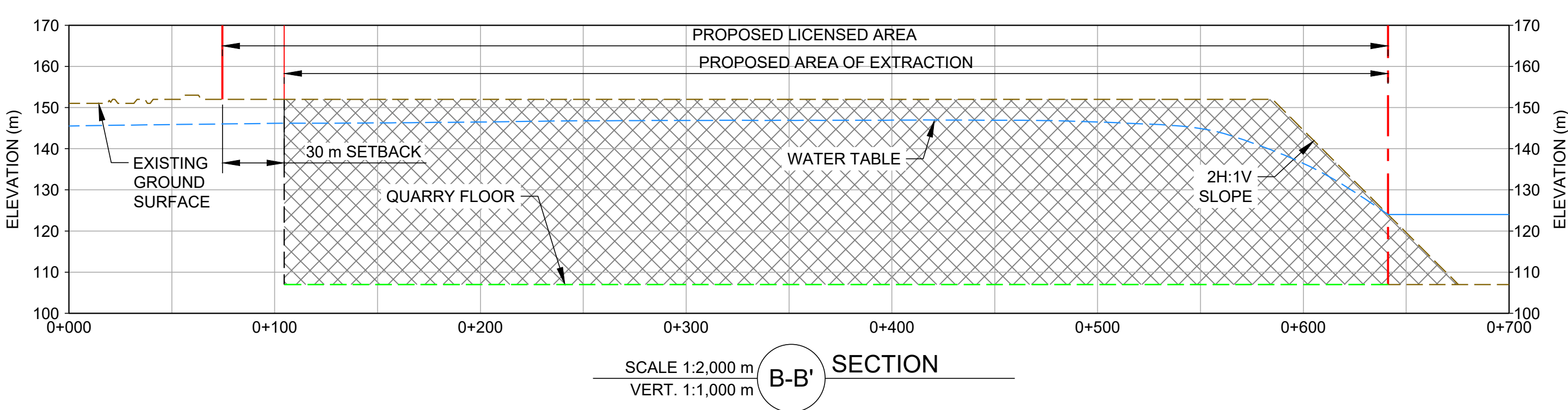
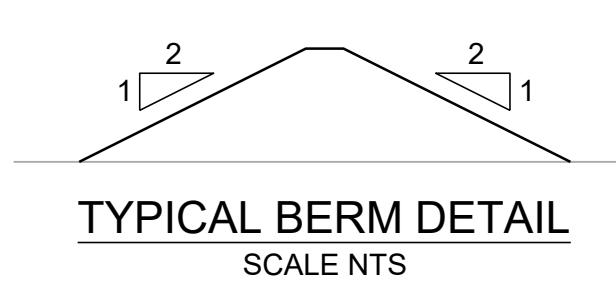
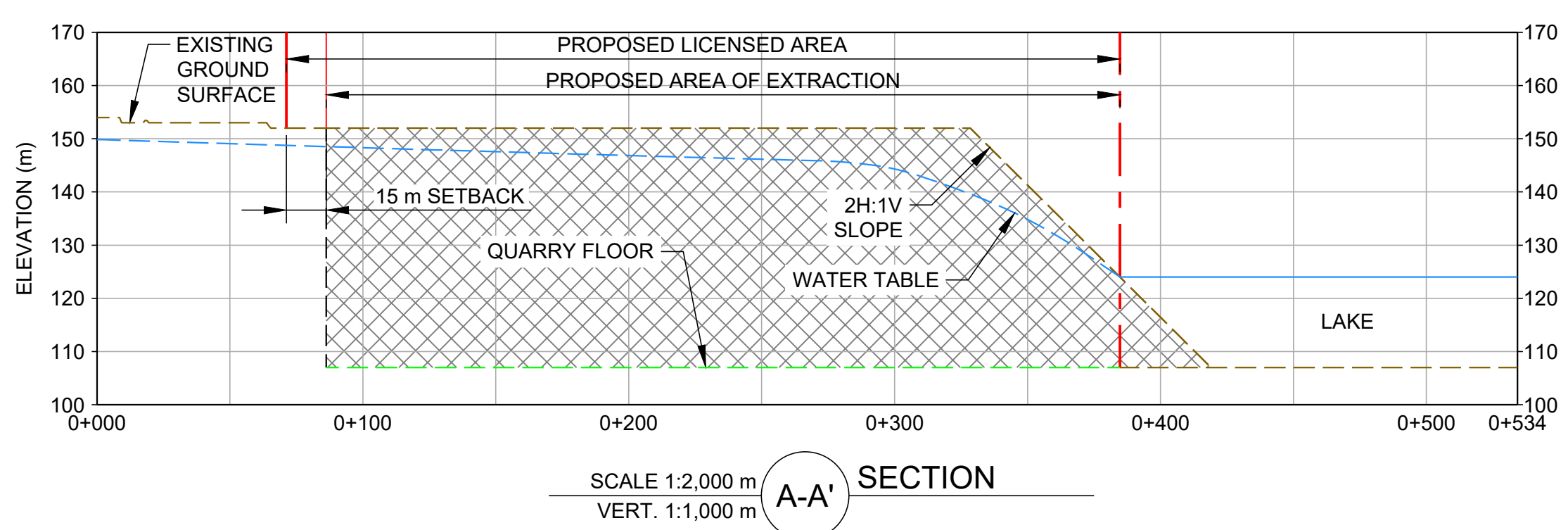
SIGNATURE OF APPLICANT/LICENSEE _____ DATE 2021-08-26
 SIGNATURE _____ DATE 2021-08-26
 PREPARED UNDER THE DIRECTION OF: _____ DATE
 JAIME OXTOBEE



AMENDMENTS	DATE	APPROVAL DATE
SITE PLANS APPROVED BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY.		
SIGNATURE _____		



OPERATIONS PLAN
SCALE 1:2,000 m



REHABILITATION PLAN - (PAGE 5 OF 5)

NOTE: THE NUMBERS BELOW REFER TO AGGREGATE RESOURCES OF ONTARIO: SITE PLAN STANDARDS (AUGUST 2020)

59 PROPOSED REHABILITATION OF THE SITE

THE PROPOSED FINAL REHABILITATION OF THE SITE INVOLVES BACKFILLING TO EXISTING GROUND SURFACE. TO THE EAST AND SOUTH OF THE SITE, THE EXISTING WEST CARLETON QUARRY (LICENSE NUMBER 4085) WILL BE REHABILITATED AS A LAKE. ALONG THESE SIDES, TYPICAL 2:1 (HORIZONTAL:VERTICAL) SLOPES WILL BE CONSTRUCTED ALONG THE MAJORITY OF THE BOUNDARIES WITH SELECTED AREAS HAVING SHALLOWER SLOPES AT THE LAKE LEVEL (I.E. 5:1 HORIZONTAL:VERTICAL) TO CREATE SHALLOW LITTORAL ZONES FOR INCREASED HABITAT DIVERSITY.

60 SEQUENCE AND DIRECTION OF PROGRESSIVE REHABILITATION

PROGRESSIVE REHABILITATION WILL BE COMPLETED IN DIRECT CORRELATION TO THE DEVELOPMENT OF THE QUARRY AS THE EXTRACTION LIMITS ARE REACHED AND ENOUGH AREA IS AVAILABLE TO ENSURE THAT THE PRODUCTION, STOCKPILING AND PROCESSING OF AGGREGATE MATERIALS WILL NOT INTERFERE WITH REHABILITATION ACTIVITIES.

61 USE OF OVERBURDEN IN PROGRESSIVE AND FINAL REHABILITATION

OVERBURDEN WILL BE USED IN REHABILITATION TO COVER THE BACKFILLED PORTIONS OF THE REHABILITATED QUARRY AND THE ABOVE WATER SLOPES APPROACHING THE ADJACENT QUARRY LAKE. ALL TOPSOIL OR OVERBURDEN STRIPPED IN THE OPERATION OF THE SITE WILL BE USED IN THE REHABILITATION OF THE SITE.

62 PROPOSED IMPORTATION OF MATERIAL TO FACILITATE REHABILITATION

ALL TOPSOIL AND OVERBURDEN STRIPPED IN THE OPERATION OF THE SITE WILL BE USED IN THE REHABILITATION OF THE SITE. AS THERE WILL BE INSUFFICIENT QUANTITIES OF NATIVE TOPSOIL AND/OR OVERBURDEN AVAILABLE FOR THE PROPOSED REHABILITATION, SOIL AND ROCK MAY BE IMPORTED FOR USE IN THE ESTABLISHMENT OF THE FINAL REHABILITATION CONTOURS OUTLINED IN THIS PLAN (PAGE 5 OF 5).

- EXCESS SOIL, AS DEFINED IN ONTARIO REGULATION 406/19 UNDER THE ENVIRONMENTAL PROTECTION ACT, MAY BE IMPORTED TO THIS SITE FOR THE FOLLOWING REHABILITATION PURPOSES:
 - CREATION OF 2:1 SLOPES
 - TOP DRESSING TO ESTABLISH VEGETATION
 - BACKFILLING SITE TO ORIGINAL GROUND SURFACE AS DEPICTED ON THE REHABILITATION PLAN
- EXCESS SOIL IMPORTED FOR THE REHABILITATION PURPOSES DESCRIBED ABOVE SHALL MEET THE SOIL QUALITY STANDARDS SET OUT IN TABLE 1: "FULL DEPTH BACKGROUND SITE CONDITION STANDARDS", OF THE RULES FOR SOIL MANAGEMENT AND EXCESS SOIL QUALITY STANDARDS PUBLISHED BY THE MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS, AS AMENDED FROM TIME TO TIME, OR MEET THE APPROPRIATE STANDARD AS DETERMINED BY A QUALIFIED PERSON (QP) BASED ON THE EXCESS SOIL STANDARDS.
- THE MAXIMUM TOTAL AMOUNT OF EXCESS SOIL THAT MAY BE IMPORTED TO THIS SITE FOR REHABILITATION PURPOSES IS 7,200,000 m³.
- THE LICENSEE SHALL ENSURE THAT THE ACCEPTANCE AND REUSE OF EXCESS SOIL IMPORTED FOR REHABILITATION PURPOSES IS COMPLIANT WITH PART I: RULES FOR SOIL MANAGEMENT OF THE "RULES FOR SOIL MANAGEMENT AND EXCESS SOIL QUALITY STANDARDS PUBLISHED BY THE MINISTRY OF ENVIRONMENT, CONSERVATION AND PARK AND AS AMENDED FROM TIME TO TIME.

63 VEGETATION TO BE ESTABLISHED DURING PROGRESSIVE AND FINAL REHABILITATION

DURING PROGRESSIVE AND FINAL REHABILITATION, ABOVE WATER SLOPES WILL BE SEEDED WITH A MIX OF GRASSES AND FORBS CONSISTING OF NON-INVASIVE SPECIES TO PREVENT EROSION. EXAMPLES OF SUITABLE SPECIES OF GRASS AND FORBS INCLUDE, BUT ARE NOT LIMITED TO, KENTUCKY BLUEGRASS, CREEPING RED FESCUE, PERENNIAL RYEGRASS AND WHITE CLOVER. NATIVE SPECIES WILL ALSO BE INCLUDED IN THE SEED MIX, SUCH AS BLACK-EYED SUSAN, NEW ENGLAND ASTER, CANADA WILD RYE AND LITTLE BLUESTEM (AS AVAILABLE FROM SUPPLIERS).

FINAL REHABILITATION WILL ALSO INCLUDE THE CREATION OF SHALLOW LITTORAL ZONES AT SELECT LOCATIONS WHERE THE SLOPES FROM SITE MEET THE REHABILITATED LAKE LEVEL IN THE EXISTING WEST CARLETON QUARRY (LICENSE NUMBER 4085) TO CREATE MORE DIVERSE AQUATIC HABITAT. SHALLOW EMERGENT MARSH VEGETATION WILL BE PLANTED IN WATER +/- 0.15 METRES DEEP AND EXTEND +/-5 METRES FROM THE SHORE AND WILL BE INTERSPERSED WITH COVER STRUCTURES (E.G. BOULDERS AND ROOT WADS). IN ADDITION, BASKING LOGS, WOODY DEBRIS AND NESTING PLATFORMS WILL BE INSTALLED FOR WILDLIFE HABITAT, SUCH AS TURTLES, WATERFOWL AND FISH. A CONCEPTUALIZATION OF THE SHALLOW SHORELINE TREATMENTS IS SHOWN ON DETAIL 1 INCLUDED ON THIS PLAN.

NODAL PLANTINGS WILL ALSO BE COMPLETED WITHIN SELECTED AREAS AROUND THE LAKE AND WILL INCLUDE EDGE, SUBMERGENT AND EMERGENT SPECIES SUCH AS RED OSIER DOGWOOD, SLENDER WILLOW AND HERBACEOUS PLANTS SUCH AS WATER PLANTAIN, LAKE SEDGE, SWAMP MILKWEED, SOFTSTEM BULRUSH AND COMMON CATTAIL.

THE FINAL DETAILS OF THE REHABILITATION PLANTING PROGRAM WILL BE ESTABLISHED IN CONSULTATION WITH MINISTRY OF NATURAL RESOURCES AND FORESTRY STAFF JUST PRIOR TO FINAL REHABILITATION TO ENSURE THAT THE PLAN IS APPROPRIATE FOR CONDITIONS AT THAT TIME.

64 QUARRY SLOPING

THE SITE WILL BE BACKFILLED TO PROVIDE AN AREA THAT IS SUITABLE FOR FUTURE DEVELOPMENT, SUBJECT TO ANY FUTURE PLANNING POLICIES AND LAND USE DESIGNATION. IN MOST CASES, 2:1 (HORIZONTAL:VERTICAL) SLOPES WILL BE CONSTRUCTED ON THE EAST AND SOUTH SIDES OF THE QUARRY WHERE THE ADJACENT QUARRY EXCAVATION WILL BE REHABILITATED AS A LAKE. SELECTED AREAS DESIGNATED FOR SHALLOW SHORELINE TREATMENTS (LITTORAL ZONES) AT THE LAKE LEVEL WILL BE SLOPED ACCORDINGLY (APPROXIMATELY 5:1 HORIZONTAL:VERTICAL). A CONCEPTUALIZATION OF THE SHALLOW SHORELINE TREATMENTS IS SHOWN ON DETAIL 1 INCLUDED ON THIS PLAN (PAGE 5 OF 5).

65 ANY BUILDINGS OR STRUCTURES TO REMAIN ON SITE

THERE ARE NO BUILDINGS OR STRUCTURES ON SITE. INTERNAL HAUL ROADS WILL BE REMOVED.

66 FINAL SURFACE WATER DRAINAGE

SURFACE DRAINAGE FROM THE SITE WILL BE REINSTATED TO APPROXIMATE PREDEVELOPMENT CONDITIONS WITHIN THE BACKFILLED PORTION OF THE SITE. BASED ON TOPOGRAPHY AND SITE OBSERVATIONS, UNDER EXISTING CONDITIONS DRAINAGE FROM THE SITE FLOWS TOWARDS THE EXISTING ADJACENT QUARRY (LICENSE NUMBER 4085). FOLLOWING REHABILITATION OF THE SITE, SURFACE WATER WILL CONTINUE TO DRAIN TOWARDS THE ADJACENT QUARRY.

67 FINAL ELEVATIONS OF REHABILITATED AREA

THE FINAL ELEVATIONS OF THE REHABILITATED AREAS OF THE SITE EXPRESSED AS METRES ABOVE SEA LEVEL ARE SHOWN ON THE DRAWING ON REHABILITATION PLAN (PAGE 5 OF 5)

REHABILITATION CROSS-SECTIONS

69 LOCATION OF CROSS-SECTIONS

REFER TO DRAWING (THIS PLAN) FOR LOCATION OF REHABILITATION CROSS-SECTIONS.

70 HORIZONTAL AND VERTICAL SCALES

APPROPRIATE HORIZONTAL AND VERTICAL SCALES ARE MARKED ON THE CROSS-SECTIONS.

71 REHABILITATION CROSS-SECTIONS

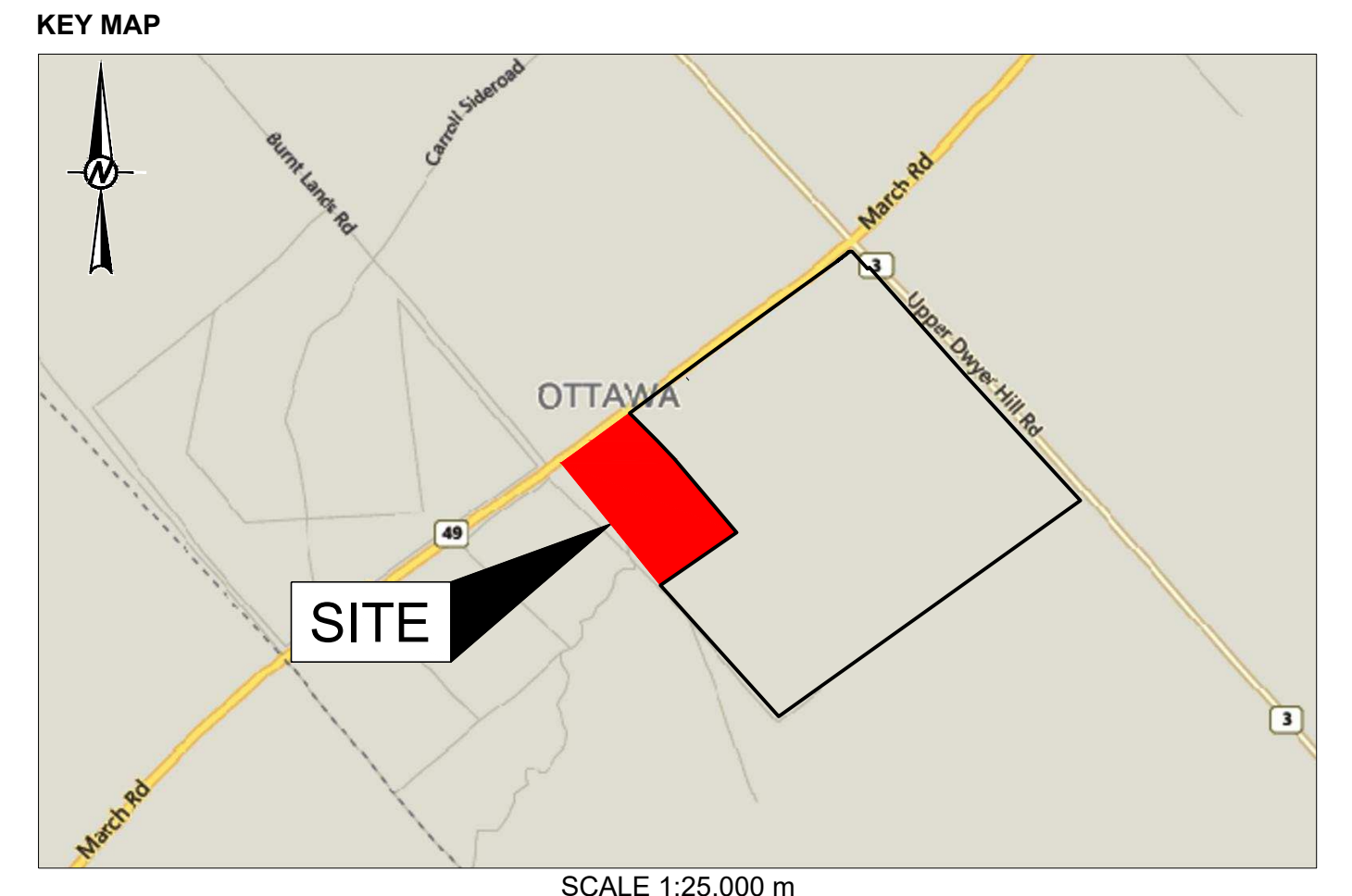
TWO REHABILITATION CROSS-SECTIONS ARE PROVIDED ON THE REHABILITATION PLAN (PAGE 5 OF 5).

72 PREDICTED WATER TABLE UNDER REHABILITATED CONDITIONS

THE GROUNDWATER TABLE WITHIN THE BACKFILLED PORTION OF THE SITE IS EXPECTED TO BE BETWEEN 144 MASL AND 149 MASL AND WILL SLOPE DOWN TO APPROXIMATELY 124 MASL AT THE EDGE OF THE LAKE (I.E. APPROXIMATELY EQUAL TO THE REHABILITATED LAKE LEVEL IN THE ADJACENT QUARRY). THE PREDICTED WATER TABLE DURING REHABILITATION IS SHOWN ON THE CROSS-SECTIONS ON THIS PLAN (PAGE 5 OF 5).

73 TYPICAL BERM DESIGN

A CROSS-SECTION OF A TYPICAL BERM DESIGN IS SHOWN ADJACENT TO THE REHABILITATION CROSS-SECTIONS (PAGE 5 OF 5).



WEST CARLETON QUARRY EXTENSION
PART OF LOT 15, CONCESSION 11
FORMER GEOGRAPHIC TOWNSHIP OF HUNTLEY,
CITY OF OTTAWA

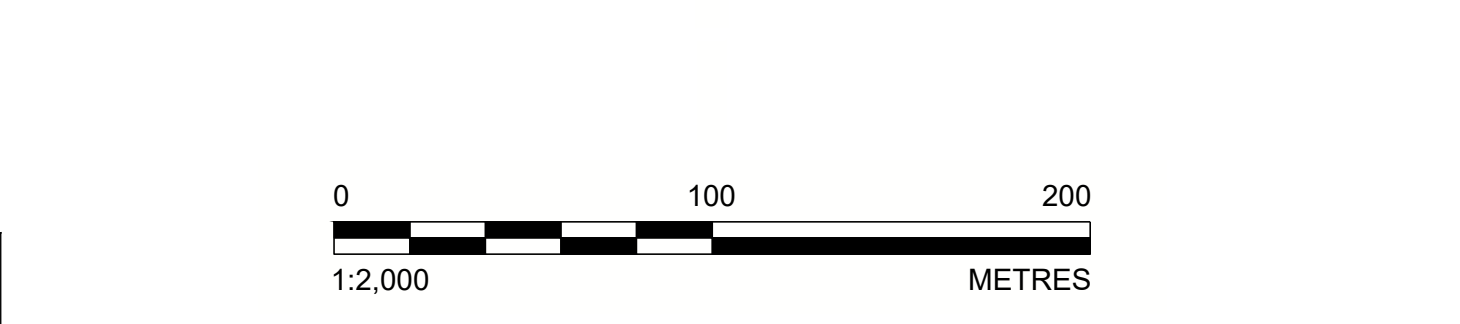
APPLICANT:
THOMAS CAVANAGH CONSTRUCTION LIMITED
9094 CAVANAGH ROAD
ASHTON, ONTARIO
K0A 1B0

QUARRY LICENSE NO. _____

- NOTE(S)**
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 - AREA OF OPERATION, WEST CARLETON QUARRY EXTENSION 16.5 HECTARES.
 - THIS SITE PLAN IS PREPARED FOR SUBMISSION TO THE MINISTRY OF NATURAL RESOURCES AND FORESTRY IN CONJUNCTION WITH AN APPLICATION FOR A CLASS 'A', CATEGORY 2 QUARRY BELOW WATER UNDER THE AGGREGATE RESOURCES ACT AND REGULATIONS.
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- LEGEND**
- BOUNDARY OF AREA TO BE LICENCED
 - LIMIT OF EXTRACTION
 - 120-METRE SURROUND
 - BOREHOLE / MONITORING WELL
 - PRIVATE WELL (AS PER MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS WATER WELL INFORMATION SYSTEM)
 - CON 12, LOT 15
 - CON 12, LOT 14
 - LOTS AND CONCESSION LINES
 - BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE, A-AUTO
 - PAGE WIRE FENCE/GATE
 - UTILITY POLE
 - ROADSIDE DITCH
 - WOODED AREA
 - 137
 - CONTOURS/INDEX CONTOURS
 - CROSS-SECTIONS
 - EL 152.25
 - PROPOSED SPOT ELEVATION, mASL

- REFERENCE(S)**
- KEY PLAN: Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community.
 - LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2016.
 - CITY OF OTTAWA 2012 TOPO LIDAR TILES.
 - MAPPING AND GROUND CONTROL FOR THE SITE PLAN COMES FROM LAND INFORMATION ONTARIO (LIO) DATA AVAILABLE FROM THE MINISTRY OF NATURAL RESOURCES AND FORESTRY, CITY OF OTTAWA 2012 TOPO LIDAR TILES AND A GROUND SURVEY CONDUCTED BY CAVANAGH IN NOVEMBER 2019.
 - PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28.



SIGNATURE OF APPLICANT/LICENSEE: *[Signature]* DATE: 2021-08-26

PREPARED UNDER THE DIRECTION OF: *[Signature]* DATE: 2021-08-26

JAIME P. A. OXTOBBE
PROFESSIONAL GEOSCIENTIST
1095
2021-08-26
ONTARIO

THOMAS CAVANAGH CONSTRUCTION LIMITED

AMENDMENTS	DATE	APPROVAL DATE

SITE PLANS APPROVED BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY.

SIGNATURE: _____ DATE: _____

CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT
WEST CARLETON QUARRY EXTENSION

TITLE
REHABILITATION PLAN

APPLICANT
THOMAS CAVANAGH CONSTRUCTION LIMITED

YYYY-MM-DD	2021-02-17
DESIGNED	JPAO
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

PROJECT NO. 1899975 CONTROL 0009 REV. 0 FIGURE 5 OF 5

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