CON 11

CON 6 WHS

LOT 13

CREDIT RIVER

REGION OF HALTON
TOWN OF HALTON HILLS

WINSTON CHURCHILL BLVD

CITY OF BRAMPTON
REGION OF PEEL

AREA TO BE LICENSED
34.9 HA., 86.2 AC.

HERITAGE ROAD

LOT 12

LOT 12

CREDIT RIVER

ADAMSON STREET N.

GUELPH STREET

NORVAL

OLD PINECREST ROAD

120m FROM THE SITE

500m FROM THE SITE

LOT 11

LOT 11

BOVAIRD DRIVE

HIGHWAY 7

REGION OF HALTON
TOWN OF HALTON HILLS

CITY OF BRAMPTON
REGION OF PEEL

CON 11

CON 6 WHS

LOT 10

BRAMPTON BRICK Limited

255 WANLESS DRIVE, BRAMPTON, ONTARIO L7A1E9

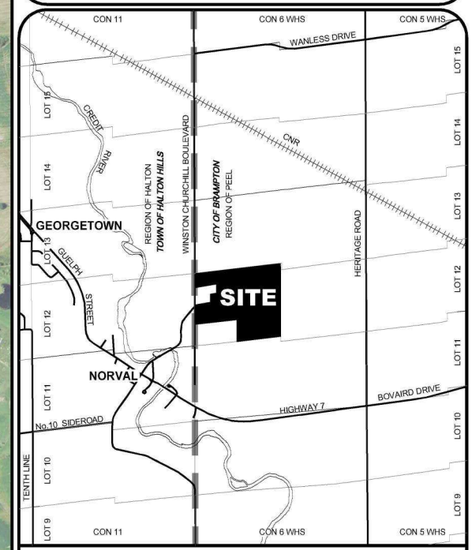
NORVAL QUARRY

PART OF WEST HALF LOT 12
CONCESSION 6 W.H.S.
GEOGRAPHIC TOWNSHIP OF CHINGUACOUSY
CITY OF BRAMPTON
REGION OF PEEL

SITE PLAN

FOR A CATEGORY 2, CLASS A QUARRY BELOW WATER UNDER THE AGGREGATES RESOURCES ACT

DRAWINGS



Scale: ±1: 25,000

KEY MAP

PROJECT:	BBNORVAL
DRAWN:	T.M.L. (On Autocad)
CHECKED:	R.J.L.
PLOTTED:	5 AUGUST 2010

AMENDMENT No.

No.	DATE	DESCRIPTION	APP'D

AMENDMENT

NORTH

0 15 30 60 150m 300

1 : 4,000

1 : 8,000 @ 11x17"

SEPTEMBER 2009 PHOTOGRAPHY FROM GOOGLE EARTH.

LONGENVIRONMENTAL CONSULTANTS INC
ENVIRONMENTAL ENGINEERS & PLANNERS
Orangeville Ontario







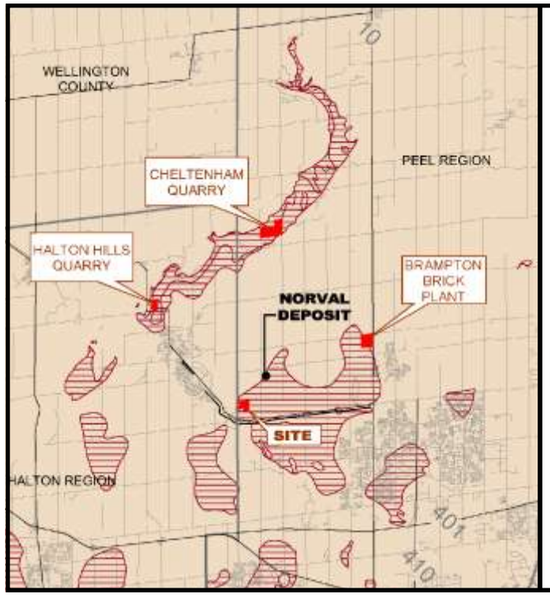

BRAMPTON BRICK

History

- Brampton Brick is a Canadian public company, located in Brampton since 1871
- The plant produces 300 million clay brick annually

Contributions to the Local Economy

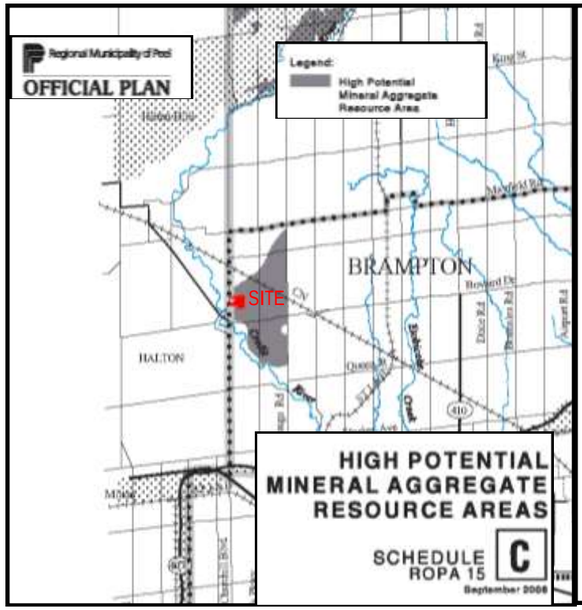
- Brampton Brick provides employment to about 170 people, with some 90 involved directly in the manufacturing, sales and distribution of clay brick, the majority in Peel Region
- The company produces approximately 45% of Ontario's clay brick, providing tax benefits to Brampton, the GTA and Ontario



THE ONTARIO GOVERNMENT MAPPED THE PROVINCIALLY SIGNIFICANT NORVAL DEPOSIT

PROVINCIAL AGGREGATE INVENTORY MAPPING

THE AGGREGATE RESOURCES INVENTORY OF THE REGION OF PEEL, ONTARIO GEOLOGICAL SURVEY, 1996 IDENTIFIED THE PROVINCIALLY SIGNIFICANT QUEENSTON SHALE. THE SITE IS WITHIN SELECTED BEDROCK RESOURCE AREA 5, COMPRISING ABOUT 3,100 HA (7,600 AC) IN NORTHWEST BRAMPTON.



PEEL REGION REDUCED THE NORTHWEST BRAMPTON HPMARA BUT IDENTIFED 1,200 HA. FOR CONTINUED PROTECTION.

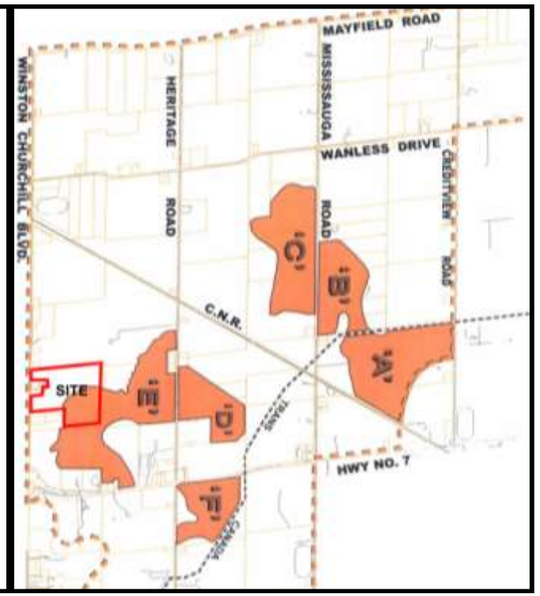
REGION OF PEEL
OFFICIAL PLAN
AGGREGATE AREAS, 2006

PEEL REGION'S OFFICIAL PLAN AMENDMENT No. 15 WAS APPROVED BY THE ONTARIO MUNICIPAL BOARD (OMB) IN DECEMBER 2006. LANDS WEST OF MISSISSAUGA ROAD ARE IDENTIFIED AND PROTECTED AS HIGH POTENTIAL MINERAL AGGREGATE RESOURCE AREAS (HPMARA) ON SCHEDULE C.

BRAMPTON IDENTIFIED 206 HA OF THE NORVAL SHALE DEPOSIT FOR PROTECTION

CITY OF BRAMPTON
NORTHWEST BRAMPTON SHALE RESOURCES REVIEW, 2002

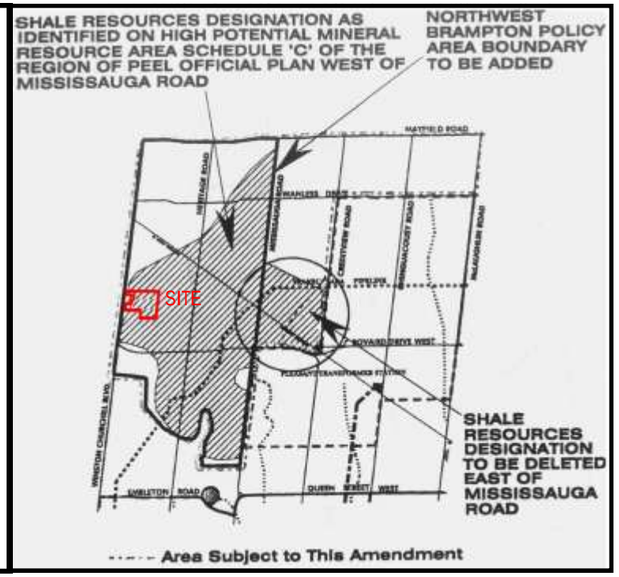
THE CITY CONDUCTED A PRECEDENT-SETTING STUDY DURING 2001 AND 2002 TO IDENTIFY PARTS OF THE NORVAL SHALE DEPOSIT WHICH COULD BE DEVELOPED FOR URBAN USES AND TO PRIORITIZE REMAINING RESOURCE AREAS FOR PROTECTION. THE AREAS SELECTED FOR PROTECTION, NUMBERED C TO F COMPRISE 206 HA.



BRAMPTON DELETED THE SHALE RESOURCES DESIGNATION EAST OF MISSISSAUGA ROAD AND MAINTAINED ITS PROTECTION OF THE SHALE DEPOSIT TO THE WEST

CITY OF BRAMPTON
OFFICIAL PLAN, SHALE RESOURCES DESIGNATION, 2006

AMENDMENT NO. 93-245 TO THE BRAMPTON OFFICIAL PLAN WAS APPROVED BY THE O.M.B. IN DECEMBER 2006. IT INCLUDED A SHALE RESOURCES DESIGNATION, WEST OF MISSISSAUGA ROAD. UTILIZATION OF THE SHALE RESOURCE IS PERMITTED, SUBJECT TO QUARRY REZONING AND LICENSING.



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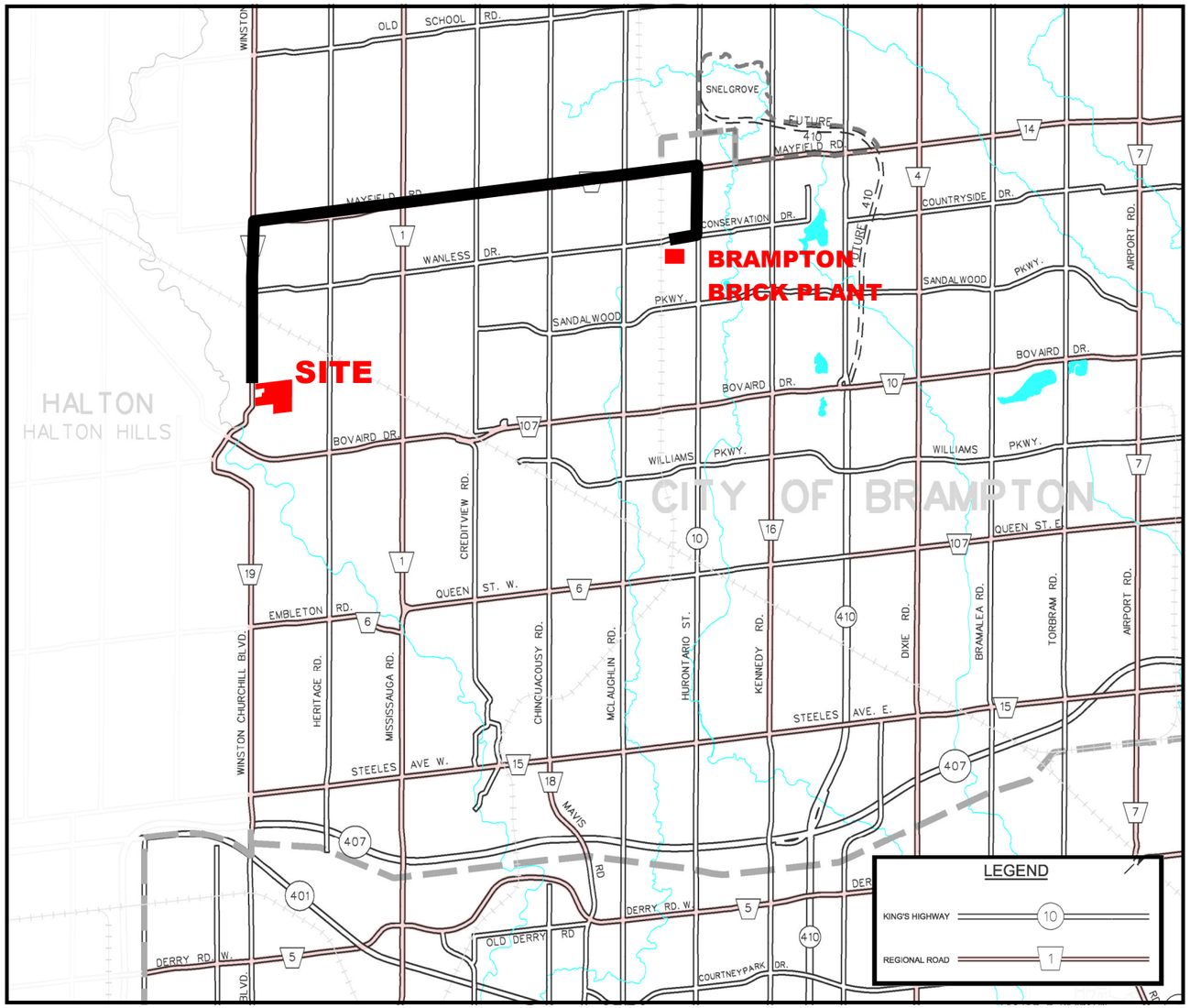
HAUL ROUTE



The Haul Route

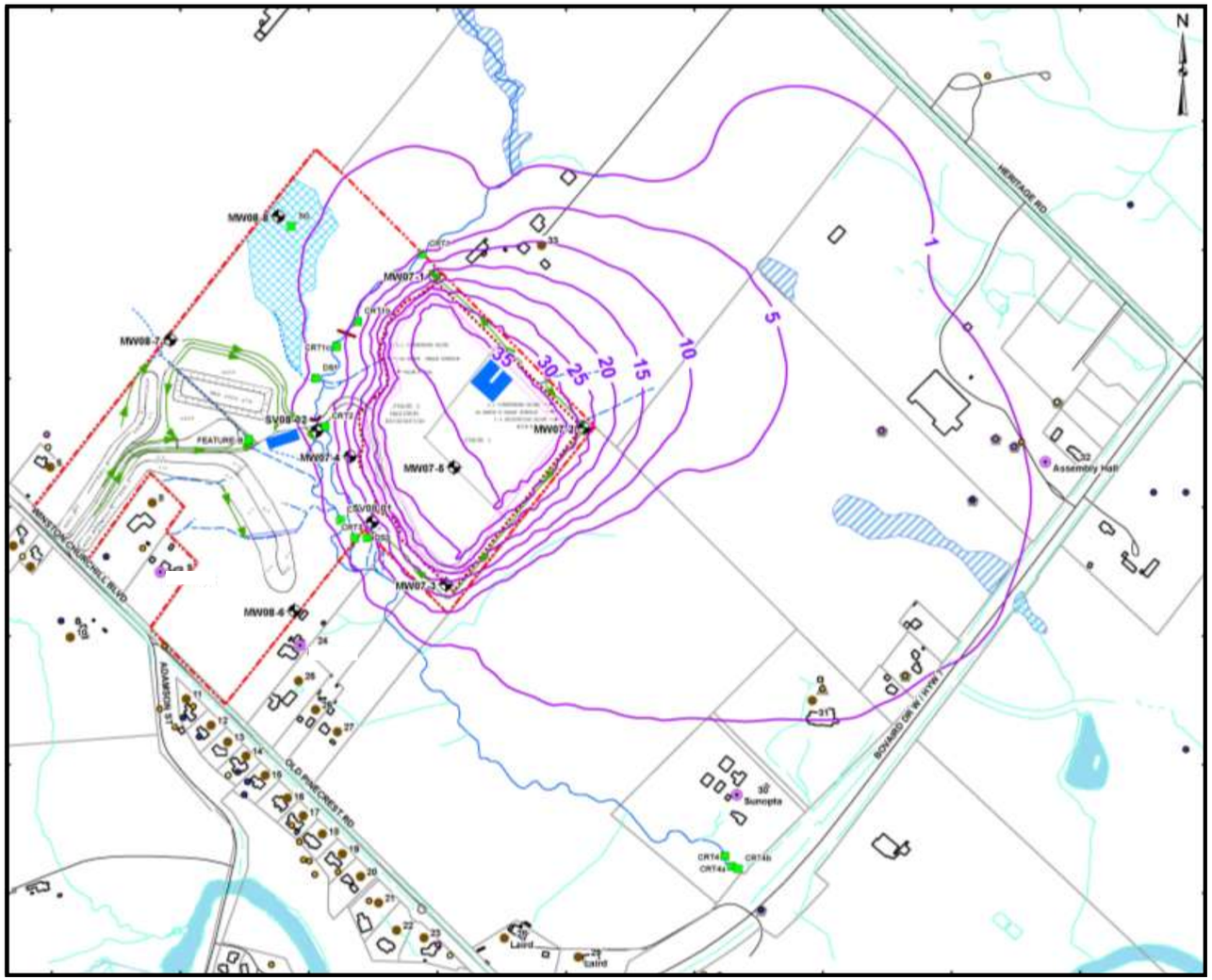
- The proposed haul route is Winston Churchill Boulevard north to Mayfield Road, then east to Hurontario Street, then south to the brick plant on Wanless Drive

Traffic

- The proposed quarry will generate 30 truck loads per 10 hour day
- On average, the increase in traffic is expected to be 3 truck loads per hour (6 trips)

Reconstruction

- Winston Churchill Boulevard north of Old Pinecrest Road is to be reconstructed for widening, improved visibility and to accommodate truck traffic during 2013



LEGEND

- <1m to 5m Available Water Column
- >10m Available Water Column

MOE Water Well Records

- Margin of error : 10 - 30 m
- Margin of error : 100 m - 300 m
- Margin of error : 3 - 10 m
- Margin of error : 30 m - 100 m
- Margin of error : 300 m - 1 km

- Monitoring Well Nest
- Private Well Location
- Private Well Sampled and Instrumented for Long Term Monitoring
- Surface Water Station
- Drawdown Contour (m)
- Bridge Crossing (Retrofit)
- Historic Wier Structure
- Parcel

- Proposed Diversion Flow Direction
- Permanent (Perennial) Watercourse
- Intermittent Watercourse
- Ephemeral Watercourse
- Off-Site Drainage Feature
- Proposed Site Pond
- Wetland (MNR 2009)
- Wetland (MNR 2007)
- Extraction Limit
- Norval Property Boundary

WATER RESOURCES

Ground and Surface Water Monitoring

- A ground and surface water monitoring program of on-site wells and the Credit River tributary was initiated in 2007 and will continue for the life of the quarry
- Annual monitoring results will be provided to Ministries of the Environment and Natural Resources

Monitoring of Residential Wells

- Monitoring of domestic wells will continue during the life of the proposed quarry

Mitigation

- Mitigation measures will be in place to manage effects on surface water features and local wells
- An Adaptive Water Management Plan will be developed to enable complaint response and ensure potable water supplies

Legend

- Subject Property
- Benthic Invertebrate Sampling Locations

Drainage Features

- Permanent
- Intermittent
- Ephemeral

NATURAL HERITAGE

Terrestrial Environment

- Two key natural heritage features occupy part of the site: the Credit River tributary valley and a 2.2 ha Provincially Significant Wetland
- These areas of natural succession will remain undeveloped

Aquatic Environment

- Fish sampling indicated four warm water resident species: Longnose and Blacknose Dace, Brook Stickleback, and Creek Chub

Mitigation

- Recommendations for maintaining key natural heritage features include haul road alignment across the valley, erosion control and rehabilitation
- Vegetation enhancement and protection zones will reduce the extent of the site disturbed by agriculture and increase forest cover

CULTURAL HERITAGE

Built Heritage

- The primary cultural heritage features are the former Curry farmhouse, circa 1830, the welding building, bridge, stream crossing and landmark oak tree

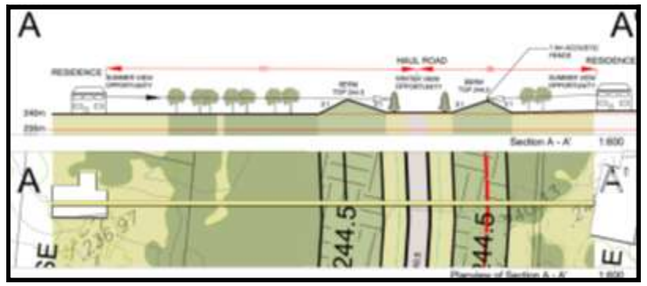
Archaeology

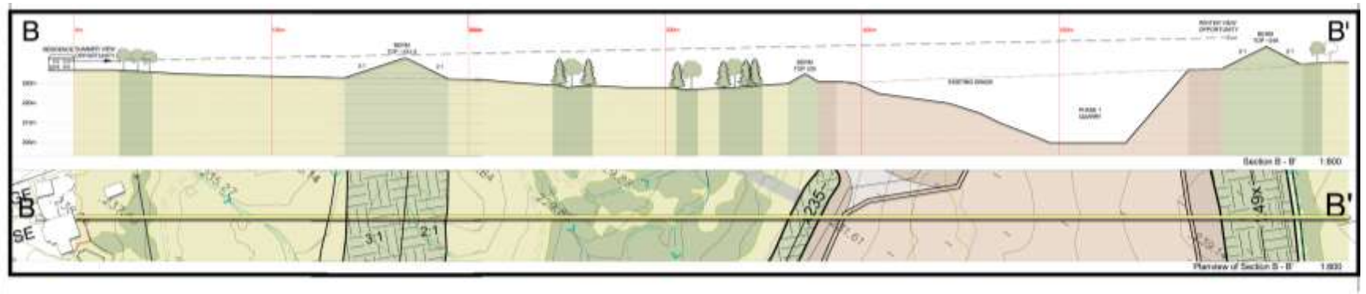
- Stage 3 assessment artifacts included: ceramics, nails, window glass, household and personal items consistent with the original log cabin

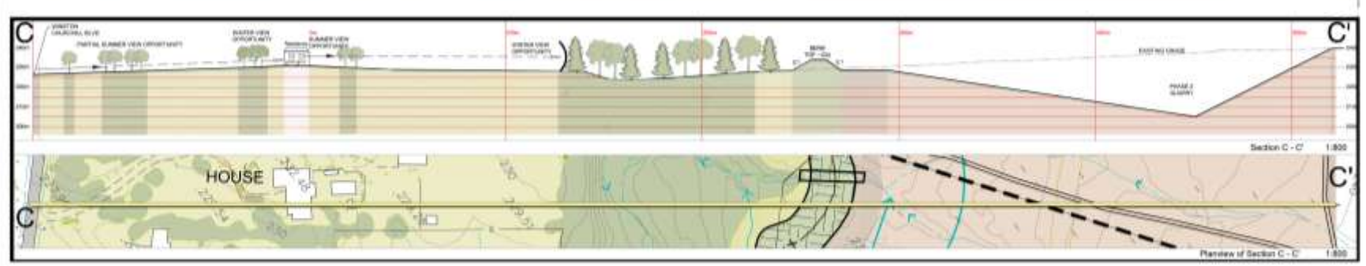
- Excavations did not encounter the reported Curry family cemetery

Ministry of Tourism and Culture

- The Ministry of Tourism and Culture clearance letters in October 2010 indicated no further archaeological concerns







VIEWS AND LANDSCAPE

Visual Assessment

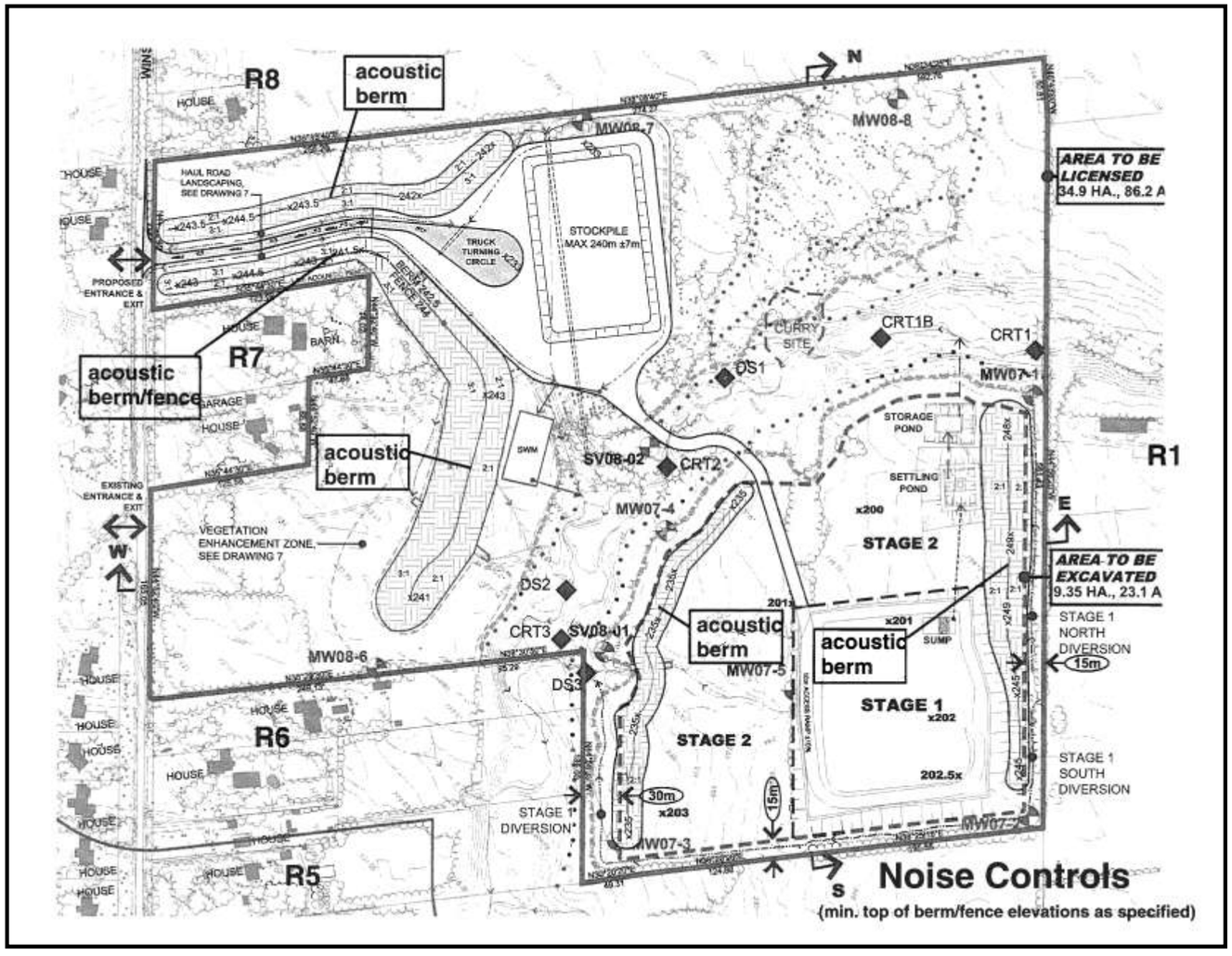
- The visual assessment included an analysis of the extent and distance from which the proposed quarry can be seen
- The majority of the views of the proposed quarry are well screened by existing vegetation and topography

Mitigation

- Mitigation will include the proposed berms, native deciduous and coniferous trees of varying sizes

Vegetation Management Plan

- A landscaping and vegetation management strategy will be implemented during site preparation, progressive and final rehabilitation



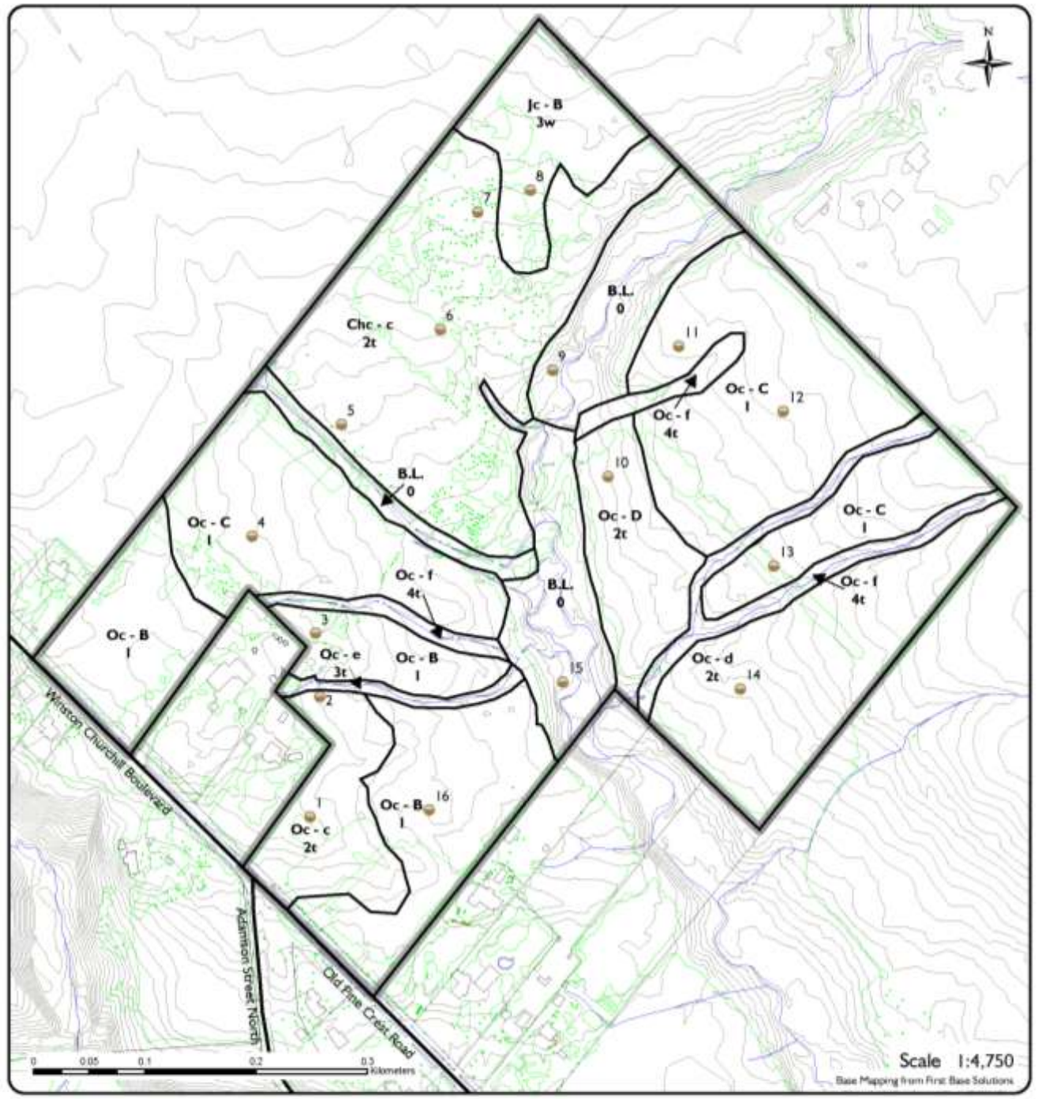
NOISE CONTROLS

Noise Control Measures

- Noise control measures include: restrictions on numbers and type of equipment, noise levels of the equipment, areas of operation, perimeter berming, and fence
- Hours of operation are 7am to 5 pm Monday to Friday

Findings

- Noise level predictions for the proposed quarry comply with government guidelines at all residences in the vicinity
- The increase in haul route traffic noise was determined to be acoustically insignificant



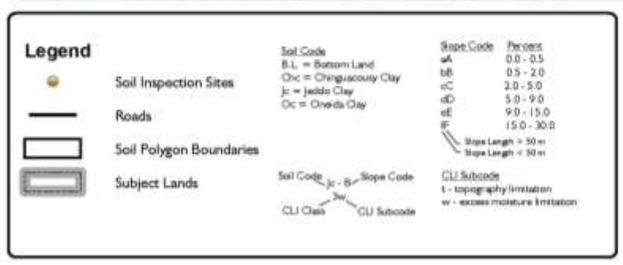


Figure 2

Canada Land Inventory (CLI)
Soil Capability

DBH Soil Services Inc

August 2008

File:2008/07/Figure 2 - Soils/CLI - August 11 2008

AGRICULTURE

History

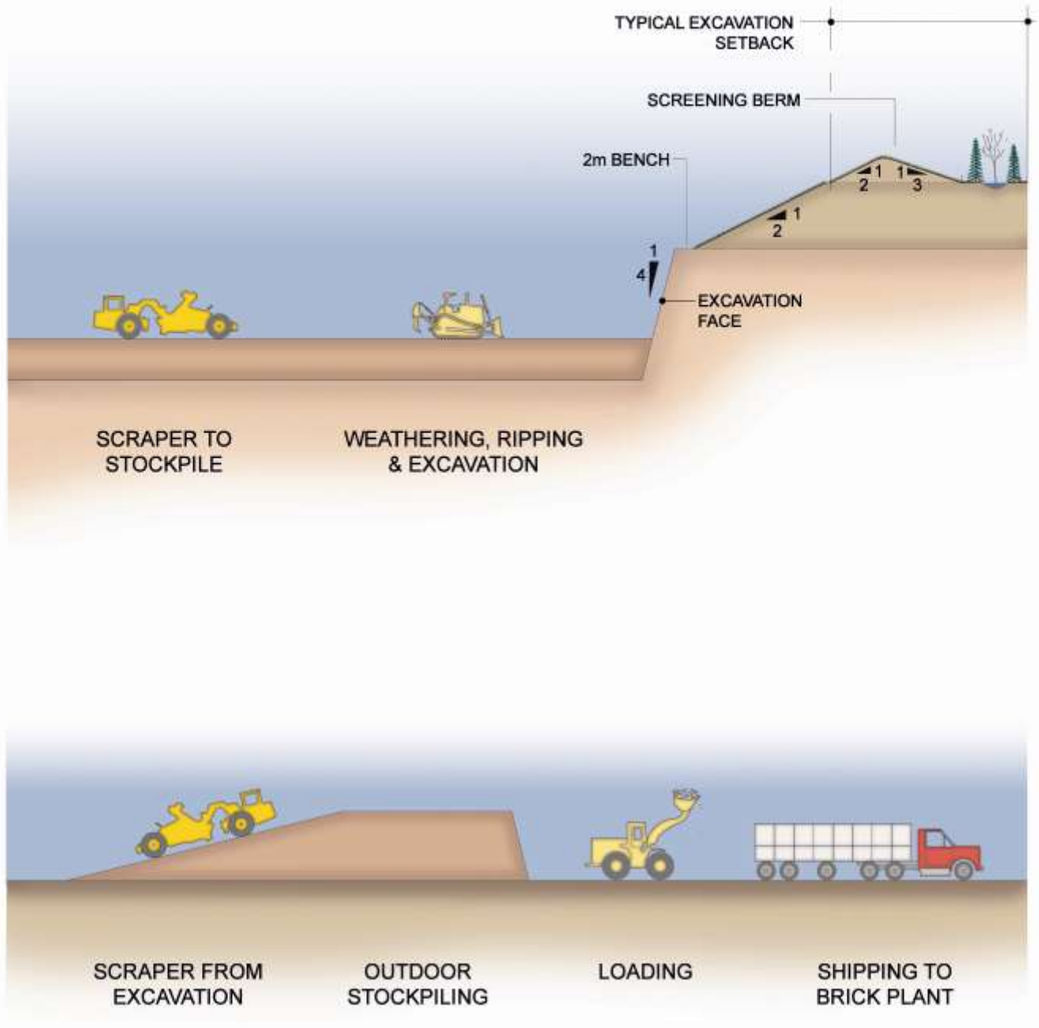
- Farming began on the property in the mid 19th century. A commercial tree nursery was established during the 1980s and 1990s; some remnant trees remain

Soil Capability

- The site comprises approximately 35 ha (86 acres) of which approximately 9 ha will be excavated
- More than 80% of the of the site (29 ha) is Prime Agricultural, Classes 1 to 3

Rehabilitation

- Restoration under the License includes a 5.25 ha pond with surrounding aquatic and terrestrial vegetation
- In the long term, if approved, the excavation will be backfilled to enable agricultural rehabilitation



QUARRY OPERATIONS

Excavation and Stockpiling

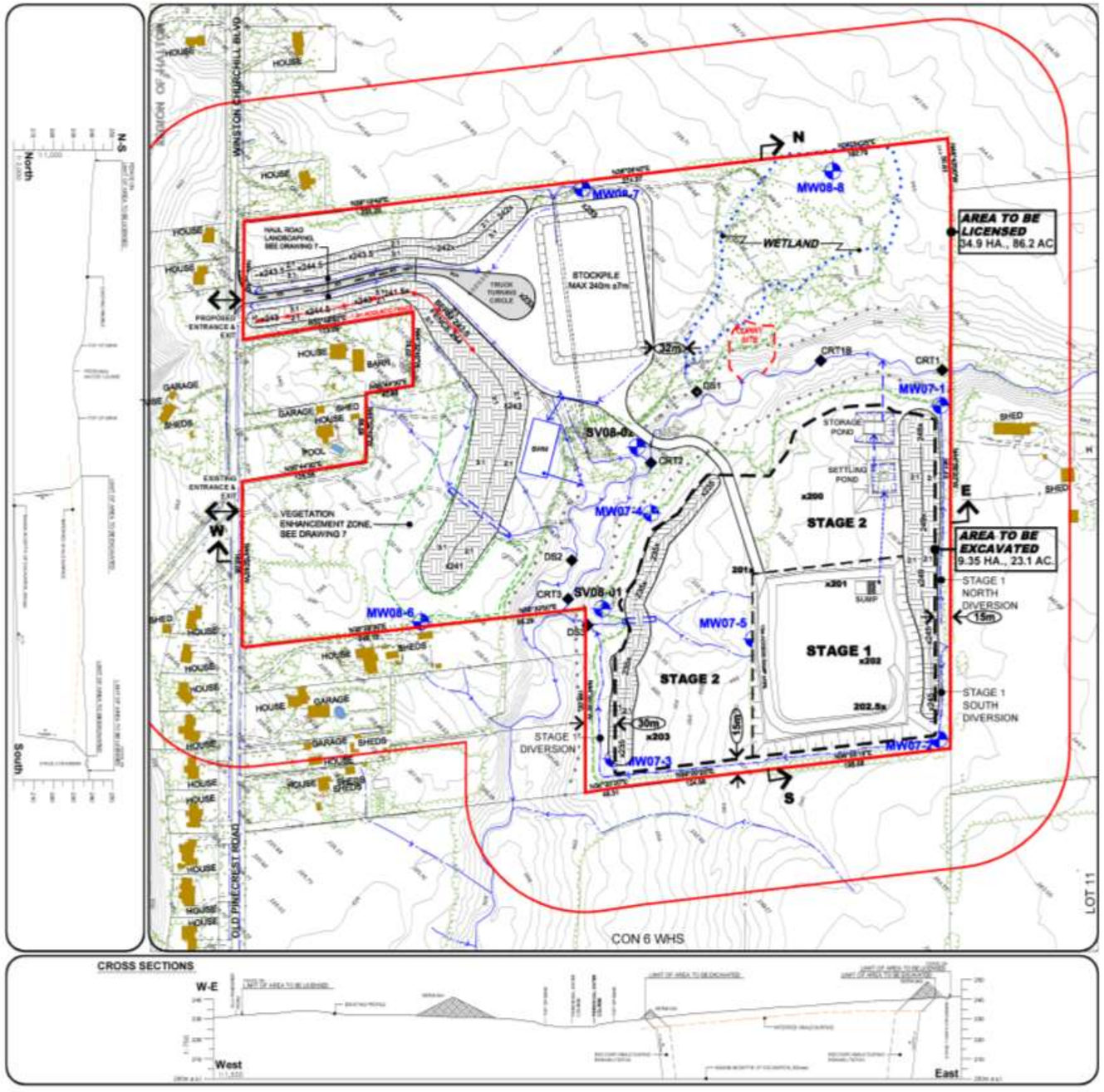
- Excavation and stockpiling will occur for about two months annually, between June and October
- All crushing, grinding and screening will be at the brick plant

Truck Loading

- A triaxle trailer will carry 35 tonnes
- The truck loading area and on-site haul route will be paved, flushed and swept

Shale Production

- Transportation of stockpiled shale for an estimated 200 days per year, from 7 am to 5 pm Monday to Friday
- Production of shale: 1,000 tonnes/day, 200,000 tonnes/ year = 30 loads / 60 trips / day.



OPERATIONAL PLAN

Site Plan

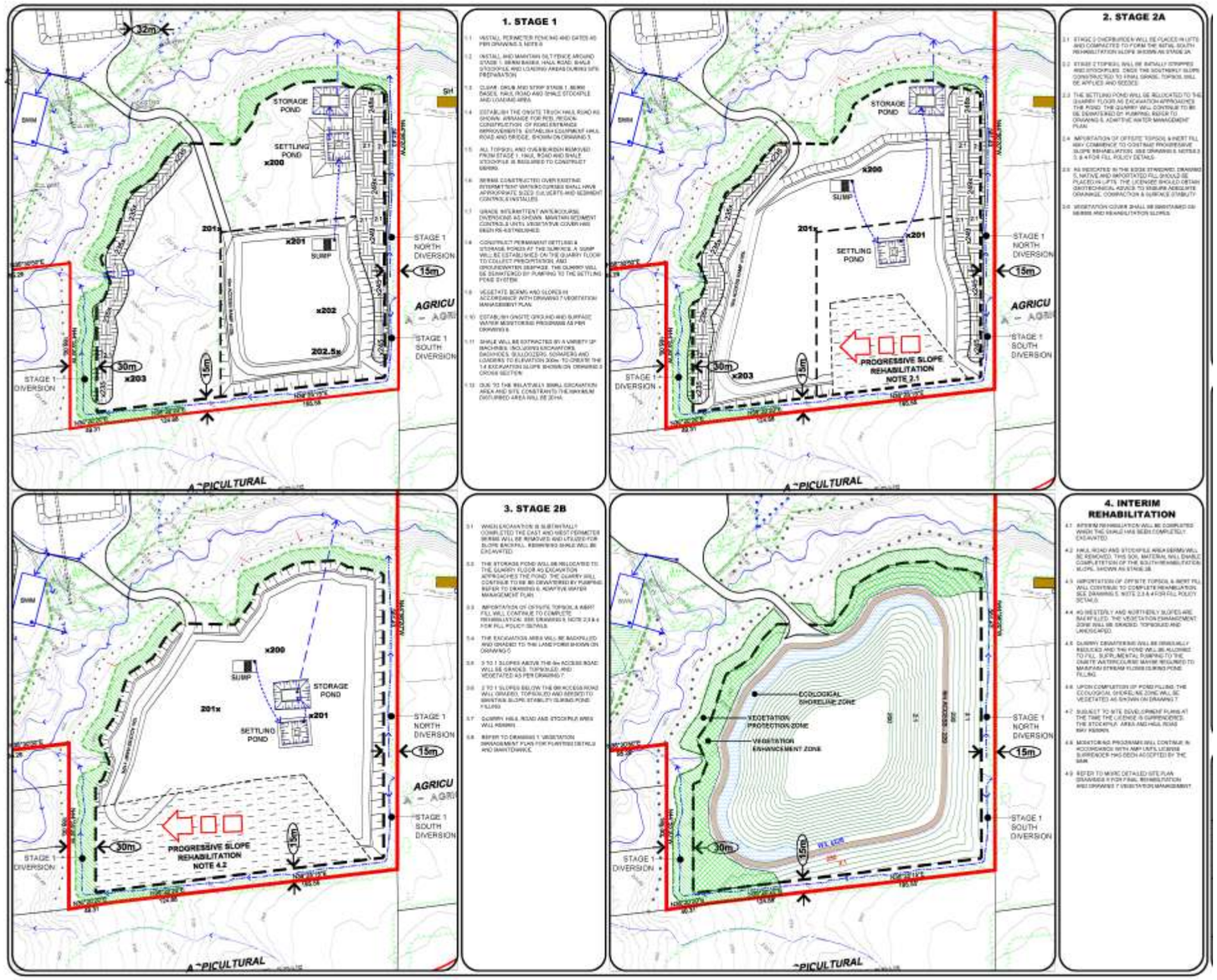
- The August 2010 Site Plan provides operational details.

Stage 1 Operations

- Extraction of 3.4 ha of shale in the south-east corner of the site to establish a functional quarry.
- Dewatering and pumping to settling and storage ponds; releases to augment stream flow with continuous monitoring and regular reporting.

Stage 2 Operations

- Excavation will advance in benches approximately 20m wide, to the west and north
- The quarry will expand at the rate of about 3,000 square metres or 3/4 acre annually
- Adaptive management will ensure any adverse effects are monitored and corrective action is taken
- Topsoil from Stage 2 will be used for rehabilitation of the Stage 1 south slope



PROGRESSIVE REHABILITATION

Stage 2A

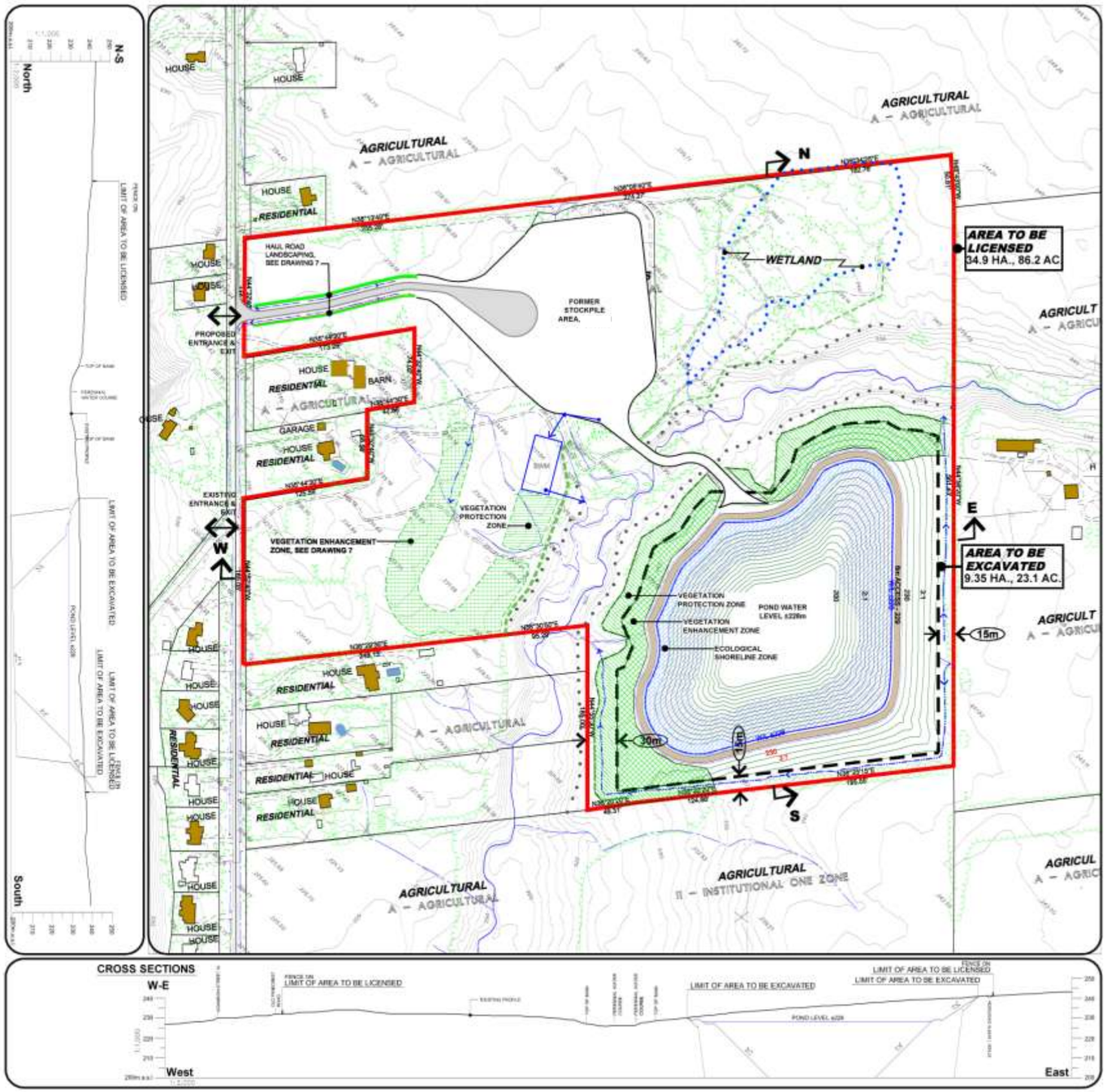
- Extraction to the west of Stage 1; overburden used for progressive rehabilitation of southerly Stage 1 slope

Stage 2B

- Shale extraction northerly from Stage 1
- Gradual removal of perimeter berms to access the shale and rehabilitate the excavation

Interim Rehabilitation

- Grading, topsoiling and landscaping westerly and northerly slopes



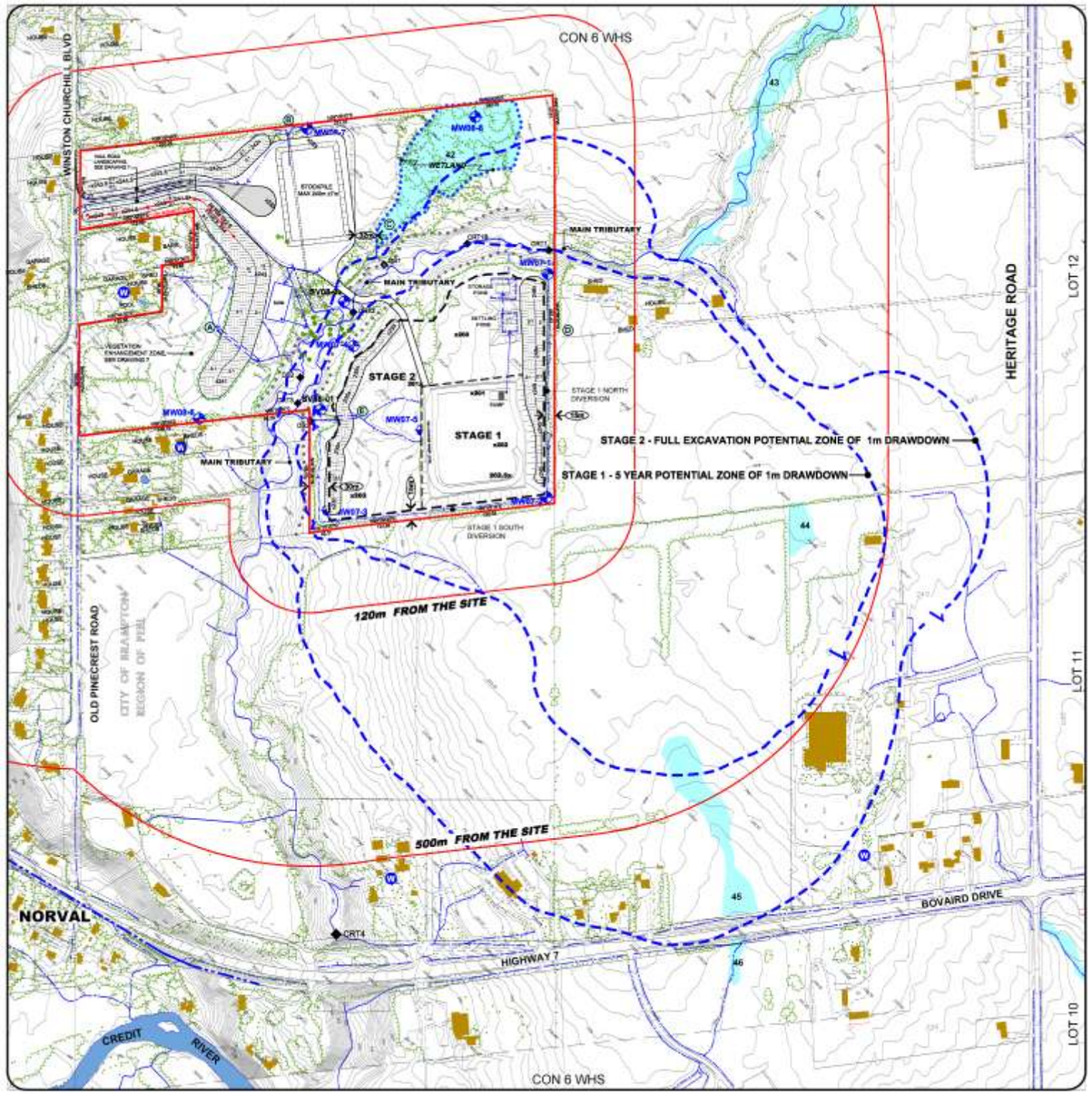
FINAL REHABILITATION

Final Rehabilitation Activities

- Subsoil and topsoil to be imported to complete final rehabilitation
- Rehabilitation to be in accordance with the Vegetation Management Plan
- Final rehabilitation and future use of the property to be determined closer to site closure – 20 to 30 years

Rehabilitation Features and Zones

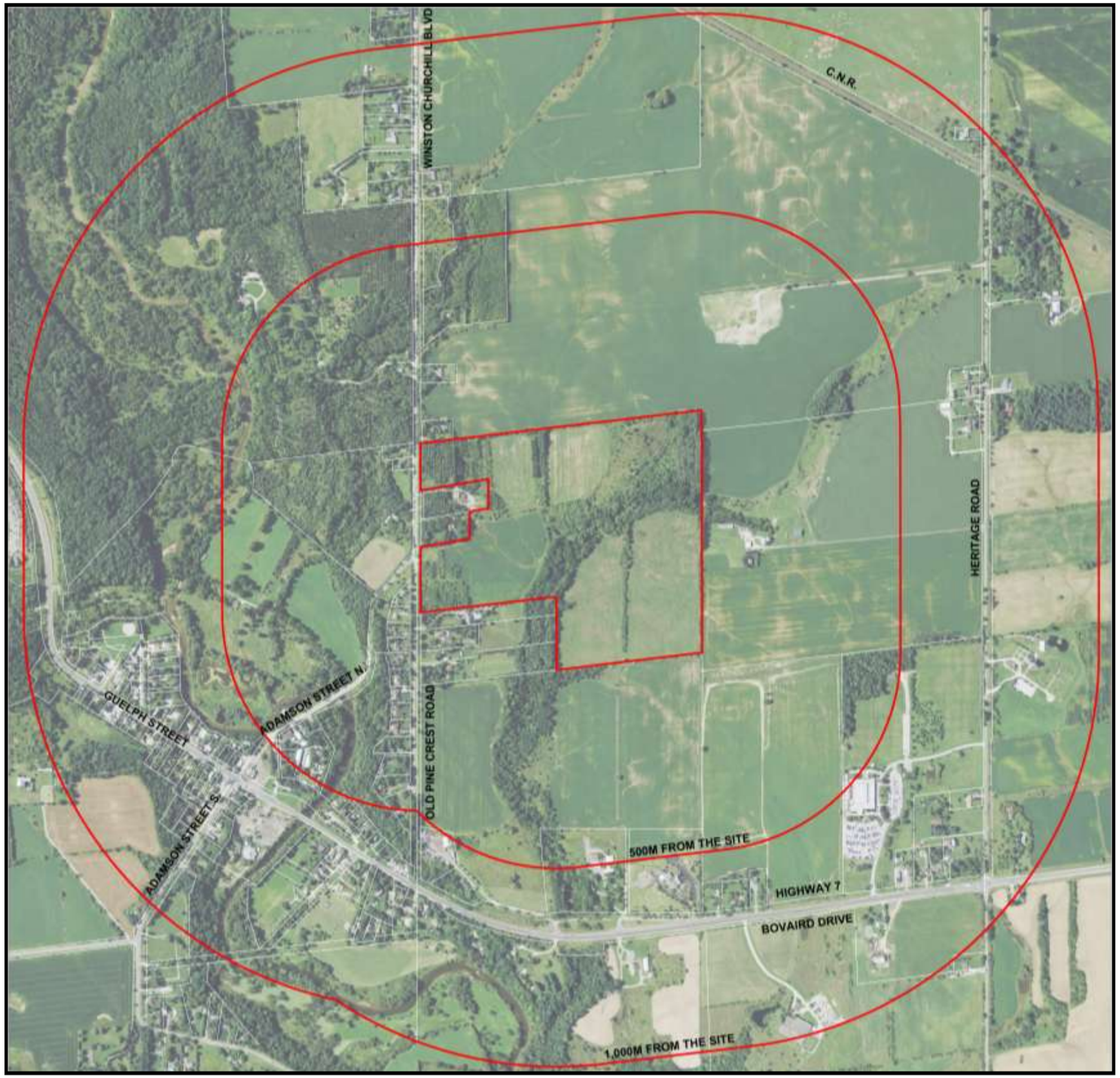
- A pond in the centre of the excavation area, approx. 5.25 ha (13 ac)
- Ecological Shoreline Zone, Vegetation Enhancement Zone, Vegetation Protection Zone
- Total forest cover will increase to 12.4 ha, 42% of the non-aquatic lands, exceeding the Greenbelt Plan requirement of 35%



ADAPTIVE WATER MANAGEMENT PLAN

An Adaptive Water Management Plan will be developed in consultation with local agencies and residents to proactively ensure that any adverse effects are detected and resolved for:

- Dewatering and Stormwater Management
- Erosion and Sediment Controls
- Watercourse Diversions
- Monitoring potential effects of the quarry
- Updating ground and surface water modeling
- A complaints response program or process
- Ensuring uninterrupted access to potable water by neighbouring property owners



SOCIO-ECONOMIC IMPACT ANALYSIS

Objectives

- Identifying the changes likely to result from the proposed quarry
- Determining the significance of the changes on individuals, businesses, community facilities and the community as a whole

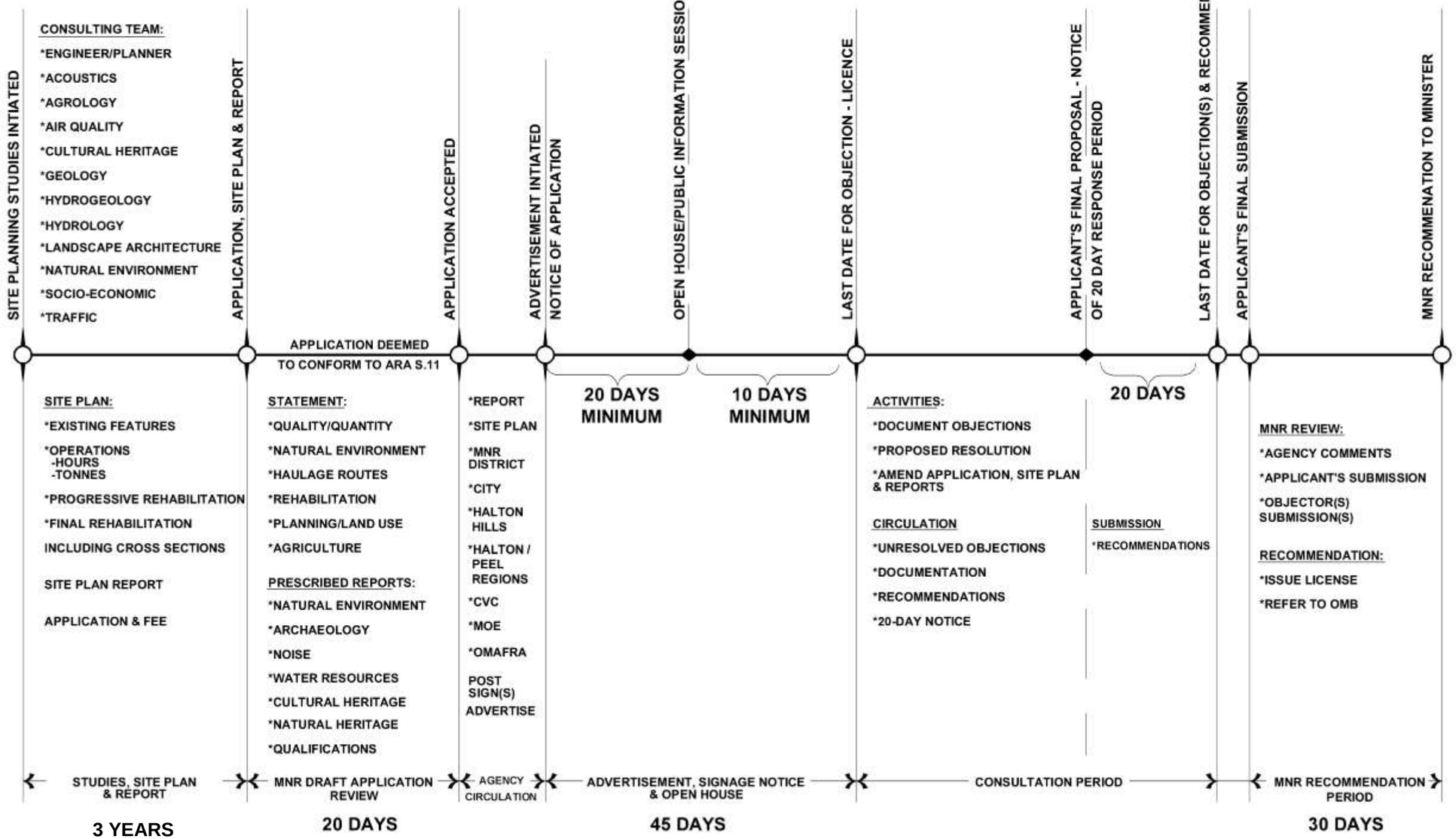
Key Data Collection Activities

- Personal interviews with residents within 500 m of the site
- Drop-off surveys to households and businesses from 500m to 1,000m from the site
- Interviews with owners/operators of community facilities within 1,000m of the site
- Key community contact interviews

PROPOSED NORVAL QUARRY
Category 2, Class A Quarry Application

ARA PROCESS FLOWCHART

November 2010



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