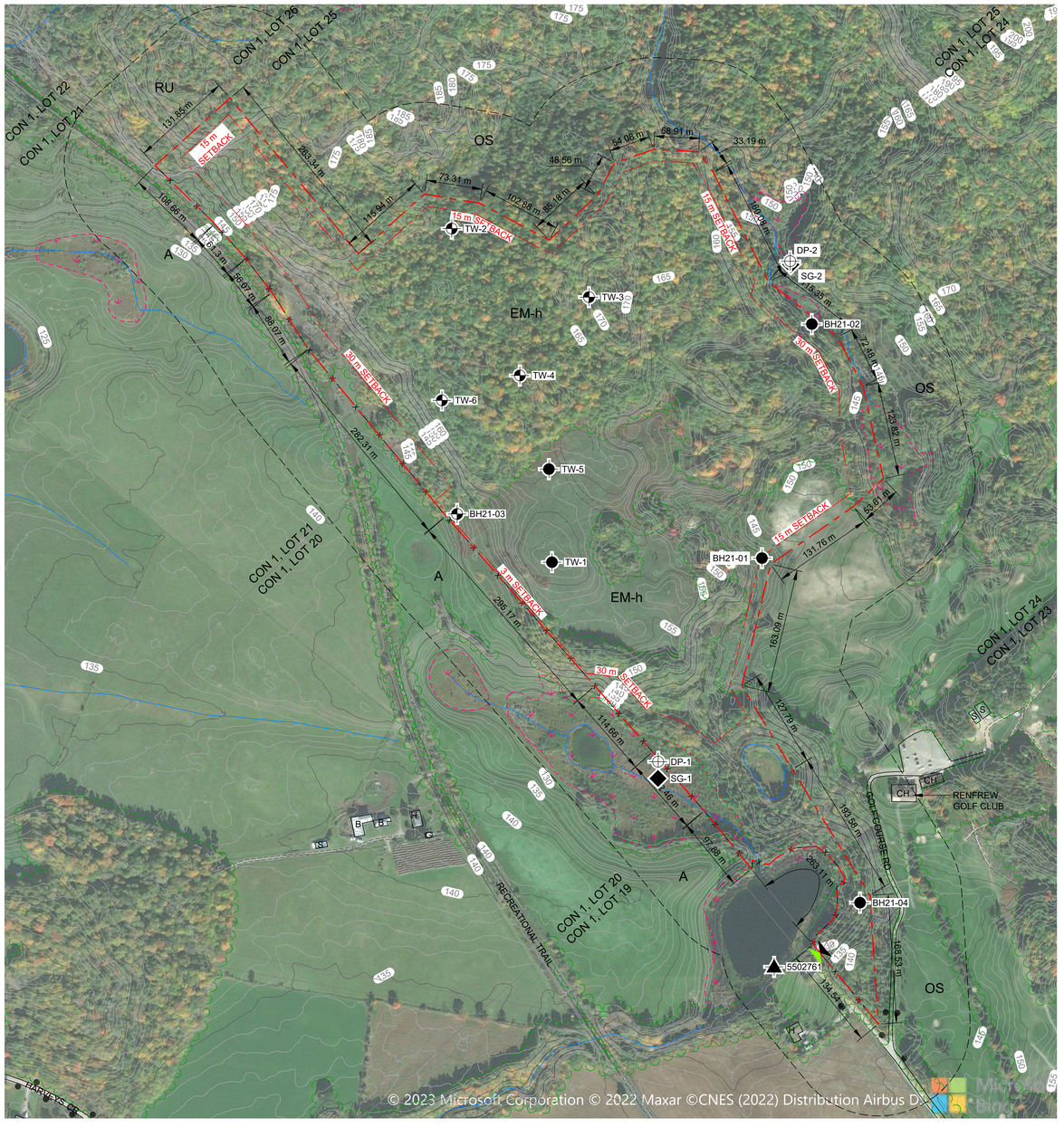
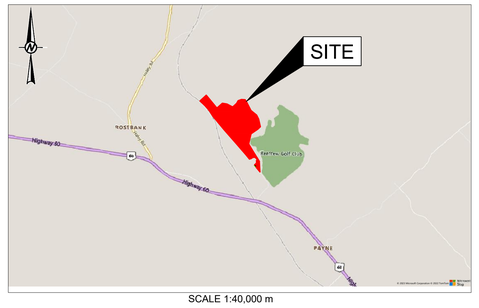


EXISTING FEATURES - GENERAL
SCALE 1:3,000 m

LAND USE / ZONING TWP. OF HORTON, BY-LAW NO. 2010-14, SCHEDULE A, TWP. OF ADMASTON/BROMLEY AND BY-LAW 2004-13, SCHEDULE B. NOTICE OF DECISION - CHANGE OF ZONING FEBRUARY 25, 2022	
RU	RURAL
OS	OPEN SPACE
A	AGRICULTURAL
EM-h	EXTRACTIVE INDUSTRIAL-holding

KEY MAP



SCALE 1:40,000 m

RENFREW GOLF PIT

PART OF LOTS 23, 24 AND 25, CONCESSION 1
HORTON TOWNSHIP,
RENFREW COUNTY, ONTARIO

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

PIT LICENCE NO. _____

NOTE(S)

1. LICENCED AREA, RENFREW GOLF PIT **40.5** HECTARES.
2. AREA OF OPERATION, RENFREW GOLF PIT **31.6** HECTARES.
3. THIS SITE PLAN IS PEPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE FOR A PIT BELOW THE GROUND WATER TABLE.
4. THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
5. LOT, CONCESSION AND BOUNDARY LINES ON THIS PLAN ARE APPROXIMATE.
6. 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
- DRIVEPOINT PIEZOMETER
- STAFF GAUGE
- PRIVATE WELL (AS PER MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS WATER WELL INFORMATION SYSTEM)
- CON 1, LOT 25 / CON 1, LOT 24 — LOTS AND CONCESSION LINES
- RU — LAND ZONING BY-LAW
- UTILITY POLE
- BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE
- ROAD: PAVED
- ROAD: GRAVEL
- CONTOURS/INDEX CONTOURS
- WOODED AREA
- WATERCOURSE
- WETLAND
- PAGE WIRE FENCE/GATE
- ENTRANCE
- EXIT

REFERENCE(S)

1. 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.
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2016
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28

SIGNATURE OF APPLICANT/LICENSEE — 04-23-24 DATE

PREPARED UNDER THE DIRECTION OF: — 04-23-24 DATE

PROFESSIONAL GEOSCIENTIST — JAIME P. A. OXTOBEE — PRACTISING MEMBER — 1095 — 04-23-24 — ONTARIO

THOMAS CAVANAGH CONSTRUCTION LIMITED

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

EXISTING FEATURES - GENERAL (PLAN 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 (PLAN 1 0F 5).

0 100 200
1:3,000 METRES

CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT
RENFREW GOLF PIT

TITLE
EXISTING FEATURES - GENERAL

APPLICANT
THOMAS CAVANAGH CONSTRUCTION LIMITED

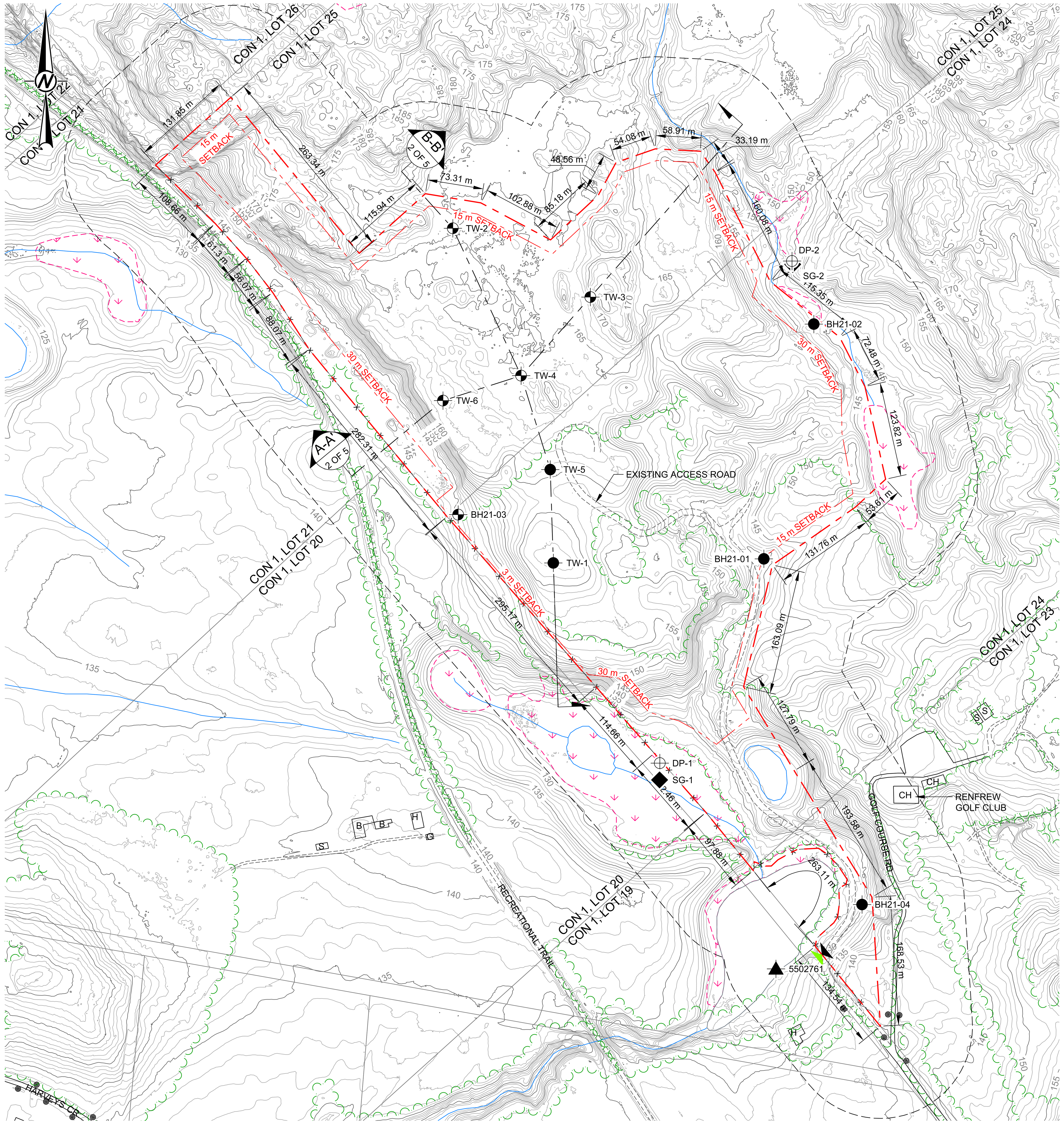
YYYY-MM-DD	2022-12-16
DESIGNED	----
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

PROJECT NO.	CONTROL	REV.	PLAN
21465813	0004	0	1 OF 5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI F
0 25 mm

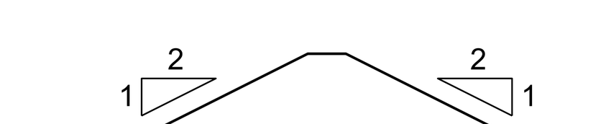
KEY MAP

SCALE 1:40,000 m



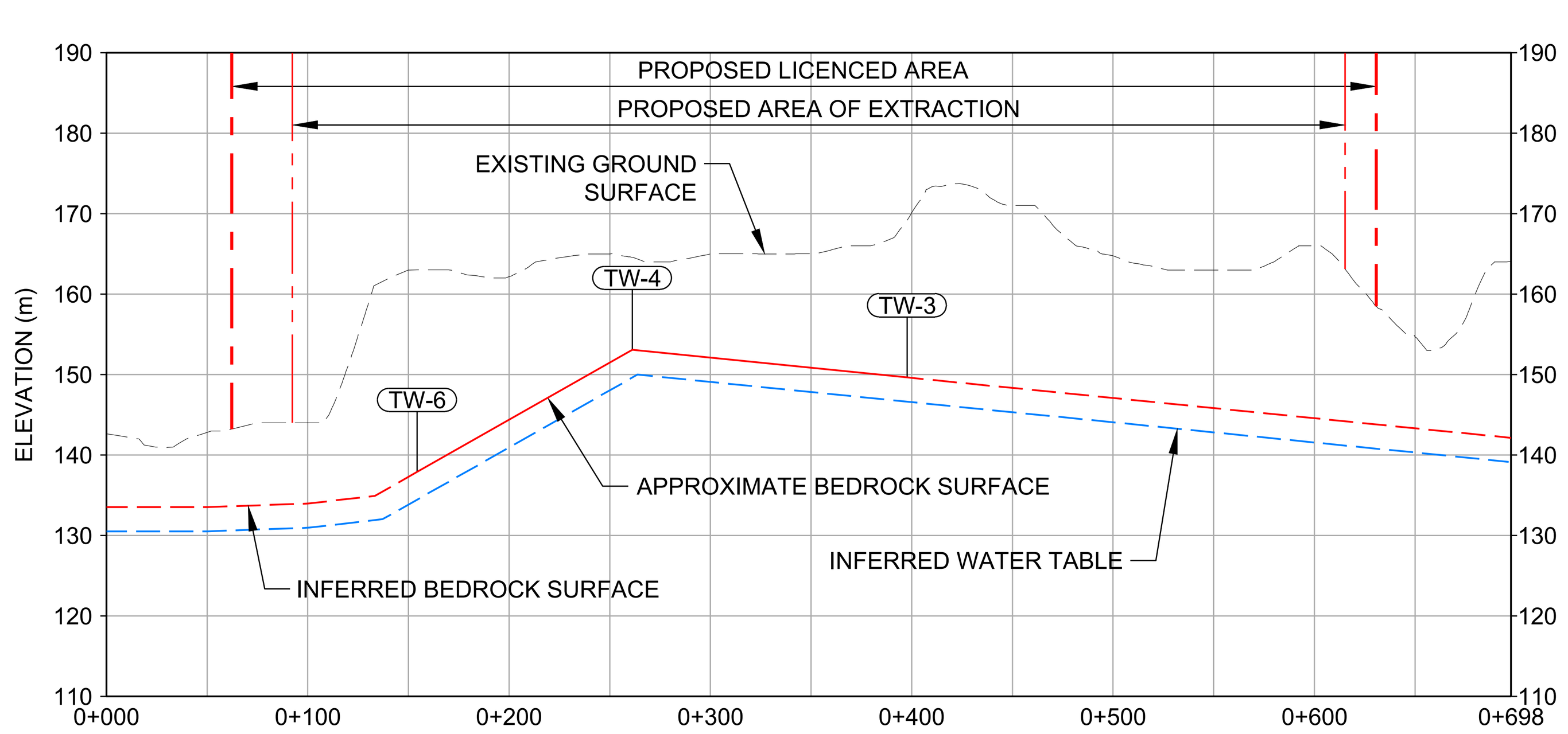
EXISTING FEATURES - SITE

SCALE 1:3,000 m

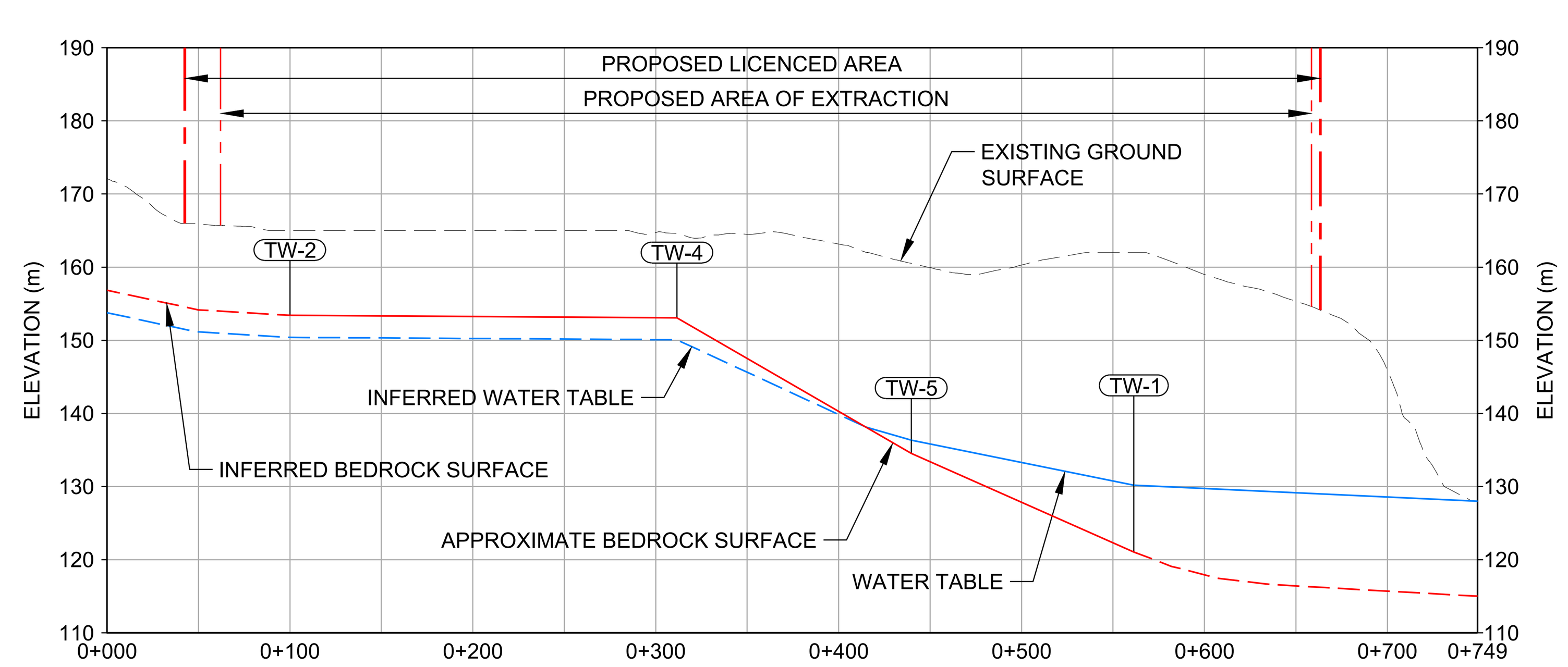


TYPICAL BERM DETAIL

SCALE NTS



HORIZ. SCALE 1:3,000 m (A-A' 2 OF 5) CROSS-SECTION
VERT. SCALE 1:750



HORIZ. SCALE 1:3,000 m (B-B' 2 OF 5) CROSS-SECTION
VERT. SCALE 1:750

EXISTING FEATURES - SITE (PLAN 2 OF 5):

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

17 EXISTING LAND USE

LAND USES ON AND AROUND THE SITE INCLUDE AN EXISTING GOLF COURSE TO THE EAST, ACTIVE AGRICULTURAL LAND IS LOCATED TO THE WEST AND SOUTH AND DECIDUOUS, MIXED AND CONIFEROUS FOREST TO THE NORTH AND NORTHEAST. 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 OVERBURDEN AT THE SITE IS 143.12 METRES ABOVE SEA LEVEL IN THE NORTHEASTERN PORTION OF THE SITE (AS MEASURED AT BH21-02). IT IS INTERPRETED THAT THE MAXIMUM WATER TABLE IS WITHIN THE BEDROCK IN THE NORTHERN PORTION OF THE SITE AND IS AT 150 MASL (I.E., WITHIN THE VICINITY OF TW-2). BASED ON THE GROUNDWATER ELEVATION DATA MEASURED AT BH21-04 LOCATED AT THE SOUTHERN END OF THE SITE, THE WATER TABLE IN THE OVERBURDEN SLOPES FROM NORTHWEST TO SOUTH, AND THE MAXIMUM PREDICTED WATER TABLE ON THE SOUTHERN END OF THE SITE IS 127.94 METRES ABOVE SEA LEVEL.

19 LOCATION OF EXISTING ENTRANCES TO AND EXITS FROM THE SITE

THERE IS ONE ENTRANCE/EXIT FOR THE SITE LOCATED IN THE SOUTHERN PORTION OF THE SITE AS SHOWN ON THIS PLAN (PLAN 2 OF 5).

20 SIGNIFICANT NATURAL FEATURES ON AND WITHIN 120 METRES OF SITE

SIGNIFICANT NATURAL FEATURES LOCATED ON THE SITE INCLUDE UNEVALUATED WETLANDS, FISH HABITAT (CONNECTION BETWEEN CLUBHOUSE LAKE AND THE UNEVALUATED WETLAND TO THE SOUTH OF THE EXTRACTION AREA), SIGNIFICANT WILDLIFE HABITAT (AMPHIBIAN BREADING WOODLAND) IN THE NORTHEASTERN PORTION OF THE SITE AND THE SOUTHERN PORTION OF THE SITE, AND SIGNIFICANT WOODLANDS IN THE NORTHERN PORTION AND EASTERN EDGE OF THE SITE. SIGNIFICANT NATURAL FEATURES WITHIN 120 METRES OF THE SITE INCLUDE UNEVALUATED WETLANDS, FISH HABITAT, SIGNIFICANT WOODLANDS, POTENTIAL HABITAT FOR SPECIES AT RISK, AND POTENTIAL AND CONFIRMED SIGNIFICANT WILDLIFE HABITAT (BAT MATERNITY ROOSTS, TURTLE OVER-WINTERING, WOODLAND RAPTOR NESTING, TURTLE NESTING HABITAT, INTERIOR FOREST BREEDING BIRD HABITAT AND AMPHIBIAN WOODLAND BREEDING HABITAT).

21 SIGNIFICANT HUMAN-MADE FEATURES ON AND WITHIN 120 METRES OF SITE

THERE ARE NO SIGNIFICANT HUMAN-MADE FEATURES ON THE SITE. SIGNIFICANT HUMAN-MADE FEATURES WITHIN 120 METRES OF THE SITE INCLUDE THE RENFREW GOLF CLUB LOCATED TO THE EAST OF THE SITE, GOLF COURSE ROAD LOCATED TO THE SOUTH OF THE SITE, ONE PRIVATE RESIDENCE LOCATED ON THE WEST SIDE OF GOLF COURSE ROAD SOUTH OF THE SITE AND AN DECOMMISSIONED RAIL LINE TO THE WEST OF THE NORTHERN PORTION OF THE SITE (NOW USED AS A RECREATIONAL TRAIL).

22 THE LOCATION AND USE OF ALL BUILDINGS AND STRUCTURES EXISTING ON AND WITHIN 120 METRES OF THE SITE

THERE IS CURRENTLY ONE STRUCTURE LOCATED ON THE SITE. THIS STRUCTURE IS A SMALL SHED LOCATED ADJACENT TO MONITORING WELL BH21-04 AT THE SOUTHERN END OF THE SITE. THE SHED HOUSES THE IRRIGATION PUMPING EQUIPMENT FOR THE ADJACENT GOLF COURSE PROPERTY. WITHIN 120 METRES OF THE SITE THERE IS ONE HOUSE LOCATED ON THE WEST SIDE OF GOLF COURSE ROAD SOUTH OF THE SITE AND THE CLUBHOUSE FOR THE RENFREW GOLF CLUB IS LOCATED EAST OF THE SOUTHERN PORTION OF THE SITE.

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 (PLAN 2 OF 5).

24 EXISTING SURFACE WATER AND DRAINAGE FACILITIES ON AND WITHIN 120 METRES OF THE SITE

SURFACE WATER FEATURES ON THE SITE INCLUDE A PORTION OF A SMALL INTERMITTENT WATERCOURSE THAT FLOWS THROUGH WETLANDS LOCATED WITHIN AND TO THE WEST OF THE SOUTHERN PORTION OF THE WESTERN BOUNDARY OF THE SITE. THE WATERCOURSE FLOWS INTO CLUBHOUSE LAKE LOCATED ADJACENT TO THE SOUTHERN PORTION OF THE SITE. THERE IS A SMALL ROUND POND LOCATED IN THE SOUTHERN PORTION OF THE SITE. A WETLAND AREA IS PRESENT ON THE EDGE OF THE EASTERN MOST PORTION OF THE SITE. A SMALL INTERMITTENT WATERCOURSE FLOWS ALONG THE EASTERN SITE BOUNDARY INTO THE WETLAND AT THE EDGE OF THE EASTERN MOST PORTION OF THE SITE. A SMALL INTERMITTENT WATERCOURSE THAT FLOWS THROUGH AN UNEVALUATED WETLAND IS LOCATED OFF-SITE TO THE WEST OF THE NORTHERN PORTION OF THE SITE.

BASED ON TOPOGRAPHY, UNDER EXISTING CONDITIONS APPROXIMATELY 85 PERCENT OF THE WATER FROM THE SITE FLOWS SOUTHEAST TOWARDS CLUBHOUSE LAKE. THE REMAINING 15 PERCENT FROM THE NORTHWEST PORTION OF THE SITE FLOWS WEST/NORTHWEST TOWARDS AN UNNAMED POND LOCATED WEST OF THE SITE.

25 LOCATION OF EXISTING TREE COVER

THE EXISTING ON-SITE AND OFF-SITE TREE COVER IS SHOWN ON THIS PLAN (PLAN 2 OF 5). THE NORTHERN HALF AND THE EASTERN SIDE OF THE SITE ARE TREE COVERED. THE SOUTHERN PORTION OF THE SITE HAS SOME TREE COVER. THE CENTRAL PORTION OF THE SITE HAS LIMITED TREE COVER. THE OFF-SITE LANDS SURROUNDING THE SITE TO THE NORTH AND EAST ARE GENERALLY TREE COVERED WITH THE EXCEPTION OF THE CLEARED GOLF COURSE FAIRWAYS EAST OF THE SITE.

26 LOCATION/TYPE OF EXISTING FENCING

EXISTING LOCATIONS FOR FENCING AROUND THE SITE ARE SHOWN ON THIS PLAN (PLAN 2 OF 5). PAGE WIRE FENCING EXISTS ON THE WESTERN LICENSE BOUNDARY. THERE IS NO FENCING PRESENT ON THE NORTHERN, EASTERN AND SOUTHERN BOUNDARIES OF THE SITE.

EXISTING FEATURES CROSS-SECTIONS

69 LOCATION OF CROSS-SECTIONS

REFER TO DRAWING (PLAN 2 OF 5) 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 (PLAN 2 OF 5).

72 MAXIMUM PREDICTED WATER TABLE

THE MAXIMUM PREDICTED WATER TABLE IS SHOWN ON THE EXISTING FEATURE CROSS-SECTIONS (PLAN 2 OF 5).

73 TYPICAL BERM DESIGN

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

RENFREW GOLF PIT

PART OF LOTS 23, 24 AND 25, CONCESSION 1
HORTON TOWNSHIP,
RENFREW COUNTY, ONTARIO

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

PIT LICENCE NO. ___________

NOTE(S)

1. LICENCED AREA, RENFREW GOLF PIT 40.5 HECTARES.
2. AREA OF OPERATION, RENFREW GOLF PIT 31.6 HECTARES.
3. THIS SITE PLAN IS PEPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE FOR A PIT BELOW THE GROUND WATER TABLE.
4. THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
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LEGEND

- BOUNDARY OF AREA TO BE LICENCED
- LIMIT OF EXTRACTION
- 120-METRE SURROUND
- BOREHOLE / MONITORING WELL
- DRIVEPOINT PIEZOMETER
- STAFF GAUGE
- PRIVATE WELL (AS PER MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS WATER WELL INFORMATION SYSTEM)
- CON 1, LOT 25 / CON 1, LOT 24 — LOTS AND CONCESSION LINES
- UTILITY POLE
- BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE
- ROAD: PAVED
- ROAD: GRAVEL
- 150 CONTOURS/INDEX CONTOURS
- WOODED AREA
- WATERCOURSE
- WETLAND
- x x PAGE WIRE FENCE/GATE
- ENTRANCE
- EXIT
- A-A' CROSS-SECTIONS

REFERENCE(S)

1. 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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3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28

PROFESSIONAL GEOSCIENTISTS ONTARIO
JAIME P.A. OXTOBEE
PRACTISING MEMBER
1095
04-23-24

SIGNATURE OF APPLICANT/LICENSEE	04-23-24 DATE
PREPARED UNDER THE DIRECTION OF:	04-23-24 DATE

AMENDMENTS	DATE	APPROVAL DATE

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

SIGNATURE — DATE

0 100 200
1:3,000 METRES

CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT
RENFREW GOLF PIT

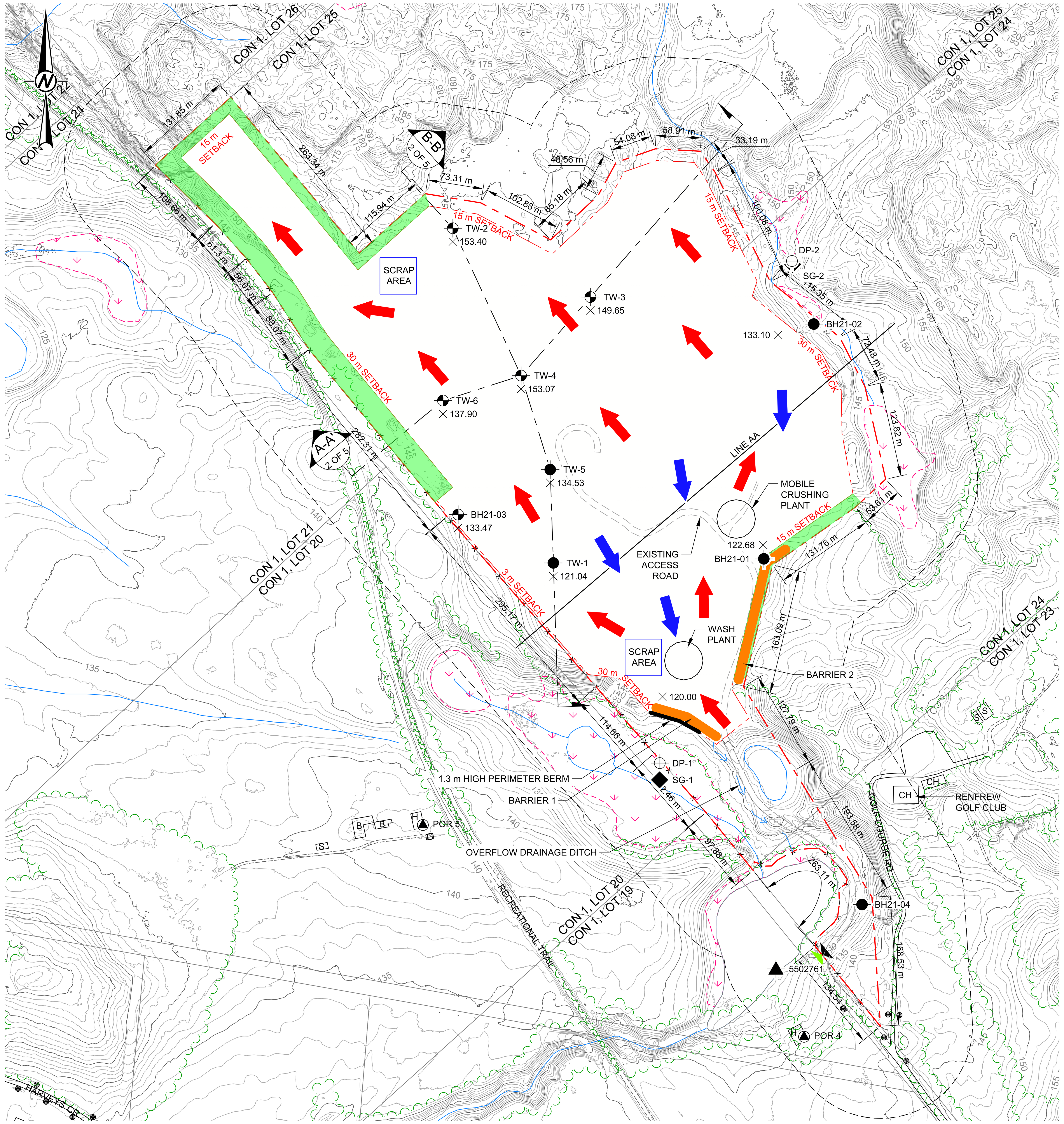
TITLE
EXISTING FEATURES - SITE

APPLICANT

YYYY-MM-DD	2023-05-01
DESIGNED	----
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

PROJECT NO.	CONTROL	REV.	PLAN
21465813	0004	0	2 OF 5

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



OPERATIONS PLAN

SCALE 1:3,000 m

OPERATIONS PLAN (PLAN 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 (PLAN 3 OF 5).

72 PREDICTED WATER TABLE UNDER OPERATIONAL CONDITIONS

THE PREDICTED WATER TABLE DURING OPERATIONS IS SHOWN ON THE CROSS-SECTIONS ON THIS PLAN (PLAN 3 OF 5).

73 TYPICAL BERM DESIGN

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

TABLE 7: RECOMMENDED NOISE BARRIERS

Barrier	Minimum Height (m)	Minimum Length (m)	Maximum Distance from Source (m)	Location	Required to shield Line of Sight from Identified Source ID	Required to shield Line of Sight to Identified Receptor/s	Description / Administrative Controls
Barrier_1 (Site berm)	3	105	Not applicable	Shown on Plan 3 of 5	Screener Wash Plant	POR_4	New barrier (site berm): • Required to shield noise impacts at the identified receptor.
Barrier_2 (Site berm)	3	200	Not applicable	Shown on Plan 3 of 5	Crusher	POR_4	New barrier (site berm): • Required to shield noise impacts at the identified receptor.
Barrier_SP1 (Stockpile)	10 m (6 m)	20 m	25 m	As per: Figure 12	Screener	POR_4	New barrier (stockpile): • Required to shield noise impacts at the identified receptor. • May be reduced to 6 m high when operating north of Line AA.
Barrier_SP2 (Stockpile)	8 m (6 m)	20 m	25 m	As per: Figure 12	Screener	POR_5	New barrier (stockpile): • Required to shield noise impacts at the identified receptor. • May be reduced to 6 m high when operating north of Line AA
Barrier_WP1 (Stockpile)	12 m	50 m	25 m	As per: Figure 13	Wash Plant and associated generator	POR_4 POR_5	New barrier (stockpile): • Required to shield noise impacts at the identified receptors.
Barrier_CP1 (Stockpile)	12 m	30 m	25 m	As per: Figure 14	Crusher	POR_4	New barrier (stockpile): • Required to shield noise impacts at the identified receptor.
Barrier_CP2 (Stockpile)	8 m	20 m	25 m	As per: Figure 14	Crusher	POR_5	New barrier (stockpile): • Required to shield noise impacts at the identified receptor.

Figure 12: Detail plan at Mobile Screening Plant showing Barrier SP1 and SP2 (Typical)

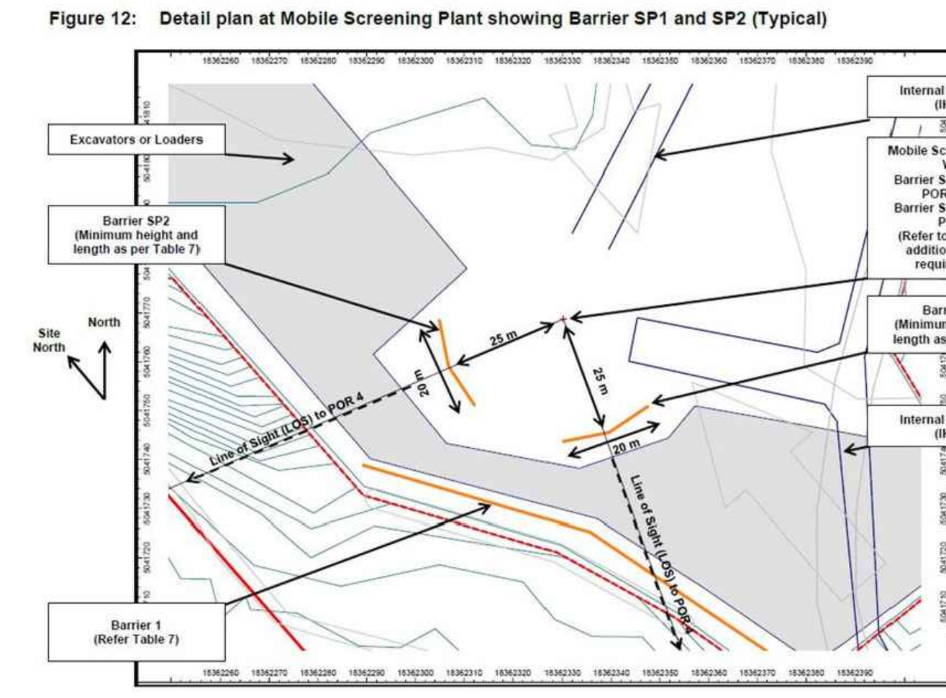


Figure 13: Detail plan at Wash Plant showing Barrier WP1

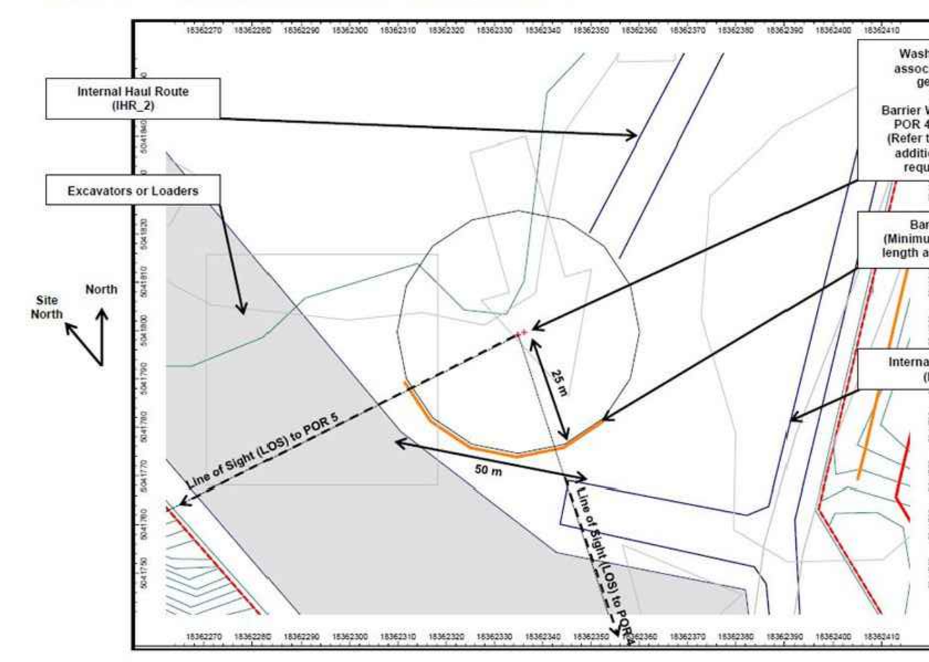
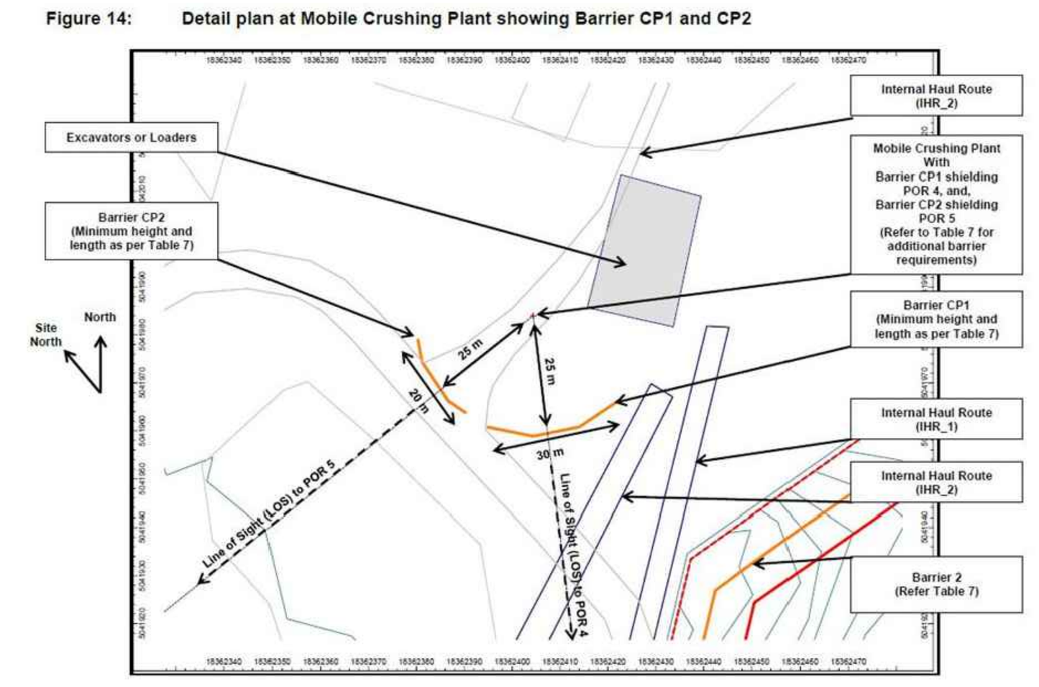
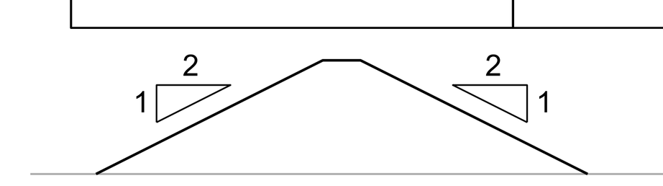


Figure 14: Detail plan at Mobile Crushing Plant showing Barrier CP1 and CP2

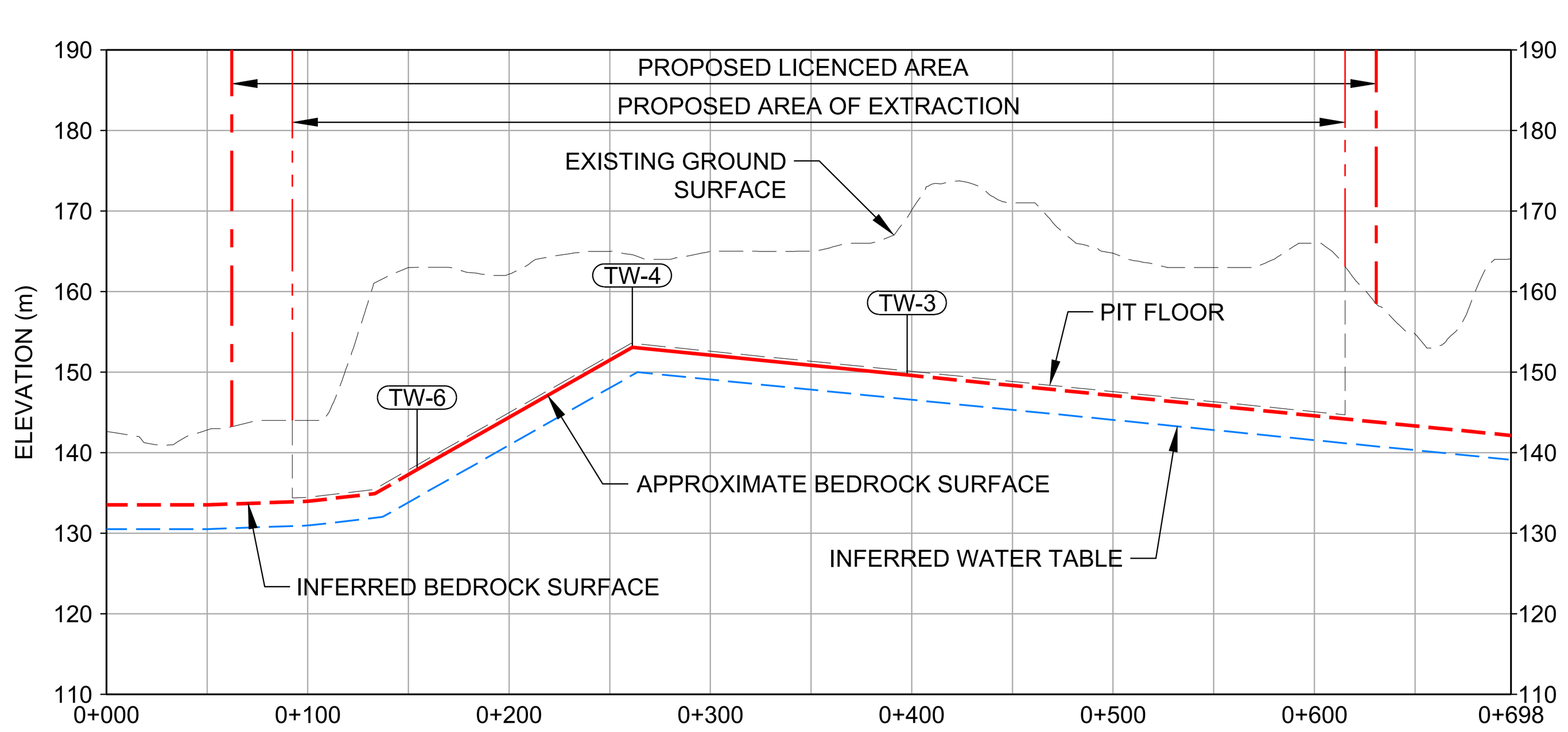


O.REG. 244/97 SECTION 0.13	VARIATION TO OPERATIONAL STANDARDS	RATIONALE
(1)10	3-M EXCAVATION SETBACK ALONG A PORTION OF THE WESTERN BOUNDARY.	ALLOWS FOR THE EXTRACTION OF HIGH-QUALITY AGGREGATE THAT IS PRESENT ABOVE THE ELEVATION OF THE ADJACENT OFF-SITE GROUND SURFACE.
(3)	NO FENCING ALONG THE NORTHERN BOUNDARY AND THE EASTERN BOUNDARY NORTH OF THE RENFREW GOLF CLUB PROPERTY.	DUE TO THE RUGGED TERRAIN, HEAVY VEGETATION AND NEAR SURFACE BEDROCK, IT IS NOT FEASIBLE TO INSTALL FENCING ALONG THE NORTHERN SITE BOUNDARY AND THE EASTERN SITE BOUNDARY NORTH OF THE RENFREW GOLF CLUB.



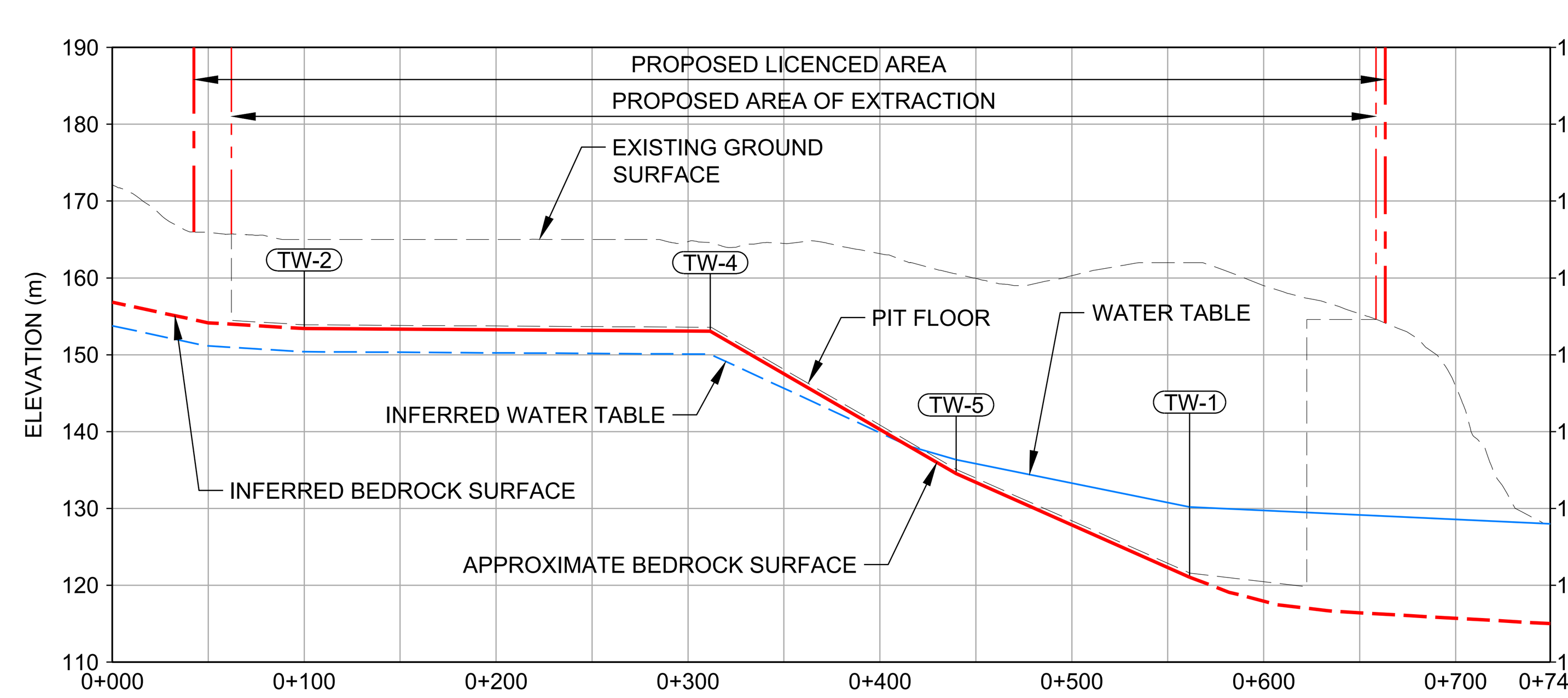
TYPICAL BERM DETAIL

SCALE NTS



HORIZ. SCALE 1:3,000 m
VERT. SCALE 1:750

A-A' CROSS-SECTION (2 OF 5)



HORIZ. SCALE 1:3,000 m
VERT. SCALE 1:750

B-B' CROSS-SECTION (2 OF 5)

PROFESSIONAL GEOSCIENTISTS ONTARIO
JAIME P.A. OXTOBEE
PRACTISING MEMBER
1095
04-23-24

SIGNATURE OF APPLICANT/LICENSEE	04-23-24 DATE
PREPARED UNDER THE DIRECTION OF:	04-23-24 DATE

THOMAS CAVANAGH CONSTRUCTION LIMITED

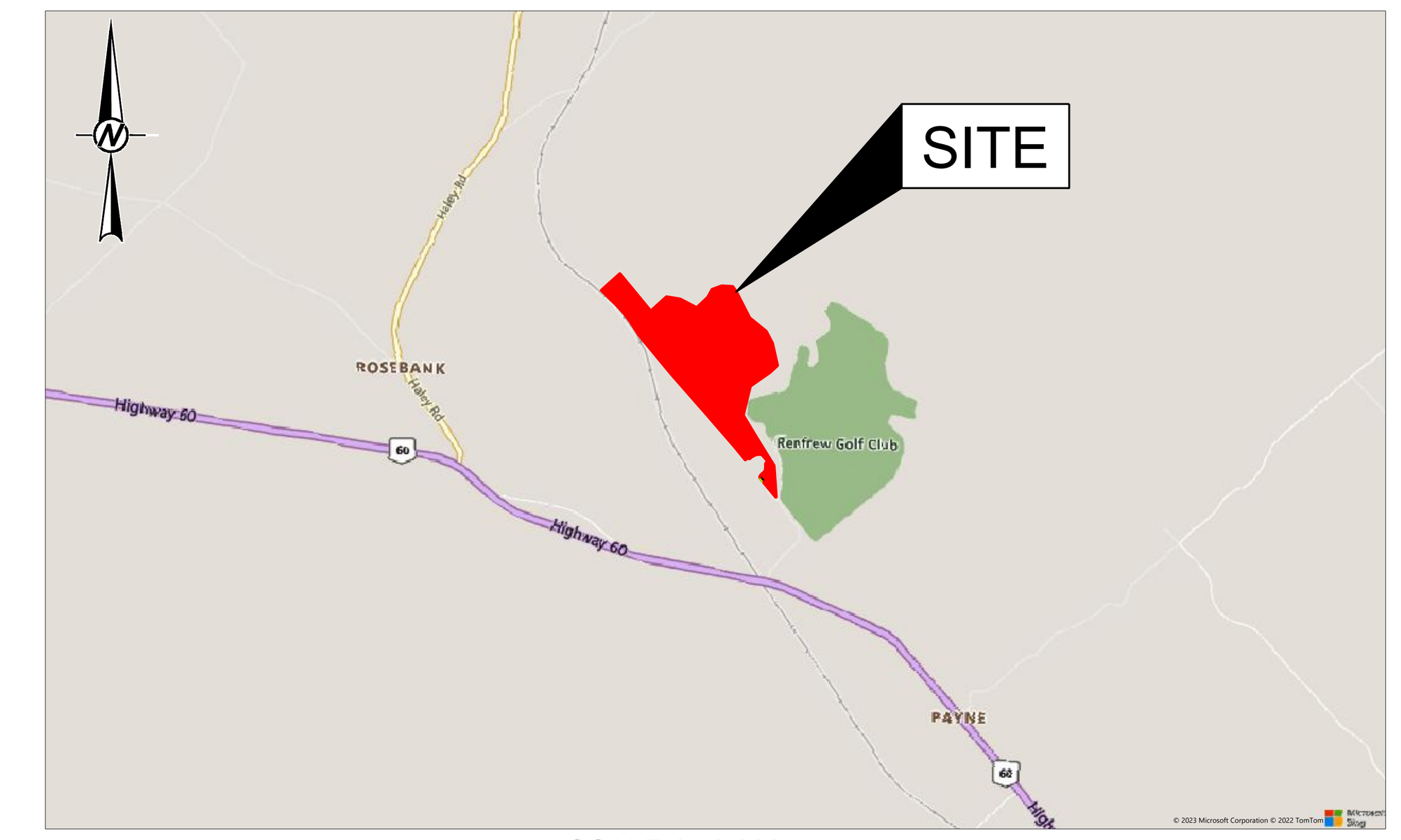
AMENDMENTS	DATE	APPROVAL DATE

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

SIGNATURE ______ DATE ______

0 100 200
1:3,000 METRES

KEY MAP



SCALE 1:40,000 m

RENFREW GOLF PIT

PART OF LOTS 23, 24 AND 25, CONCESSION 1
HORTON TOWNSHIP,
RENFREW COUNTY, ONTARIO

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

PIT LICENCE NO. __________

NOTE(S)

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LEGEND

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- LIMIT OF EXTRACTION
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- ROAD: PAVED
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- 150 — CONTOURS/INDEX CONTOURS
- WOODED AREA
- WATERCOURSE
- WETLAND
- x — PAGE WIRE FENCE/GATE
- ENTRANCE
- EXIT
- A-A' — CROSS-SECTIONS
- GENERAL DIRECTION OF EXCAVATION ABOVE THE WATER TABLE (LIFT 1)
- GENERAL DIRECTION OF EXCAVATION BELOW THE WATER TABLE (LIFT 2)
- × 134.53 — PROPOSED PIT FLOOR SPOT ELEVATION, mASL
- OVERBURDEN/TOPSOIL STORAGE BERM LOCATION

REFERENCE(S)

1. 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.
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2016
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28

CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT
RENFREW GOLF PIT

TITLE
OPERATIONS PLAN

APPLICANT
THOMAS CAVANAGH CONSTRUCTION LIMITED

YYYY-MM-DD	2023-06-11
DESIGNED	----
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

PROJECT NO.	CONTROL	REV.	PLAN
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25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI F

OPERATIONS PLAN - NOTES (PLAN 4 OF 5):

OPERATIONS CROSS-SECTIONS

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/TO GOLF COURSE ROAD WHICH CONNECTS TO HIGHWAY 60. THE ENTRANCE/EXIT POINT FOR THE SITE IS SHOWN ON THIS PLAN. ACCESS TO THE SITE WILL BE CONTROLLED BY GATES ERECTED AND MAINTAINED AT THE ENTRANCE/EXIT OF THE PROPERTY. THE GATE WILL BE KEPT CLOSED WHEN THE SITE IS NOT IN OPERATION.

34 AREA TO BE EXTRACTED

THE MAXIMUM AREA OF EXTRACTION IS 31.6 HECTARES. THE BOUNDARY OF THE AREA OF EXTRACTION IS SHOWN ON THE OPERATIONS PLAN (PLAN 3 OF 5).

36 PROPOSED FENCING

THE EXISTING FENCING ALONG THE WESTERN BOUNDARY WILL BE REPAIRED/REPLACED, AS NECESSARY, BEFORE EXTRACTION OPERATIONS BEGIN AT THE SITE. NEW FENCING IS PROPOSED FOR THE SOUTH/SOUTHEASTERN PORTION OF THE SITE BOUNDARY THAT IS LOCATED ADJACENT TO THE RENFREW GOLF CLUB. DUE TO THE RUGGED TERRAIN, HEAVY VEGETATION AND NEAR SURFACE BEDROCK, IT IS NOT FEASIBLE TO INSTALL FENCING ALONG THE NORTHERN BOUNDARY AND THE EASTERN BOUNDARY NORTH OF THE RENFREW GOLF CLUB. AS SUCH, NO FENCING IS PROPOSED ALONG THESE PORTIONS OF THE SITE BOUNDARY. THESE PORTIONS OF THE SITE BOUNDARY ARE CONSIDERED INACCESSIBLE TO THE PUBLIC. DURING OPERATIONS, A BERM WILL BE PLACED ALONG THE LIMIT OF EXTRACTION WHERE FENCING IS NOT PRESENT. A NOTE HAS BEEN ADDED TO THE VARIATIONS TABLE TO INDICATE THERE WILL BE NO FENCING ALONG THE NORTHERN BOUNDARY AND THE EASTERN BOUNDARY NORTH OF THE RENFREW GOLF CLUB.

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

A. NO ADDITIONAL BUILDINGS OR PERMANENT STRUCTURES ARE PROPOSED FOR THE SITE. A SCALE HOUSE AND SCALES WILL BE ESTABLISHED AT THE SITE; HOWEVER, IT WILL BE PORTABLE AND WILL MOVE WITHIN THE LICENSED AREA. THE SCALE HOUSE AND SCALES WILL INITIALLY BE ESTABLISHED NEAR THE ENTRANCE/EXIT IN THE SOUTHERN PORTION OF THE SITE.

B. NO SCRAP WILL BE PERMANENTLY STORED AT THE SITE. SCRAP FROM THE SITE WILL BE TEMPORARILY STORED WITHIN THE AREAS DESIGNATED ON THE OPERATIONS SITE PLAN (PLAN 3 OF 5). SCRAP WILL BE REMOVED ON AN ONGOING BASIS. THE SCRAP STORAGE LOCATIONS MAY VARY AS THE PIT DEVELOPS TO ALLOW FOR EXTRACTION OF MATERIAL WITHIN THE AREAS DESIGNATED FOR SCRAP STORAGE SHOWN ON THE OPERATIONS PLAN.

C. LOCATIONS OF THE AGGREGATE STOCKPILES WILL FOLLOW OPERATIONS AND THEREFORE VARY ON SITE. STOCKPILES WILL BE LOCATED NO CLOSER THAN 30 METRES TO THE LICENSED BOUNDARY. 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 WILL BE STOCKPILED IN BERMS WITHIN THE LICENSED AREA AS IT BECOMES AVAILABLE FOR USE IN REHABILITATION.

D. INTERNAL HAUL ROADS WILL BE ESTABLISHED WITHIN THE PIT FOLLOWING THE DIRECTION OF EXCAVATION. DUST WILL BE MITIGATED ON SITE. WATER OR ANOTHER PROVINCIALLY 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. IN GENERAL, PROCESSING AREAS WILL FOLLOW ADVANCEMENT OF THE PIT FACES AND NOISE BARRIERS WILL BE USED TO MITIGATE NOISE IMPACTS AS DESCRIBED IN THE ACOUSTIC ASSESSMENT REPORT. SEE ADDITIONAL DETAILS PROVIDED IN THE TECHNICAL REPORT RECOMMENDATIONS SECTION AFTER SITE PLAN NOTE 55.

DUST WILL BE MITIGATED ON SITE. WATER OR ANOTHER PROVINCIALLY 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 AND WILL NOT BE LOCATED WITHIN 90 METRES OF THE RESIDENTIAL PROPERTY LOCATED ON GOLF COURSE ROAD.

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. 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). REMOVAL OF RECYCLED AGGREGATE IS TO BE ONGOING.

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 FROM ANY WATER SOURCE. ANY REBAR AND OTHER STRUCTURAL METAL REMOVED FROM THE MATERIAL DURING PROCESSING WILL BE STORED IN THE DESIGNATED SCRAP AREA 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 FROM THE SITE.

40 SEQUENCE/DIRECTION OF OPERATION

EXTRACTION OF THE FIRST LIFT WILL COMMENCE IN THE SOUTHERN PORTION OF THE EXTRACTION AREA AND WILL PROCEED RADIALLY TOWARDS THE NORTH, EAST AND WEST SETBACK LIMITS. THE FIRST LIFT WILL EXTEND TO THE WATER TABLE. EXTRACTION BELOW THE WATER TABLE WILL GENERALLY PROCEED FROM NORTH TO SOUTH. ARROWS SHOWING THE GENERAL DIRECTION OF PIT DEVELOPMENT FOR LIFT 1 (ABOVE THE WATER TABLE) AND LIFT 2 (BELOW THE WATER TABLE) ARE SHOWN ON THIS PLAN (PLAN 3 OF 5).

41 STRIPPING AND STOCKPILING OF TOPSOIL/OVERBURDEN

TOPSOIL OR OVERBURDEN STRIPPED IN THE OPERATION OF THE SITE WILL BE STOCKPILED WITHIN THE EXTRACTION AREA, AND STORED IN BERMS WITHIN THE DESIGNATED SETBACK AREAS AROUND THE PERIMETER OF THE SITE (SEE DESIGNATED AREAS ON PLAN 3 OF 5). THE STRIPPED TOPSOIL AND OVERBURDEN 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 TWO LIFTS CORRESPONDING TO ABOVE WATER AND BELOW WATER EXTRACTION. AS NECESSARY, BENCHES WILL BE USED FOR THE ABOVE WATER LIFT WHERE THE AVAILABLE MATERIAL ABOVE THE WATER TABLE IS GREATER THAN 10 METRES IN THICKNESS. THE MAXIMUM EXTRACTION DEPTH BELOW THE WATER TABLE IS 10 METRES. THE MAXIMUM BENCH HEIGHT ABOVE THE WATER TABLE AND THE MAXIMUM LIFT HEIGHT BELOW THE WATER TABLE WILL 10 METRES.

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

43 SURFACE WATER DIVERSION/DISCHARGE

DURING OPERATIONS, THE SOUTHERN PORTION OF THE SITE WILL BE EXTRACTED BELOW THE WATER TABLE TO FORM A PIT LAKE. THE NORTHERN PORTION OF THE SITE WILL BE EXTRACTED TO THE BEDROCK SURFACE (OR UNTIL NON-MARKETABLE MATERIAL IS ENCOUNTERED). THE WATER TABLE IS WITHIN THE BEDROCK IN NORTHERN PORTION OF THE SITE. THE MAJORITY OF THE PRECIPITATION FALLING ON THE NORTHERN HALF OF THE SITE WILL FLOW INTO THE PIT LAKE. THE WATER WITHIN THE PIT LAKE WILL INFILTRATE INTO THE COARSE-GRAINED MATERIAL AND FLOW DOWNGRADIENT AS GROUNDWATER SEEPAGE TOWARDS CLUBHOUSE LAKE. THE LOW POINT AROUND THE PERIMETER OF THE PIT LAKE IS AT ELEVATION 130 MASL AND IS LOCATED AT THE SOUTHERN END OF THE PIT LAKE. A 1.3-METRE-HIGH PERIMETER BERM WITH AN OUTLET AT 131 MASL WILL BE PLACED ACROSS THE LOW POINT TO REDUCE THE POTENTIAL FOR OUTFLOW FROM THE PIT LAKE. THIS WILL ALLOW THE PIT LAKE TO RISE TO AN ELEVATION OF UP TO 131 MASL. OCCASIONALLY, DURING PERIODS WHEN THE GROUNDWATER TABLE IS HIGH AND THERE IS SIGNIFICANT OVERLAND FLOW FROM THE NORTHERN HALF OF THE SITE, OUTFLOW FROM THE LOW POINT MAY OCCUR. A ROCK LINED OUTFLOW CHANNEL CONNECTING THE PIT LAKE TO CLUBHOUSE LAKE WILL BE CONSTRUCTED TO MANAGE OUTFLOW THAT MAY OCCASIONALLY DISCHARGE FROM THE PIT LAKE. THE LOCATION OF THE OVERFLOW DRAINAGE DITCH IS SHOWN ON PLAN 3 OF 5.

THE PRECIPITATION FALLING ON THE NORTHWEST PORTION OF THE SITE WILL DRAIN TOWARDS THE WEST SIMILAR TO PRE-DEVELOPMENT CONDITIONS. THIS WATER WILL INFILTRATE INTO THE COARSE-GRAINED MATERIAL ALONG THE WESTERN BOUNDARY AND FLOW DOWNGRADIENT AS GROUNDWATER SEEPAGE TOWARDS THE UNNAMED POND LOCATED TO THE WEST OF THE SITE.

44 SOURCE WATER PROTECTION POLICIES

THE SITE FALLS OUTSIDE OF ANY IDENTIFIED SOURCE WATER PROTECTION AREAS AND, AS SUCH, NO SOURCE WATER PROTECTION POLICIES ARE APPLICABLE TO THE SITE.

45 PROPOSED FUEL STORAGE AREAS

A FUEL STORAGE AREA WILL BE ESTABLISHED AT THE SITE NEAR THE SCALE HOUSE. FUEL AND ASSOCIATED PRODUCTS WILL BE STORED IN ABOVE GROUND TANKS OR CONTAINERS AND IN COMPLIANCE WITH THE TECHNICAL STANDARDS AND SAFETY ACT, 2000, LIQUID FUELS REGULATION O.REG.217/01 AND LIQUID FUELS HANDLING CODE, 2000. FUEL TRUCKS MAY BE USED FOR REFUELING OF ON-SITE EQUIPMENT WITHIN THE PIT IN ACCORDANCE WITH THE "PRESCRIBED CONDITIONS" THAT APPLY TO ALL CLASS A, BELOW WATER TABLE PIT LICENCES. A SPILLS CONTINGENCY PLAN WILL BE DEVELOPED PRIOR TO THE FIRST FUEL DELIVERY.

46 LOCATION OF ALL EXCAVATION SETBACKS

THE EXCAVATION SETBACKS ARE AS SHOWN ON THE OPERATIONS PLAN (PLAN 3 OF 5). THE EXCAVATION SETBACKS ON THE NORTH, EAST AND SOUTH SIDES OF THE SITE ARE 15 METRES EXCEPT WHERE WATER FEATURES ARE PRESENT AND THE SETBACKS ARE INCREASED TO 30 METRES.

THE SETBACK ON THE WEST SIDE OF THE SITE IS A MAXIMUM OF 30 METRES AND A MINIMUM OF 3 METRES. THIS VARIATION FROM THE TYPICAL 30-METRE SETBACK ALONG A ROAD ALLOWANCE IS RECORDED IN THE VARIATIONS TABLE ON THE OPERATIONS PLAN. AN INCREASE IN ON-SITE GROUND SURFACE ELEVATIONS NEAR THE CENTRAL WESTERN BOUNDARY RESULTS IN A SIGNIFICANT AMOUNT OF HIGH-QUALITY AGGREGATE BEING LOCATED ON-SITE WITHIN THE 30-METRE SETBACK AREA THAT IS ABOVE THE OFF-SITE GROUND SURFACE ELEVATIONS. AS SHOWN ON THE OPERATIONS PLAN, WITHIN THIS AREA, THE SETBACK HAS BEEN REDUCED FROM 30 METRES TO 3 METRES TO ALLOW FOR THE EXTRACTION OF THIS HIGH-QUALITY AGGREGATE MATERIAL DOWN TO AN ELEVATION EQUAL TO THE GROUND SURFACE ELEVATION WITHIN THE REMAINING 3-METRE SETBACK AREA. THIS WILL RESULT IN THE GROUND SURFACE WITHIN THE ORIGINALLY REQUIRED 30-METRE SETBACK AREA BEING LEVEL WITH THE GROUND SURFACE IN THE ADJACENT REMAINING 3-METRE SETBACK AREA. NO EXTRACTION BELOW THE ADJACENT 3-METRE SETBACK GRADE WOULD OCCUR WITHIN THE REDUCED SETBACK AREA. EXTRACTION TO THE FINAL PROPOSED DEPTH OF THE PIT WOULD ONLY OCCUR OUTSIDE OF THE STANDARD 30-METRE SETBACK AREA. SEE THE VARIANCE TABLE (ON PLAN 3 OF 5) FOR REDUCTION OF THE SETBACK ALONG A PORTION OF THE WEST BOUNDARY FROM THE STANDARD 30 METRES.

47 FINAL ELEVATION

THE FINAL FLOOR ELEVATION OF THE SITE WILL VARY FROM 135 TO 154 MASL IN THE NORTH/NORTHWEST PORTION OF THE EXTRACTION AREA TO 120 MASL IN THE SOUTHERN PORTION OF THE EXTRACTION AREA. SPOT ELEVATIONS FOR THE FINAL PIT FLOOR ARE PROVIDED ON THE OPERATIONS PLAN (PLAN 3 OF 5).

THE ACTUAL FINAL PIT FLOOR ELEVATION WILL BE PRIMARILY CONTROLLED BY THE ELEVATION OF THE BEDROCK WITHIN THE EXTRACTION AREA. THE MAXIMUM DEPTH OF THE PIT WILL BE THE BEDROCK SURFACE OR 10 METRES BELOW THE WATER TABLE, WHICHEVER IS ENCOUNTERED FIRST.

48 PROPOSED BERMS

STORAGE BERMS FOR TOPSOIL AND OVERBURDEN WILL BE LOCATED WITHIN THE SETBACK AREAS IN THE NORTHWEST AND SOUTHERN PORTIONS OF THE PIT AS IDENTIFIED ON PLAN 3 0F 5. WHERE NOISE ATTENUATION BERMS ARE REQUIRED WITHIN THE IDENTIFIED TOPSOIL AND OVERBURDEN STORAGE AREAS, THE MINIMUM BERM HEIGHT AND LENGTH ARE SPECIFIED IN THE RECOMMENDED NOISE BARRIERS TABLE ON PLAN 3 OF 5. DURING OPERATIONS, A BERM SHALL BE PLACED ALONG THE LIMIT OF EXTRACTION WHERE FENCING IS NOT PRESENT ALONG THE NORTHERN BOUNDARY AND THE EASTERN BOUNDARY NORTH OF THE RENFREW GOLF CLUB. WHEN BELOW WATER EXTRACTION APPROACHES THE SOUTHERN END OF THE EXTRACTION AREA, A 1.3-METRE-HIGH BERM WILL BE PLACED AT THE LOW POINT AROUND THE EDGE OF THE PIT LAKE (SEE LOCATION ON PLAN 3 OF 5). THE 1.3-METRE-HIGH BERM WILL REMAIN IN PLACE FOLLOW REHABILITATION OF THE SITE.

49 BERM VEGETATION AND MAINTENANCE

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.

OPERATIONS PLAN - NOTES (PLAN 4 OF 5):

50 METHOD OF EXTRACTION AND EQUIPMENT TO BE USED

THE AGGREGATE AT THE SITE WILL BE EXTRACTED USING EXCAVATION EQUIPMENT. THE EQUIPMENT TO BE LOCATED ON SITE WILL INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING: LOADERS, DUMP TRUCKS, WATER TRUCKS, TRACTORS, EXCAVATORS, COMPRESSORS, BULLDOZERS, BACKHOES, HAULAGE TRUCKS, SCRAPERS, MAINTENANCE/WELDING VEHICLES, WASH PLANT, MOBILE CRUSHING PLANT, AND MOBILE SCREENING PLANT.

51 PROPOSED TREE SCREENS

NO ADDITIONAL TREE SCREENS ARE PROPOSED AT THE SITE. NATURAL TREE SCREENS CURRENTLY EXIST ON THE NORTH AND EAST SIDES OF THE PIT AND PORTIONS OF THE SOUTH SIDE OF THE PIT. A VEGETATIVE BUFFER WILL BE CREATED/MAINTAINED ALONG THE NORTHERN HALF OF THE WESTERN BOUNDARY BETWEEN THE SITE AND THE OFFSITE RECREATIONAL TRAIL ADJACENT TO THE SITE. ANY BERMS CONSTRUCTED WITHIN THE SETBACK ALONG THE NORTHERN HALF OF THE WESTERN BOUNDARY WILL BE VEGETATED.

52 HOURS OF OPERATION

DAYTIME OPERATIONS (07:00 - 19:00) - DURING THE DAYTIME PERIOD, ALL SIGNIFICANT NOISE SOURCES ARE ASSUMED TO BE IN OPERATION AND INCLUDE THE FOLLOWING:

- ONE MOBILE SCREENING PLANT
- ONE WASH PLANT
- ONE MOBILE CRUSHING PLANT
- UP TO FIVE LOADERS OR EXCAVATORS
- ON-SITE TRUCK MOVEMENTS USED TO DELIVER MATERIAL TO THE MOBILE CRUSHING PLANT AND SHIP PROCESSED PRODUCT OFF-SITE.

EVENING AND NIGHTTIME OPERATIONS (19:00 - 07:00) - DURING THE EVENING AND NIGHTTIME PERIOD, THE FOLLOWING SIGNIFICANT NOISE SOURCES MAY BE IN OPERATION:

- UP TO TWO LOADERS OR EXCAVATORS
- ON-SITE TRUCK MOVEMENTS USED TO SHIP PROCESSED PRODUCT OFF-SITE.

FURTHER DETAILS ARE PROVIDED WITHIN THE RECOMMENDATIONS OF THE ACOUSTIC ASSESSMENT REPORT (SEE RECOMMENDATIONS IN ACOUSTIC ASSESSMENT SECTION FOLLOWING SITE PLAN NOTE 55).

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 EXTRACTED, 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.

54 VARIATIONS FROM OPERATIONAL REQUIREMENTS

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

55 MAXIMUM ANNUAL TONNAGE

THE NUMBER OF TONNES TO BE REMOVED FROM THE SITE IN A CALENDAR YEAR WILL NOT EXCEED 1,000,000.

TECHNICAL REPORT RECOMMENDATIONS AND/OR MONITORING

HYDROGEOLOGY AND HYDROLOGY

- THE FOLLOWING WATER LEVEL MONITORING PROGRAM SHALL BE IMPLEMENTED BY THE LICENSEE.
  - MONTHLY WATER LEVELS SHALL BE COLLECTED FROM BH21-01, BH21-02, BH21-04 TW-1, SG-1, DP-1, SG-2, DP-2 AND SG-3. A DATALOGGER WILL BE INSTALLED AT SG-1, SG-2 AND SG-3 TO RECORD WATER LEVEL MEASUREMENTS AT LEAST ONCE PER DAY.
  - THE GROUNDWATER LEVEL MONITORING WILL START PRIOR TO EXTRACTION BELOW THE WATER TABLE AT THE SITE. THE SURFACE WATER MONITORING PROGRAM WILL START WHEN EXTRACTION OPERATIONS BEGIN AT THE SITE.
- IN THE EVENT OF A WELL INTERFERENCE COMPLAINT, THE LICENSEE SHALL IMPLEMENT THE COMPLAINTS RESPONSE PROGRAM OUTLINED IN THE WATER REPORT (WSP DECEMBER 2023).
- CONSTRUCT AN OVERFLOW STRUCTURE, FOR EXAMPLE, SPILLWAY, BROAD-CRESTED WEIR OR ROCK CHUTE AT THE UPSTREAM END OF THE PROPOSED EMERGENCY SURFACE OVERFLOW DRAINAGE DITCH ALONG THE WEST SIDE OF THE SITE ACCESS ROAD. THE CREST ELEVATION OF THIS OVERFLOW STRUCTURE SHOULD BE LOWER THAN THE 131.3 MASL TOP ELEVATION OF THE PERIMETER BERM BY APPROXIMATELY 0.3 METRES, TO ALLOW FOR EMERGENCY OUTFLOW FROM THE PIT LAKE DURING EXTREME STORM EVENTS WITHOUT OVERTOPPING THE BERM.
- DURING OPERATIONS, A PERIMETER DITCH WILL BE CONSTRUCTED ALONG THE NORTHEAST SITE BOUNDARY, TO DIVERT CLEAN SURFACE RUNOFF FORM AROUND THE SITE BOUNDARY AND TOWARDS THE WEST TO EVENTUALLY REACH THE UNNAMED WETLAND. SIMILARLY, ANOTHER PERIMETER DITCH FLOWING TO THE SOUTHEAST IS RECOMMENDED TO BE CONSTRUCTED DURING OPERATIONS ALONG THE SOUTHWEST EXTRACTION AREA BOUNDARY WITHIN SUB-CATCHMENT B, TO PREVENT SITE CONTACT WATER FROM REACHING THE UNNAMED WETLAND.

NATURAL ENVIRONMENT

- ESTABLISH A MINIMUM 15 M SETBACK TO EXTRACTION, EXCEPT WHERE ADJACENT TO WETLANDS WHERE A 30 M SETBACK IS TO BE IMPLEMENTED AND THE SMALL AREA ALONG THE WESTERN EDGE WHERE A 3 M SETBACK IS PROPOSED. NO CLEARING OF VEGETATION IS TO OCCUR WITHIN THESE SETBACKS EXCEPT WHERE BERMS ARE PROPOSED.
- CONSTRUCT AN EMERGENCY SURFACE OVERFLOW DRAINAGE DITCH ALONG THE SITE ACCESS ROAD, AND A 1.3 M HIGH PERIMETER BERM ALONG THE SOUTH EDGE OF THE EXTRACTION AREA PER WATER REPORT (WSP DECEMBER 2023).
- NO CLEARING OF VEGETATION WITHIN THE CORE BREEDING BIRD SEASON (APRIL 1 - AUGUST 31).
- NO CLEARING OF TREES DURING THE ACTIVE SEASON FOR BATS (APRIL 1 - SEPTEMBER 30).
- PREPARATION OF AN AWARENESS PACKAGE HIGHLIGHTING SPECIES AT RISK (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 PIT ARE TO BE IMPLEMENTED.

ACOUSTIC ASSESSMENT

7.1 NOISE BARRIERS AND BERMS:

- NOISE BARRIERS AND BERMS ARE TO BE PROVIDED AS PER TABLE 7 THE RECOMMENDED NOISE BARRIERS TABLE FOUND ON PLAN 3 OF 5.
- NOISE BARRIERS AND BERMS ARE TO BE SOLID, HAVING NO GAPS, AND ARE TO HAVE A SURFACE DENSITY OF NO LESS THAN 20 KG/M2. EXAMPLES OF SUITABLE BARRIERS OR BERMS ARE AS FOLLOW:
  - O LIFT FACE OR EXISTING TERRAIN;
  - O EARTH, GRAVEL OR AGGREGATE BERMS OR STOCKPILES;
  - O CONCRETE OR BRICK WALLS;
  - O COMMERCIAL NOISE BARRIERS;
  - O SHIPPING CONTAINERS OR BUILDINGS,
  - O 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).

7.2 MOBILE SCREENING PLANT

- THE OPERATION OF THE MOBILE SCREENING PLANT (SCREENER) MAY TAKE PLACE ONLY DURING THE DAYTIME PERIOD (07:00 TO 19:00) AND SHALL COMPLY WITH THE FOLLOWING:
  - O THE SCREENER IS TO BE LOCATED ON THE FIRST LIFT (ABOVE WATER) AT AN APPROXIMATE ELEVATION OF 130 MASL IN THE SOUTH TO 154 MASL IN THE NORTH.

7.3 WASH PLANT

- THE OPERATION OF THE WASH PLANT AND ASSOCIATED DIESEL GENERATOR MAY TAKE PLACE ONLY DURING THE DAYTIME PERIOD (07:00 TO 19:00) AND SHALL COMPLY WITH THE FOLLOWING:
  - O THE WASH PLANT IS TO BE LOCATED ON THE PIT FLOOR AT A MAXIMUM ELEVATION OF 140 MASL IN THE LOCATION SHOWN ON THE OPERATIONS PLAN (PLAN 3 OF 5).
  - O THE MAXIMUM OUTDOOR SOUND POWER OF THE GENERATOR, IF USED TO PROVIDE POWER TO THE WASH PLANT, MUST NOT EXCEED 108.5 DBA (INCLUDES ATTENUATION PROVIDED BY SILENCER). TO ACHIEVE THESE RATINGS THE GENERATOR WILL LIKELY NEED TO BE HOUSED INSIDE AN ENCLOSURE AND FITTED WITH AN EXHAUST SILENCER THAT MEETS THE MINIMUM INSERTION LOSS REQUIREMENTS DESCRIBED IN TABLE 8 BELOW.

Table 8: MINIMUM INSERTION LOSS FOR GENERATOR EXHAUST SILENCER

Name	Octave Band Centre Frequency, Hz Minimum Dynamic Insertion Loss (dB)[1]								Rw
	63	125	250	500	1000	2000	4000	8000	
Silencer to be installed at the generator exhaust[2] (Source: Generator)	10	30	38	30	25	20	20	20	24

Notes:

1) Octave Band Centre Frequency, Hz, with minimum dynamic insertion loss in dB or dBA units re 10-12 Watts. Alternative levels at each frequency band permissible providing the overall insertion loss meets the overall insertion loss (Rw) as noted above and resultant noise from the exhaust after installation of the silencer is not tonal in character.
2) Insertion loss based on Silex Silencer Model JB 6. Refer manufacturers data Appendix 4.

  - O THE SILENCER IS TO BE LOCATED INSIDE THE ENCLOSURES OR AS CLOSE AS POSSIBLE TO THE LOCATION WHERE THE EXHAUST EXITS THE ENCLOSURES WITH THE DUCT MATERIAL BETWEEN THE SILENCER AND THE GENERATOR CONSTRUCTED OF 16-GAUGE WEATHER RESISTANT METAL. THE SILENCERS SHALL HAVE A HIGH TRANSMISSION LOSS CASING

OPERATIONS PLAN - NOTES (PLAN 4 OF 5):

7.4 MOBILE CRUSHING PLANT

- THE OPERATION OF THE MOBILE CRUSHING PLANT (CRUSHER) MAY TAKE PLACE ONLY DURING THE DAYTIME PERIOD (07:00 TO 19:00) AND SHALL COMPLY WITH THE FOLLOWING:
  - O THE CRUSHER IS TO BE LOCATED ON THE PIT FLOOR AT A MAXIMUM ELEVATION OF 140 MASL IN THE LOCATION SHOWN ON THE OPERATIONS PLAN (PLAN 3 OF 5).

7.5 LOADERS AND EXCAVATORS

- THE OPERATION OF THE LOADERS AND EXCAVATORS MAY TAKE PLACE DURING THE DAYTIME, EVENING AND NIGHTTIME PERIOD (24 HOURS) ANYWHERE IN THE EXTRACTION AREA.
  - O DURING THE DAYTIME PERIOD (07:00 TO 19:00): A MAXIMUM OF FIVE (5) LOADERS OR EXCAVATORS MAY BE IN OPERATION CONCURRENTLY.
  - O DURING THE EVENING AND NIGHTTIME PERIOD (19:00 TO 07:00): A MAXIMUM OF TWO (2) LOADERS OR EXCAVATORS MAY BE IN OPERATION CONCURRENTLY.

7.6 AGGREGATE TRUCKS

- THE DELIVERY OF MATERIAL TO THE PROCESSING PLANTS USING AGGREGATE TRUCKS MAY TAKE PLACE DURING THE DAYTIME, EVENING AND NIGHTTIME PERIOD (24 HOURS) AND SHALL COMPLY WITH THE FOLLOWING:
  - O DURING THE DAYTIME PERIOD (07:00 TO 19:00):
    - WHEN EXTRACTING SOUTH OF LINE AA: A MAXIMUM OF SIX (6) LOADS PER HOUR IN TOTAL MAY DELIVERED TO THE PROCESSING PLANTS.
    - WHEN EXTRACTING NORTH OF LINE AA: A MAXIMUM OF TWELVE (12) LOADS PER HOUR IN TOTAL MAY BE DELIVERED TO THE PROCESSING PLANTS.
  - O DURING THE EVENING AND NIGHTTIME PERIOD (19:00 TO 07:00):
    - A MAXIMUM OF FOUR (4) LOADS PER HOUR IN TOTAL MAY BE DELIVERED TO THE PROCESSING PLANTS.
  - O WHEN OPERATING ON-SITE, AGGREGATE TRUCKS SHALL NOT EXCEED 30 KM/H AND SHALL NOT USE COMPRESSION BRAKING (JAKE BRAKES).

7.7 HIGHWAY TRUCKS

- THE LOADING AND SHIPPING OF PRODUCT USING HIGHWAY TRUCKS MAY TAKE PLACE DURING THE DAYTIME, EVENING AND NIGHTTIME PERIOD (24 HOURS) AND SHALL COMPLY WITH THE FOLLOWING:
  - O DURING THE DAYTIME PERIOD (07:00 TO 19:00):
    - WHEN EXTRACTING SOUTH OF LINE AA: A MAXIMUM OF EIGHT (8) LOADS PER HOUR IN TOTAL MAY BE SHIPPED OFF-SITE.
    - WHEN EXTRACTING NORTH OF LINE AA: A MAXIMUM OF TWELVE (12) LOADS PER HOUR IN TOTAL MAY BE SHIPPED OFF-SITE.
  - O DURING THE EVENING AND NIGHTTIME PERIOD (19:00 TO 07:00):
    - A MAXIMUM OF FOUR (4) LOADS PER HOUR IN TOTAL MAY BE SHIPPED OFF-SITE.
  - O WHEN OPERATING ON-SITE, HIGHWAY TRUCKS SHALL NOT EXCEED 30 KM/H AND SHALL NOT USE COMPRESSION BRAKING (JAKE BRAKES).

7.8 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 19788. (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).

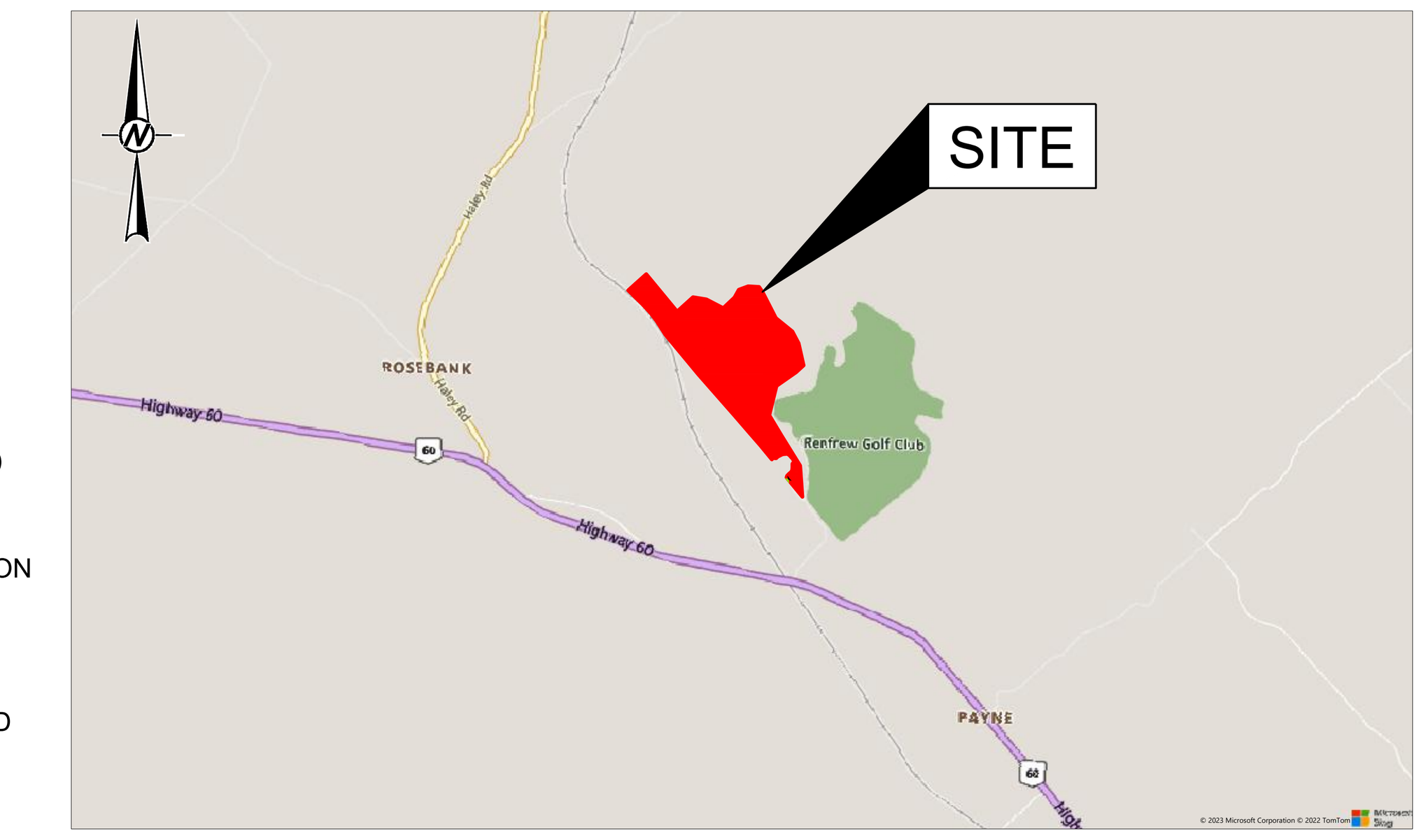
7.9 NEW PROCESS

- IF A NEW PROCESS IS INTRODUCED TO THE SITE, THEN THIS PROCESS SHALL BE ASSESSED BY A QUALIFIED ACOUSTICAL CONSULTANT PRIOR TO COMMISSIONING. NOISE MITIGATION MEASURES SHALL BE REVIEWED, AND ALTERED IF NECESSARY, TO ENSURE THAT MECP SOUND LEVEL LIMITS ARE MET AT ALL POINTS OF RECEPTION.

TRAFFIC ASSESSMENT

- THE TRIANGLED FORESTED AREA OF LANDS OWNED BY THE RENFREW GOLF CLUB BETWEEN THE RENFREW GOLF CLUB ACCESS ROAD AND GOLF CLUB ROAD SHOULD BE CLEARED (OF TREES, BRUSH ETC.) OF ALL SIGNIFICANT OBSTACLES THAT WOULD OBSTRUCT THE LINE-OF-SIGHT BETWEEN VEHICLES TRAVELLING EASTBOUND AND SOUTHBOUND. THE LIMITS OF CLEARING SHOULD IDEALLY EXTEND TO A POINT 10 METRES BEFORE THE LOCATION OF THE STOP SIGNS FACING EASTBOUND AND SOUTHBOUND TRAFFIC.
- THE EXISTING YIELD SIGN ON THE RENFREW GOLF CLUB ACCESS ROAD FACING TRAFFIC LEAVING THE GOLF CLUB SHOULD BE REPLACED BY A STOP SIGN, AND A PAVEMENT MARKED STOP BAR DELINEATED ON THE PAVEMENT SURFACE.
- A STOP SIGN IS RECOMMENDED THAT WOULD FACE EASTBOUND TRAFFIC LEAVING THE EXCAVATION SITE. THE SIGN SHOULD BE PLACED TO ASSURE A CLEAR LINE OF SIGHT OF SOUTHBOUND VEHICLES FROM THE GOLF COURSE ALSO WISHING TO MERGE ONTO GOLF CLUB ROAD EASTBOUND. IDEALLY, THE SURFACE 30 M IN FRONT OF THE NEW STOP SIGN SHOULD BE PAVED AND A PAVEMENT MARKED STOP BAR DELINEATED ON THE PAVEMENT SURFACE

KEY MAP



SCALE 1:40,000 m

RENFREW GOLF PIT

PART OF LOTS 23, 24 AND 25, CONCESSION 1
HORTON TOWNSHIP,
RENFREW COUNTY, ONTARIO

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

PIT LICENCE NO. ___________

NOTE(S)

1. LICENCED AREA, RENFREW GOLF PIT 40.5 HECTARES.
2. AREA OF OPERATION, RENFREW GOLF PIT 31.6 HECTARES.
3. THIS SITE PLAN IS PEPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE FOR A PIT BELOW THE GROUND WATER TABLE.
4. THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
5. LOT, CONCESSION AND BOUNDARY LINES ON THIS PLAN ARE APPROXIMATE.
6. 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.

PROFESSIONAL GEOSCIENTIST
JAIME P. A. OXTOBEE
PRACTISING MEMBER
1095
04-23-24
ONTARIO

SIGNATURE OF APPLICANT/LICENSEE	04-23-24 DATE
PREPARED UNDER THE DIRECTION OF:	04-23-24 DATE

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

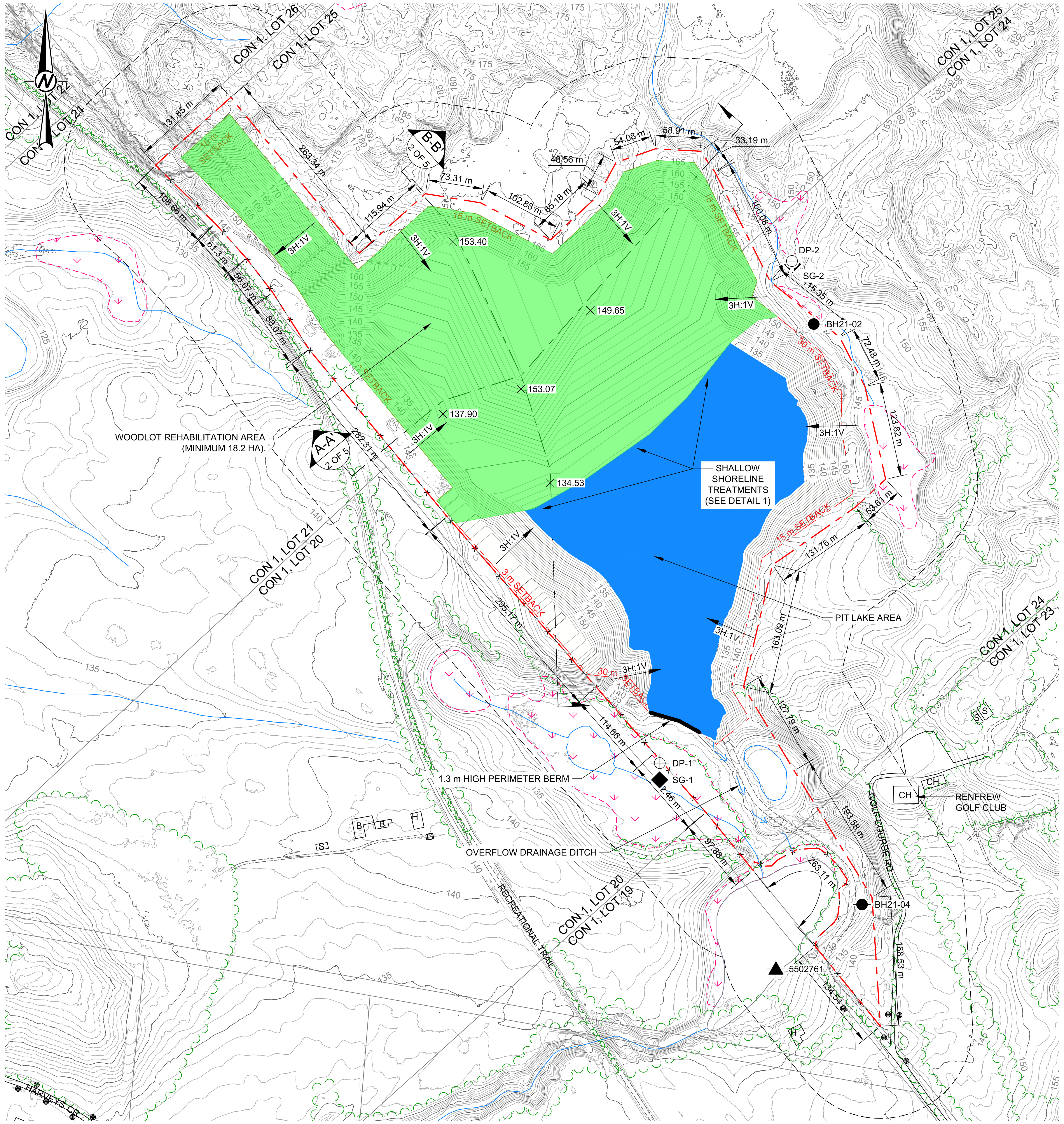
PROJECT
RENFREW GOLF PIT

TITLE
OPERATIONS PLAN - NOTES

APPLICANT
THOMAS CAVANAGH CONSTRUCTION LIMITED

YYYY-MM-DD	2023-02-03
DESIGNED	----
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

PROJECT NO.	CONTROL	REV.	PLAN
21465813	0004	0	4 OF 5



REHABILITATION PLAN
SCALE 1:3,000 m

REHABILITATION PLAN NOTES (PLAN 5 OF 5):

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

59 PROPOSED FINAL REHABILITATION OF THE SITE

THE PROPOSED FINAL REHABILITATION OF THE SITE IS AS A LAKE IN THE SOUTHERN PORTION OF THE SITE. THE NORTHERN PORTION OF THE SITE WILL BE REHABILITATED AS WOODLOT. THE FINAL BOUNDARY OF THE PIT LAKE WILL BE DEPENDENT ON THE ELEVATION OF THE BEDROCK AT THE SITE AND MAY VARY FROM THE BOUNDARY SHOWN ON THIS PLAN. DEPENDING ON THE SLOPE OF THE BEDROCK, SOME SMALL POOLS MAY DEVELOP IN THE NORTHERN HALF OF THE SITE DURING WET PORTIONS OF THE YEAR.

DURING REHABILITATION, A MINIMUM OF 20.1 HECTARES OF AREA NORTH OF THE PIT LAKE WILL BE REHABILITATED AS WOODLOT.

ALONG THE SIDES OF THE EXCAVATIONS, TYPICAL 3:1 (HORIZONTAL:VERTICAL) SLOPES WILL BE CONSTRUCTED AND SELECT AREAS AROUND THE PIT LAKE WILL HAVE 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 PIT 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 AND TOPSOIL IN PROGRESSIVE AND FINAL REHABILITATION

STOCKPILED OVERBURDEN WILL BE USED TO CREATE THE SLOPES SHOWN ON THE REHABILITATION PLAN. TOPSOIL WILL BE USED IN REHABILITATION TO COVER THE BACKFILLED PORTIONS OF THE REHABILITATED PIT AND THE ABOVE WATER SLOPES APPROACHING THE PIT 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. IF THERE ARE 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 (PLAN 5 OF 5).

1. EXCESS SOIL, AS DEFINED IN ONTARIO REGULATION 244/97 MAY BE IMPORTED TO THIS SITE TO FACILITATE THE FOLLOWING REHABILITATION:
   A. ESTABLISH FINAL GRADES AS DESCRIBED ON THE SITE PLAN
   B. TOP DRESSING TO ESTABLISH VEGETATION
2. LIQUID SOIL, AS DEFINED IN ONTARIO REGULATION 406/19 UNDER THE ENVIRONMENTAL PROTECTION ACT, IS NOT AUTHORIZED FOR IMPORTATION TO THE SITE.
3. THE QUALITY OF EXCESS SOIL IMPORTED TO THE SITE FOR FINAL PLACEMENT MUST BE EQUIVALENT TO OR MORE STRINGENT THAN THE APPLICABLE EXCESS SOIL QUALITY STANDARDS AS DETERMINED IN ACCORDANCE WITH ONTARIO REGULATION 244/97 AS AMENDED FROM TIME TO TIME AND MUST BE CONSISTENT WITH THE SITE CONDITIONS AND THE END USE IDENTIFIED IN THE APPROVED REHABILITATION PLAN.
4. WHERE A QUALIFIED PERSON IS RETAINED OR REQUIRED TO BE RETAINED IN ACCORDANCE WITH ONTARIO REGULATION 244/97, THE QUALITY, STORAGE, AND FINAL PLACEMENT OF EXCESS SOILS SHALL BE DONE ACCORDING TO THE ADVICE OF THE QUALIFIED PERSON.
5. EXCESS SOIL IMPORTED TO FACILITATE REHABILITATION AS DESCRIBED ON THIS SITE PLAN SHALL BE UNDERTAKEN IN ACCORDANCE WITH ONTARIO REGULATION 244/97 UNDER THE AGGREGATE RESOURCES ACT, AS AMENDED FROM TIME TO TIME.
6. THE CUMULATIVE TOTAL AMOUNT OF EXCESS SOIL THAT MAY BE IMPORTED TO THIS SITE FOR REHABILITATION PURPOSES IS 1,000,000 M^3.

63 VEGETATION TO BE ESTABLISHED DURING PROGRESSIVE AND FINAL REHABILITATION

WITHIN THE REHABILITATION AREA, THE PROPOSED REHABILITATION PLAN CALLS FOR THE INCLUSION OF A RANGE OF HABITATS. THIS INCLUDES UPLAND FOREST IN THE NORTHERN HALF OF THE SITE, LAKE IN THE SOUTHERN HALF, AND SHALLOW WETLAND AT THE INTERFACE BETWEEN THE TWO. AT THE TOE OF THE SLOPES, EXTENDING INTO THE LAKE, WILL BE SHALLOW SHORELINE TREATMENTS (WETLANDS), USED TO CREATE MORE DIVERSE HABITAT. NODAL PLANTINGS WILL ALSO BE USED WITHIN SELECTED AREAS AROUND THE LAKE AND WILL INCLUDE NATIVE EDGE, SUBMERGENT, AND EMERGENT SPECIES SUCH AS RED-OSIER DOGWOOD (*CORNUS SERICEA*), SLENDER WILLOW (*SALIX PETIOLARIS*) AS WELL AS HERBACEOUS PLANTS SUCH AS WATER PLANTAIN (*ALISMA TRIVALE*), LAKE SEDGE (*CAREX LACUSTRIS*), SWAMP MILKWEED (*ASCLEPIAS INCARNATA*), SOFTSTEM BULRUSH (*SCHOENOPLECTUS TABERNAEMONTANI*) AND COONTAIL (*CERATOPHYLLUM DEMERSUM*). 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 TO CREATE WILDLIFE HABITAT FOR TURTLES, WATERFOWL, FISH AND OTHER SPECIES. A CONCEPTUALIZATION OF THE SHALLOW SHORELINE TREATMENTS IS SHOWN ON DETAIL 1 INCLUDED ON THIS PLAN. IF FEASIBLE, IMPORTED SALVAGED WETLAND SOILS MAY BE BENEFICIAL FOR THESE AREAS TO CARRY NATIVE SEED BANK AND PROVIDE RICH SUBSTRATES. CAREFUL CONSIDERATION OF SOURCE SOILS WOULD BE REQUIRED IF SUCH IMPORTATION WAS CONTEMPLATED.

WITHIN THE NORTH AND NORTHWEST PORTION OF THE SITE, UPLAND FOREST AREAS WILL BE PLANTED. THE REFORESTATION WILL CONSIST OF NATIVE, NON-INVASIVE SPECIES AND THE COMMUNITY WILL BE THE SAME, OR SIMILAR, TO THE EXISTING CONDITIONS. THE EXISTING FORESTED AREAS OF THE SITE ARE DOMINATED BY A SUGAR MAPLE (*ACER SACCHARUM*) AND AMERICAN BEECH (*FAGUS GRADIFOLIA*) DECIDUOUS FOREST, CONTAINING ASSOCIATES OF IRONWOOD (*OSTRYA VIRGINIANA*) AND RED OAK (*QUERCUS RUBRA*). SMALLER AREAS OF THE SITE, ALONG THE SOUTHERN AND SOUTHWESTERN EDGES, ARE DECIDUOUS FORESTS CONSISTING OF TREMBLING ASPEN (*POPULUS TREMULOIDES*), LARGE-TOOTH ASPEN (*POPULUS GRANDIDENTATA*), WHITE ASH (*FRAXINUS AMERICANA*), AND SUGAR MAPLE. A SMALL PATCH OF MIXED FOREST IS PRESENT AT THE NORTHERN EDGE OF THE SITE, DOMINATED BY EASTERN HEMLOCK (*TSUGA CANADENSIS*) WITH ASSOCIATES OF YELLOW BIRCH (*BETULA ALLEGHENIENSIS*), RED MAPLE (*ACER RUBRUM*), SUGAR MAPLE AND WHITE CEDAR (*THUJA OCCIDENTALIS*). THE UNDERSTORY AT THE SITE CONSISTS OF TREE SAPLINGS, SHRUBS AND FORBS INCLUDING ROUND-LEAVED DOGWOOD (*CORNUS RUGOSA*), ALTERNATE-LEAVED DOGWOOD (*CORNUS ALTERNAFOLIA*), CANADA MAYFLOWER (*MAIANTHEMUM CANADENSIS*), BLOODROOT (*SANGUINARIA CANADENSIS*), WHITE TRILLIUM (*TRILLIUM GRANDIFOLIA*), AND SARSAPARILLA (*ARALIA NUDICAULIS*).

THE AREA PROPOSED FOR FOREST REHABILITATION WILL BE PLANTED TO REPLICATE THE SUGAR MAPLE AND AMERICAN BEECH FOREST (SUGAR MAPLE, AMERICAN BEECH, AND IRONWOOD), ALONG WITH FASTER GROWING SPECIES SUCH AS RED OAK, TREMBLING ASPEN AND LARGE-TOOTH ASPEN. NATIVE SHRUBS/SMALL TREES THAT ARE TOLERANT OF FULL-SUN WILL BE PLANTED CONCURRENTLY AND COULD INCLUDE CHOKECHERRY (*PRUNUS VIRGINIANA*), NANNYBERRY (*VIBURNUM LENTAGO*), BUSH HONEYSUCKLE (*DIERVILLA LONICERA*), ALTERNATE-LEAVED DOGWOOD, AND PINCHERRY (*PRUNUS PENSYLVANICA*). INITIALLY, THE UNDERSTORY OF THE PROPOSED FORESTED HABITATS WILL BE SEEDED WITH A NATIVE HERBACEOUS MIX, AND IT IS ANTICIPATED THAT, AS THE TREES MATURE, THE UNDERSTORY WILL BECOME REFLECTIVE OF SIMILAR FORESTED HABITATS IN THE LOCAL LANDSCAPE THROUGH NATURAL COLONIZATION FROM ADJACENT FORESTS AND FROM THE SALVAGED SEED BANK (TOPSOIL). NATIVE SEED MIXES WILL BE FINALIZED DEPENDING ON WHAT IS AVAILABLE AT THE TIME OF REHABILITATION; HOWEVER, THE MIX WILL INCLUDE SPECIES THAT ARE NATIVE AND NON-INVASIVE.

SOME EXAMPLES OF SPECIES TO CONSIDER INCLUDE ASTERS (*SYMPHYOTRICHUM* SPP), GOLDENRODS (*SOLIDAGO* SPP.), BLACK-EYED SUSAN (*RUDBECKIA HIRTA*), HOARY VERVAIN (*VERBENA STRICTA*), LITTLE BLUESTEM (*SCHIZACHYRIUM SCOPARIUM*), THIMBLEWEED (*ANEMONE CYLINDRICA*), FRINGED BROME (*BROMUS CILIATUS*), AND POVERTY OAT GRASS (*DANTHONIA SPICATA*). CANADA GOLDENROD (*SOLIDAGO CANADENSIS*), ALTHOUGH A VALUABLE NATIVE SPECIES, CAN BE VERY AGGRESSIVE IN EARLY SUCCESSIONAL SITES, OUTCOMPETING OTHER DESIRABLE SPECIES, AND SHOULD NOT BE INCLUDED IN THIS MIX. HOWEVER, SEVERAL OTHER SPECIES OF GOLDENRODS COULD BE INCLUDED, AND IT IS EXPECTED CANADA GOLDENROD WILL MOVE IN ON ITS OWN OVER TIME. CEREAL RYE OR OATS WILL BE SEEDED AS COVER CROP CONCURRENT WITH THE NATIVE SEEDS IN EARLY FALL. THESE COVER SPECIES ARE COLD TOLERANT AND WILL SPROUT IN FALL, WHICH WILL SERVE TO IMMEDIATELY REDUCE EROSION. THESE COVER SPECIES ARE ANNUAL SO THEY WILL NOT PERSIST OR OUT-COMPETE THE NATIVE SEEDS. THE NATIVE PLANTS WILL SPROUT IN SPRING AND REPLACE THE COVER CROPS.

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

64 PIT SLOPING

IN MOST CASES, 3:1 (HORIZONTAL:VERTICAL) SLOPES WILL BE CONSTRUCTED AROUND THE SIDES OF THE PIT. 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 (PLAN 5 OF 5).

65 ANY BUILDINGS OR STRUCTURES TO REMAIN ON SITE

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

66 FINAL SURFACE WATER DRAINAGE

THE SOUTHERN PORTION OF THE SITE WILL BE EXTRACTED BELOW THE WATER TABLE TO FORM A PIT LAKE. THE NORTHERN PORTION OF THE SITE WILL BE EXTRACTED TO THE BEDROCK SURFACE (OR UNTIL NON-MARKETABLE MATERIAL IS ENCOUNTERED). THE WATER TABLE IS WITHIN THE BEDROCK IN THE NORTHERN PORTION OF THE SITE. THE MAJORITY OF THE PRECIPITATION FALLING ON THE NORTHERN HALF OF THE SITE WILL FLOW INTO THE PIT LAKE. THE WATER WITHIN THE PIT LAKE WILL INFILTRATE INTO THE COARSE-GRAINED MATERIAL AND FLOW DOWNGRADIENT AS GROUNDWATER SEEPAGE TOWARDS CLUBHOUSE LAKE. THE LOW POINT AROUND THE PERIMETER OF THE PIT LAKE IS AT ELEVATION 130 MASL AND IS LOCATED AT THE SOUTHERN END OF THE PIT LAKE. A 1.3-METRE-HIGH PERIMETER BERM WITH AN OUTLET AT 131 MASL WILL BE PLACED ACROSS THE LOW POINT TO REDUCE THE POTENTIAL FOR OUTFLOW FROM THE PIT LAKE. THIS WILL ALLOW THE PIT LAKE TO RISE TO AN ELEVATION OF UP TO 131 MASL. OCCASIONALLY, DURING PERIODS WHEN THE GROUNDWATER TABLE IS HIGH AND THERE IS SIGNIFICANT OVERLAND FLOW FROM THE NORTHERN HALF OF THE SITE, OUTFLOW FROM THE LOW POINT MAY OCCUR. A ROCK LINED OUTFLOW CHANNEL CONNECTING THE PIT LAKE TO CLUBHOUSE LAKE WILL BE CONSTRUCTED TO MANAGE OUTFLOW THAT MAY OCCASIONALLY DISCHARGE FROM THE PIT LAKE.

THE PRECIPITATION FALLING ON THE NORTHWEST PORTION OF THE SITE WILL DRAIN TOWARDS THE WEST SIMILAR TO PRE-DEVELOPMENT CONDITIONS. THIS WATER WILL INFILTRATE INTO THE COARSE-GRAINED MATERIAL ALONG THE WESTERN BOUNDARY AND FLOW DOWNGRADIENT AS GROUNDWATER SEEPAGE TOWARDS THE UNNAMED POND LOCATED TO THE WEST OF THE SITE.

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 (PLAN 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

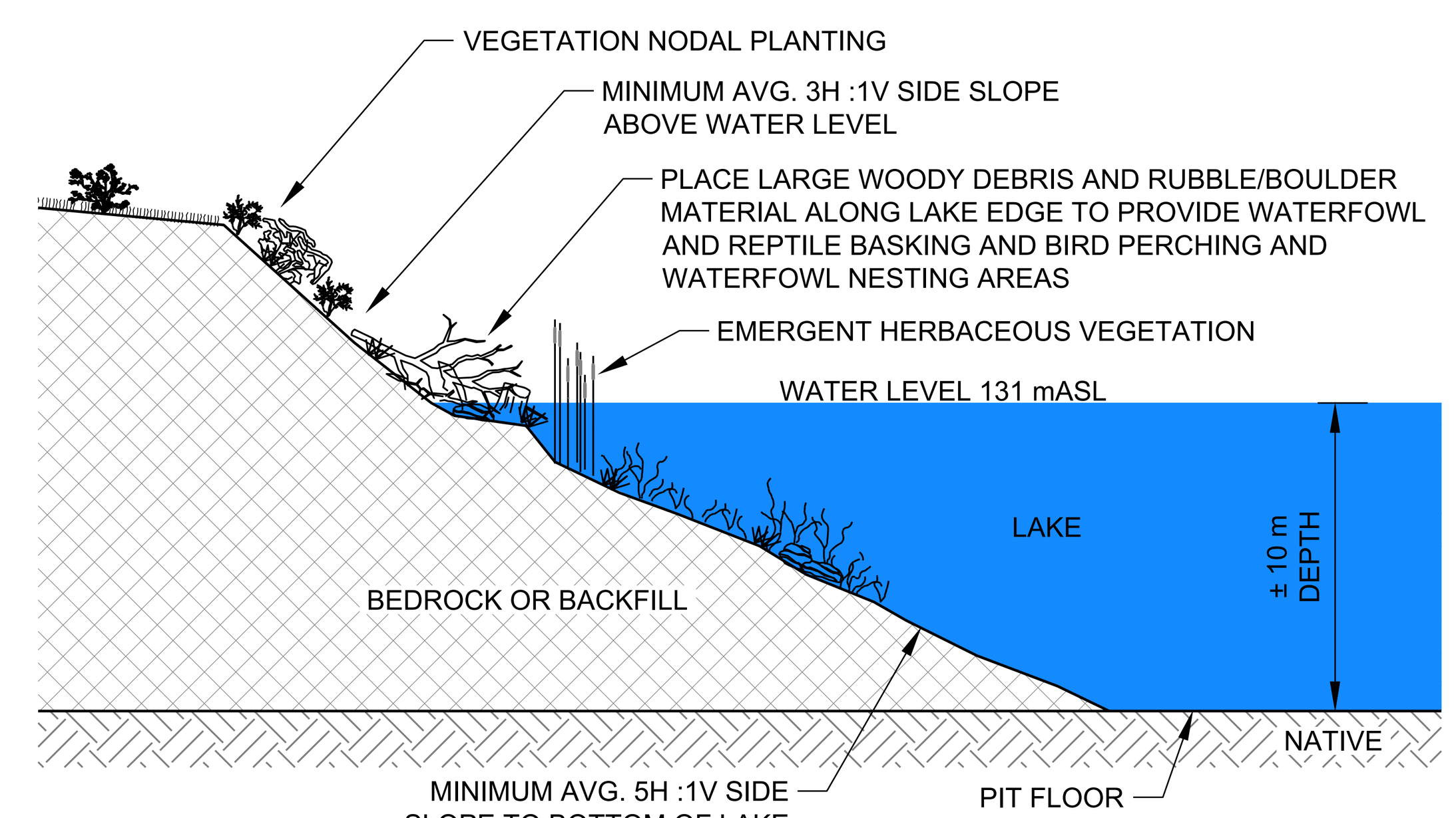
TWO REHABILITATION CROSS-SECTIONS ARE PROVIDED ON THE REHABILITATION PLAN (PLAN 5 OF 5).

72 PREDICTED WATER TABLE UNDER REHABILITATED CONDITIONS

THE PREDICTED WATER TABLE DURING REHABILITATION IS SHOWN ON THE CROSS-SECTIONS ON THIS PLAN (PLAN 5 OF 5).

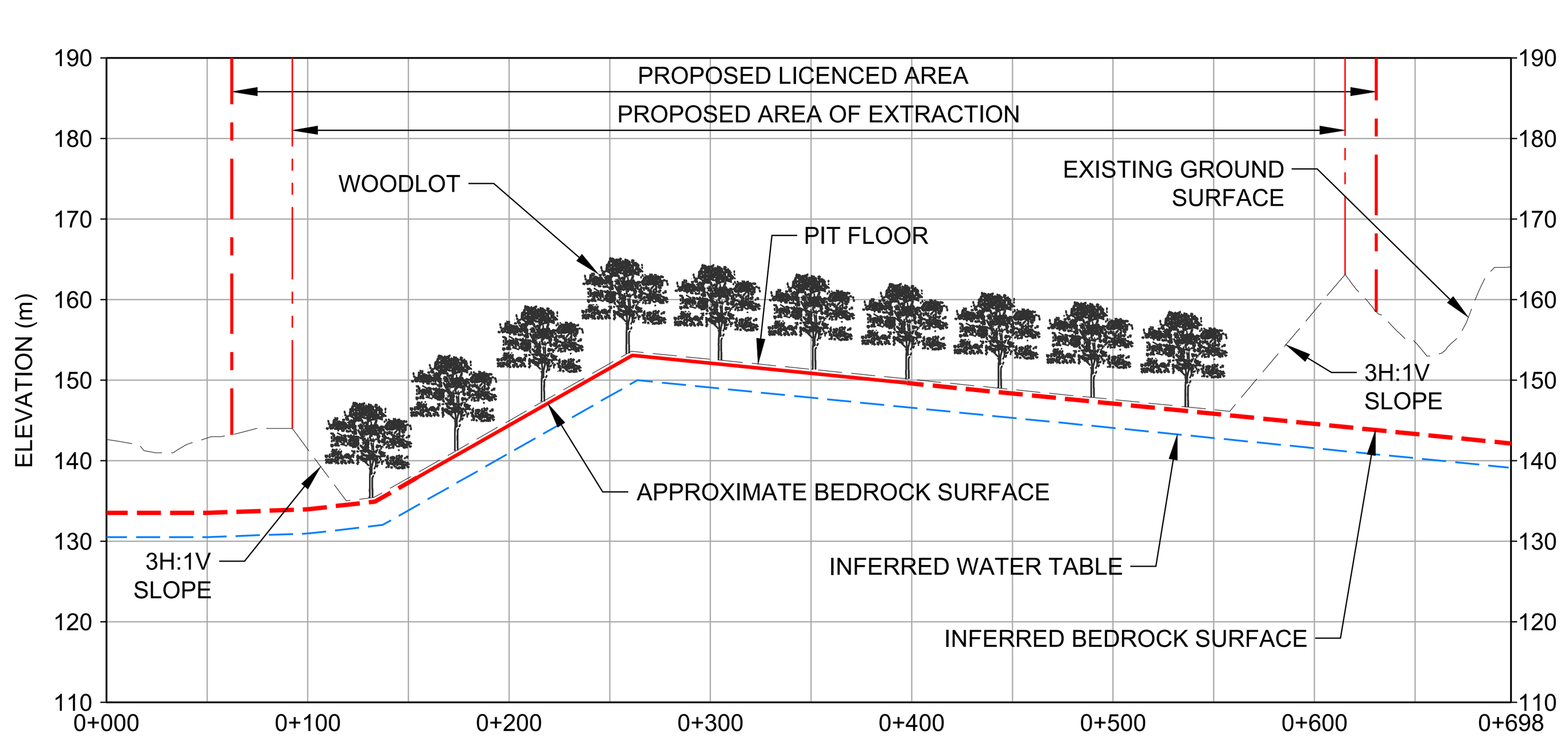
73 TYPICAL BERM DESIGN

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

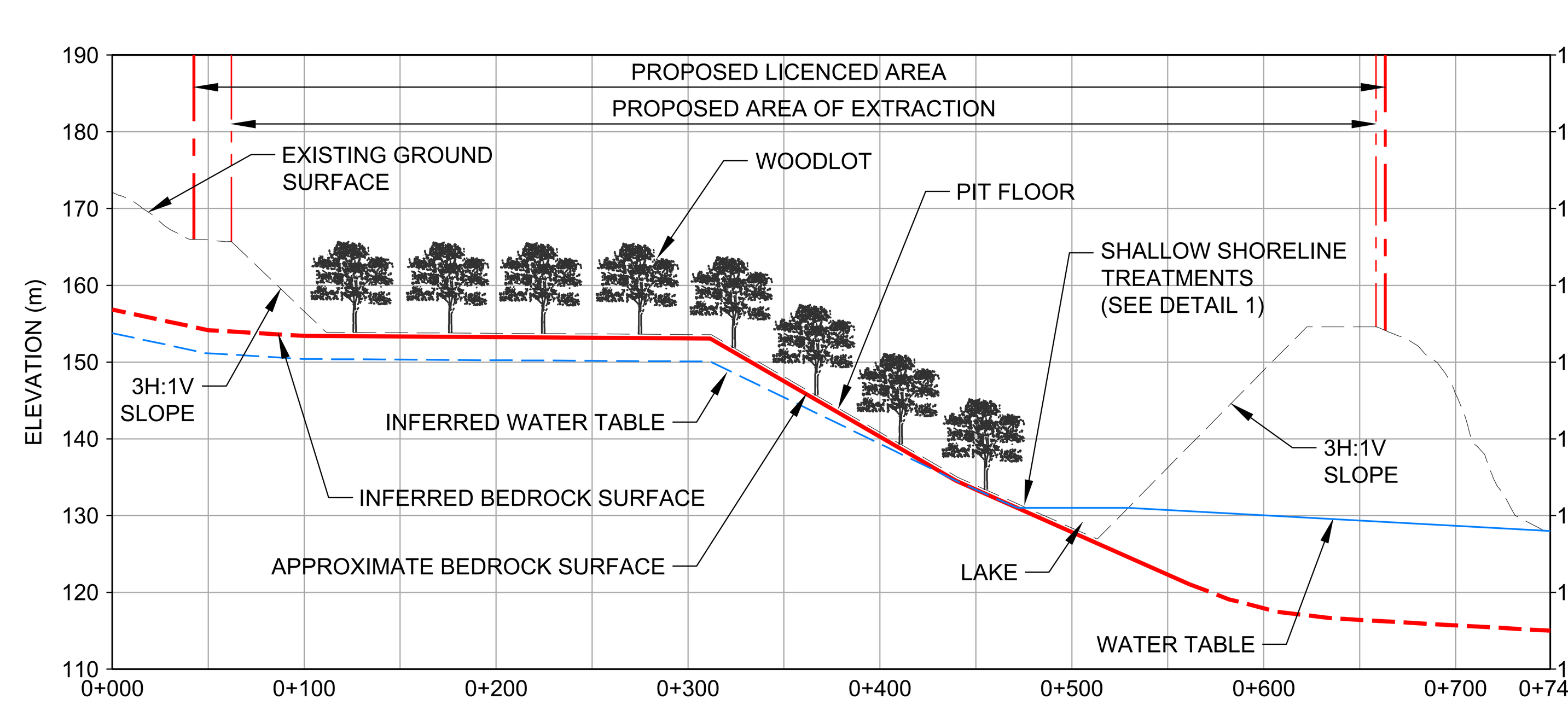


DETAIL 1
NOT TO SCALE

TYPICAL BERM DETAIL
SCALE NTS

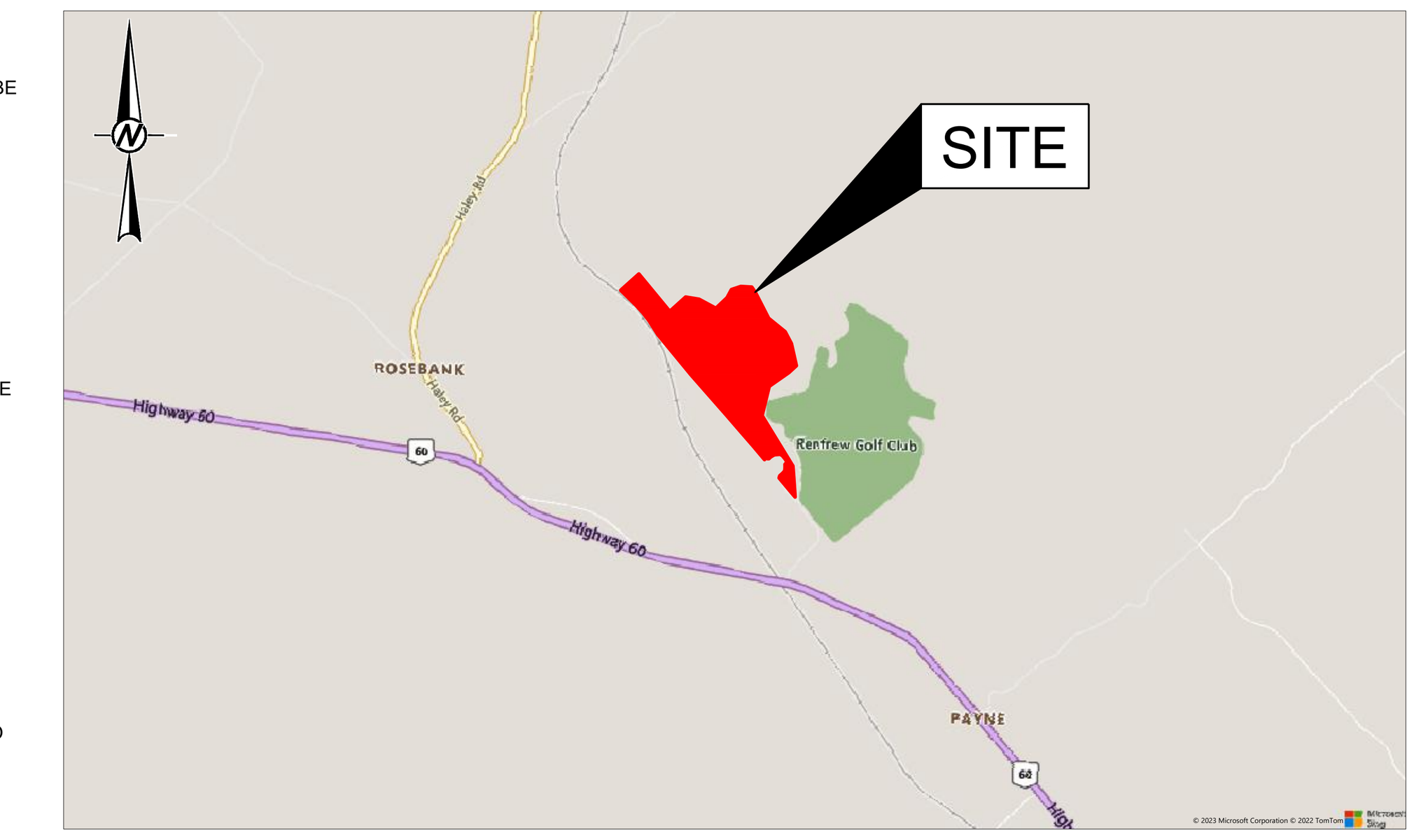


HORIZ. SCALE 1:3,000 m
VERT. SCALE 1:750
A-A' 2 OF 5 CROSS-SECTION



HORIZ. SCALE 1:3,000 m
VERT. SCALE 1:750
B-B' 2 OF 5 CROSS-SECTION

KEY MAP



SCALE 1:40,000 m

RENFREW GOLF PIT

PART OF LOTS 23, 24 AND 25, CONCESSION 1
HORTON TOWNSHIP,
RENFREW COUNTY, ONTARIO

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

PIT LICENCE NO. ___________

NOTE(S)

1. LICENCED AREA, RENFREW GOLF PIT 40.5 HECTARES.
2. AREA OF OPERATION, RENFREW GOLF PIT 31.6 HECTARES.
3. THIS SITE PLAN IS PEPARED UNDER THE AGGREGATE RESOURCES ACT FOR A CLASS A LICENCE FOR A PIT BELOW THE GROUND WATER TABLE.
4. THIS PLAN WAS PREPARED USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS.
5. LOT, CONCESSION AND BOUNDARY LINES ON THIS PLAN ARE APPROXIMATE.
6. 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
- DRIVEPOINT PIEZOMETER
- STAFF GAUGE
- PRIVATE WELL (AS PER MINISTRY OF ENVIRONMENT, CONSERVATION AND PARKS WATER WELL INFORMATION SYSTEM)
- CON 1, LOT 25 / CON 1, LOT 24 — LOTS AND CONCESSION LINES
- UTILITY POLE
- BUILDING; S-SILO, H-HOUSE, G-GARAGE, B-BARN, S-SHED, O-OFFICE, SC-SCALE HOUSE
- ROAD: PAVED
- ROAD: GRAVEL
- 150 — CONTOURS/INDEX CONTOURS
- WOODED AREA
- WATERCOURSE
- WETLAND
- PAGE WIRE FENCE/GATE
- ENTRANCE
- EXIT
- A-A' — CROSS-SECTIONS
- 134.53 — PROPOSED PIT FLOOR SPOT ELEVATION, mASL
- WOODLOT REHABILITATION AREA
- PIT LAKE

REFERENCE(S)

1. 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.
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2016
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28

SIGNATURE OF APPLICANT/LICENSEE	04-23-24 DATE
PREPARED UNDER THE DIRECTION OF:	04-23-24 DATE

PROFESSIONAL GEOSCIENTISTS ONTARIO — JAIME P. A. OXTOBEE — PRACTISING MEMBER 1095 — 04-23-24

THOMAS CAVANAGH CONSTRUCTION LIMITED

AMENDMENTS	DATE	APPROVAL DATE

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

SIGNATURE ______________ DATE ______________

0 100 200
1:3,000 METRES

CLIENT
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT
RENFREW GOLF PIT

TITLE
REHABILITATION PLAN

APPLICANT
THOMAS CAVANAGH CONSTRUCTION LIMITED

YYYY-MM-DD	2023-06-14
DESIGNED	----
PREPARED	JM
REVIEWED	JPAO
APPROVED	KAM

PROJECT NO.	CONTROL	REV.	PLAN
21465813	0004	0	5 OF 5