



Region of Waterloo

PLANNING, HOUSING AND
COMMUNITY SERVICES
Community Planning

150 Frederick Street, 8th floor
Kitchener, ON, Canada N2G 4J3

Alyssa Bridge 519 575 4757 ext. 3417
March 18, 2010
File: C14-60/3/10001

Mr. Rodger Mordue
Administrator/Clerk-Treasurer
Township of North Dumfries
1171 Greenfield Road, R.R. #4
Cambridge, ON N1R 5S5

Dear Mr. Mordue:

**Re: Zone Change Application ZCA 01/10
Cambridge Aggregates Inc.
1182 Alps Road
Township of North Dumfries**

The Region has received the above-noted application and provides the following comments for the Township's consideration. The purpose of the application is to rezone the subject properties from Agricultural (Z1) to Extractive (Z14) to permit the expansion of the existing Cambridge Aggregates North Dumfries pit located at 1182 Alps Road.

The subject properties are located at 1004 Spragues Road and Concession 9, Part Lot 14 and Part Lot 15 RP 67R1017 Part 11. On the two sites combined, approximately 53.5 hectares proposed for extraction. Extraction is proposed to take place above the water table only and is to be an interim land use with rehabilitation back to agriculture to be done progressively as operations advance through the resource.

Hydrogeology and Source Water Protection

The Region has reviewed the submitted water resource assessment report entitled "Preliminary Water Resource Assessment Report, North Dumfries Pit Expansion" dated December 2009, prepared by Golder Associates and have the following comments:

A further assessment of the on-site vulnerability is required. Golder Associates noted in their report that "the sand and gravel resources on this property (are) particularly coarse and, as such, the unsaturated residence time is low compared to travel through the saturated zone, and therefore loss of attenuating capacity is considered to be minor" as a result of extraction activities on the site. It should be noted that this conclusion would indicate that the site should currently be categorized as a high vulnerability zone. As a result, the owner/applicant will be required to complete an in-depth analysis of what the removal of this overburden layer will do to the on-site vulnerability.

The Vulnerability Assessment should include a discussion of the potential implications of any changes in vulnerability to the nearby groundwater wells if the subject property is returned to an agricultural use since there will be a reduced overburden thickness during fertilizer and pesticide application. Because the current nitrate concentrations exceed the Ontario Drinking Water Standards at two of the monitoring wells (MW08-1 and MW08-2), it is anticipated that this reduced overburden thickness may have implications for water quality in the surrounding private wells.

This Assessment should also include a door to door survey for surrounding property owners with domestic or private wells within 1 km of the site to determine the well depth, screened interval, pumping rate, well completion and condition. This information should be added to the vulnerability assessment of impacts on these nearby wells. Any additional water levels and water quality results collected while this report is being completed should also be added to the Final Report.

Transportation Planning

Traffic Site Circulation and Access

Direct access from either site to Spragues Road (Regional Road No. 75) will not be considered. There are visibility restrictions caused by the vertical and horizontal alignment of the road. The provided haul route analysis indicates that no site traffic will be accessing the intersection of Spragues Road at Alps Road.

The submitted traffic analysis titled "Cambridge Aggregates Inc. Traffic Impact Study for the Expansion of Existing North Dumfries Gravel Pit Final Report" dated October 2009, prepared by AECOM indicates that the haul route is internal to the existing CBM access on Cedar Creek Road (Regional Road No. 97). The existing eastbound right turn lane and westbound slip-by lane is adequate for increased site traffic. No further road improvements are required.

Lot Grading and Drainage

The owner/applicant shall prepare a detailed Stormwater Management and Grading and Drainage Control Plan showing drainage details for the subject property, abutting properties and the road allowance to ensure compatible drainage, to the satisfaction of the Region at site plan.

Regional Road Dedication

At this location, Regional Road No. 75 (Spragues Road) has an existing road allowance width of 66 feet (20.117 meters) and a Regional Official Policies Plan (ROPP) designated width of 100 feet (30.48 meters). Therefore, a $(100-66/2=17)$ 17 foot (5.182 meter) road widening across the entire frontage of Spragues Road is required at site plan.

A 50 foot (15.24 meter) daylighting triangle at the intersection of Spragues Road and Alps Road will also be required at site plan.

Along with a registerable deed for the road widening and daylighting triangle, the owner/applicant must provide a mylar copy of the registered reference plan at no cost to the Region of Waterloo.

Archaeological Assessment

The subject property is considered to have potential for the recovery of archaeological remains. In accordance with Policy 6.2.10 of the Regional Official Policies Plan, the completion of a detailed archaeological assessment to the satisfaction of the Ministry of Culture is required prior to the final approval of this application. Once completed two (2) copies of the archaeological assessment should be forwarded to the Regional Planning, Housing and Community Services Department for information.

The applicant has submitted an archaeological assessment entitled "Cultural Heritage Study, Stage 1 and 2 Archaeological Assessment and Built Heritage and Cultural Landscape Assessment of the Proposed Expansion of the North Dumfries Pit, North Part of Lot 15, Concession 9, and the South Part of Lot 15, Concession 10, Township of North Dumfries, Regional Municipality of Waterloo" dated June 2009, revised November 2009, prepared by Archaeological Services Inc. To date, clearance from the Ministry of Culture has not been received.

Environmental Planning

The subject property is located within the Dumfries Carolinian Environmentally Sensitive Landscape (ESL) and is contiguous to Core Environmental Features (Significant Woodlands) as identified on Map 4

of the Council-Adopted Regional Official Plan (ROP). The owner/applicant submitted an Environmental Impact Statement (EIS) in support of the application. The Region has reviewed the EIS entitled "Natural Environment Level 1 and 2 Technical Report and Environmental Impact Assessment Proposed North Dumfries Pit Expansion" dated December 2009, prepared by Goodban Ecological Consulting Inc. and have the following comments:

The proposed aggregate extraction is located on the boundary of the ROP designated Dumfries Carolinian ESL and contiguous to two newly designation Core Environmental Features (Significant Woodlands). Both are on adjoining properties and no intrusion is proposed into either feature.

As the application affects only agricultural lands, no areas of natural habitat will be lost. Also, it is not proposed to extract into the water table or to draw water to wash aggregate (p.32). The site will be rehabilitated to leave 2.0 meters of overburden and soils above the water table, a depth that can be expected to facilitate rehabilitation to agriculture. It is recommended that the detailed guidelines for managing soils during the stripping and rehabilitation process on p. 31-32 should be included in the site plan notes.

It is proposed to create a buffer of five meters from the trunk line along the woodlot edges (p.34). Policy 7.C.10 of the Regional Official Plan speaks to buffers of "a minimum of 10 meters as measured from the outside boundary of the Core Environmental Feature..." Typically, buffers are measured from the *drip line* rather than the *trunk line* along the edge of woodlands. The owner/applicant is encouraged to amend the proposed buffers to reflect this policy.

In general, the selection of species for the woodland buffers is appropriate for an area at the northern edge of the Carolinian Life Zone. It can be expected that the buffer areas will be rather dry given the soils and the natural drainage of the site. Species to be planted should therefore be adapted to dry and generally open conditions. Some of the recommended species are more typically associated with moister soils or more shaded situations than will be encountered in the buffer areas, at least for a number of years until the small planted trees grow to create a canopy. For example, Hemp Dogbane (*Apocynum cannabinum*) prefers moister situations, whereas Spreading Dogbane (*A. androsaemifolium*) is more commonly found in drier locations. Similarly, White Snakeroot (*Eupatorium rugosum*), Canada Anemone (*Anemone canadensis*), and Grass-leaved Goldenrod (*Euthamia graminifolia*) are typically found on moister sites. Also, Bur Oak is a tree of floodplains; Hackberry, a fast-growing tree already present in the vicinity, might be better suited to these conditions. Heart-leaved Aster (*Aster cordifolius*), Wild Columbine (*Aquilegia canadensis*), and Round-leaved Dogwood (*Cornus rugosa*) grow in woodlands where the canopy is typically denser than what will be present in the buffers for several years. Gray Dogwood (*Cornus foemina*) forms dense thickets, and so should be used with caution so that it does not crowd out other species. It is suggested that in the interests of conserving local genotypes of the species used, priority be given to salvaging specimens from hedgerows for use in the buffer areas. It is recommended that the above comments be reflected in the site plan notes.

Land Use Compatibility

The Region has reviewed the stationary noise study entitled "Preliminary Noise Control Study – North Dumfries Pit Expansion" dated July 23, 2009, prepared by Aerocoustics Engineering Ltd. and generally concur with the conclusions and recommendations, except as noted below:

1. The Edworthy residence (1004 Spragues Road) has not been identified as a sensitive receptor in the assessment (as it is occupied by the owners of the pit expansion). Because the zoning on this property permits a residence, this residence also needs to be assessed since it may become a rental residence in the future;
2. The lands on the west side of Fraserwood Court within the City of Cambridge are designated for residential development, with a plan of subdivision pending. The consultant will need to confirm whether these proposed residences will also meet the NPC 205 noise level objectives with the attenuation measures proposed;

3. Recommendation No. 3 in the Study indicates the proposed perimeter berming will be required as indicated on the noise control sketch included in the study (with phasing of the berm construction to be specified at a later date). This has not been specified in the Site Plan. There are 3 stages of extraction proposed in the expanded area. The concern is that the berms would only be constructed at the time of actual extraction of the respective stages. If this is the case, the study should assess the noise impacts without the perimeter berms in place during extraction of the different stages; and
4. To date, the Region has not received properly executed and commissioned affidavits from the consultant who prepared the above noted acoustical report. An affidavit must be submitted for the noise assessment report prior to final approval.

In summary, the Region has no objections to the proposed application subject to the following:

1. That prior to final approval, two (2) copies of the Ministry acknowledgement, regarding the submitted archaeological assessment, must be forwarded to the Regional Commissioner of Planning, Housing and Community Services;
2. That the owner/applicant complete a Vulnerability Assessment prior to final approval to include any potential implications of any changes in vulnerability to the nearby groundwater wells as a result of the reduced of overburden thickness; and
3. That, prior to final approval, the owner/applicant amend the stationary noise study entitled "Preliminary Noise Control Study – North Dumfries Pit Expansion" dated July 23, 2009, prepared by Aerocoustics Engineering Ltd. to include the following:
 - a. The Edworthy residence (1004 Spragues Road) included as a sensitive receptor in the assessment;
 - b. Confirmation that the proposed residences on the west side of Fraserwood Court within the City of Cambridge meet the NPC 205 noise level objectives with the attenuation measures already proposed;
 - c. Confirmation of the timing of berm construction. If the berms are to be constructed in a phased manner, the noise study should assess the noise impacts without perimeter berms in place during the extraction of different stages; and
 - d. Properly executed and commissioned affidavits from the consultant who prepared the above noted acoustical report and a signed owner's statement.

The following recommendations relate to the license and site plan to be approved by the Ministry of Natural Resources. Consideration should be given to these recommendations in approving the site plan notes which will guide the development and operation of the site. The Region requests that the Ministry of Natural Resources include the following items as part of the site plan for the proposed application:

1. That prior to final site plan approval, the applicant convey at their expense, a 17 foot (5.182 meter) road widening across the frontage of Spragues Road (Regional Road No. 75) to the Regional Municipality of Waterloo. A registered deed for the road widening and a mylar copy of the registered reference plan must be submitted to the Region prior to final approval at no cost to the Region;
2. That prior to final site plan approval, the applicant convey at their expense a 50 foot (15.64 meter) daylighting triangle at the intersection of Spragues Road (Regional Road No. 75) and Alps Road to the Regional Municipality of Waterloo. A registered deed for the road widening and a mylar

copy of the registered reference plan must be submitted to the Region prior to final approval at no cost to the Region;

3. That the detailed guidelines for managing soils during the stripping and rehabilitation process on p. 31-32 of the Environmental Impact Statement entitled "Natural Environment Level 1 and 2 Technical Report and Environmental Impact Assessment Proposed North Dumfries Pit Expansion" dated December 2009, prepared by Goodban Ecological Consulting Inc. should be included in the site plan notes; and
4. That the site plan notes include a list of appropriate species for the proposed woodland buffers.

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,



Alyssa Bridge, MAES
Planner

cc: Steve Jefferson, K. Smart Associates
Bob Long, Long Environmental Consultants
Diane Schweir, MNR

Steve Jefferson

From: Bob Long [bob_long@longenv.com]
Sent: April-29-10 4:25 PM
To: 'Alyssa Bridge'
Cc: BSoehner@regionofwaterloo.ca; Ken.Zimmerman@essroc.com; Steve Jefferson; 'Todd Lawr'
Subject: RE: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.
Attachments: 28apr2010 berm and road detail.pdf

Hi Alyssa and Brian.

I have attached an enlarged plan of the proposed berms adjacent to Spragues Road.

North of Alps, the berm will not affect the drainage or proposed widening. Our groundwater monitor MW08-02 appears to be within the road widening. We would expect that it can remain.

South of Alps, we have extended the berm to the south boundary of the proposed pit, at the request of a neighbour. The berm can be about 9 m from the road allowance to enable conveyance of your proposed 5.18 m widening and maintain a 3 m setback. As our soil and water resources reports indicate, the adjacent field drains internally. There are no watercourses. Consequently, boulevard water which flows toward the berm should not cause a drainage problem. The existing road ditches should be maintained by the Region, to handle roadway drainage.

I trust this resolves your concerns.....Bob



Robert J. Long, P. Eng., R.P.P

LONG ENVIRONMENTAL

CONSULTANTS INC.

ENVIRONMENTAL ENGINEERS & PLANNERS

43 Forest Park Road, Orangeville, Ontario L9W 1A1

Tel: (519) 941-3540 Cell: (519) 939-7090

Fax: (519) 941-8575 Email: **Bob_Long@longenv.com**

From: Bob Long [mailto:bob_long@longenv.com]
Sent: Tuesday, April 27, 2010 5:21 PM
To: 'Alyssa Bridge'
Cc: 'BSoehner@regionofwaterloo.ca'; 'Ken.Zimmerman@essroc.com'; 'todd_lawr@longenv.com'
Subject: RE: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Hi Alyssa.

The site plan drawings are at 1:2000 to 1:3000 scale and we have a road widening issue to deal with. We will prepare a sketch plan of the two sections adjacent to Spragues/RR 75, at a better scale, for you and Brian to consider.

Regards.....Bob

From: Alyssa Bridge [mailto:ABridge@regionofwaterloo.ca]
Sent: Tuesday, April 27, 2010 1:27 PM
To: 'Bob Long'
Subject: FW: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Hi Bob,

Please see below.

Thanks,
Alyssa

From: Brian Soehner
Sent: April 27, 2010 1:25 PM
To: Alyssa Bridge
Subject: RE: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

We need some sort of plan that shows what is planned along the Regional road allowance, usually the plans prepared for the MNR submission are sufficient.

From: Alyssa Bridge
Sent: April 27, 2010 1:19 PM
To: Brian Soehner
Subject: FW: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Any thoughts?

From: Bob Long [mailto:bob_long@longenv.com]
Sent: April 27, 2010 12:47 PM
To: Alyssa Bridge
Cc: 'ZIMMERMAN Ken'
Subject: RE: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Thanks Alyssa.

Sorry this took a while. I wanted to reply before you meet my Client and the Golder folks this Thursday.

You referred in your March 18th letter, to a stormwater management and drainage control plan. I replied that the pits will drain internally. Brian referred to earth berms and possible access roads.

The Regional road berm north of Alps Road will block site runoff which currently flows onto the road allowance. So that berm section will reduce drainage on your roadway.

The boulevard area on the west side of Spragues Road south of Alps currently drains into our Client's proposed pit. There appears to be a shallow road ditch which drains to the north and south. Our

proposed berm will deflect your boulevard drainage to your road ditch. The easterly half of the berm and 30 m setback will now drain to the roadway. That's 15 m, but we are conveying a 5.2 m widening. So the additional area which will drain onto the road allowance is ~ 10 x 375 m ~ 3,750 m². About half will drain to the north and the other half will enter the southerly road ditch.

We haven't normally prepared a drainage plan as part of the MNR Site Plan, but we could do so for this area. We can send you a preliminary sketch, if you think this additional drainage is significant.

Best regards.....Bob



Robert J. Long, P. Eng., R.P.P

LONG ENVIRONMENTAL

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43 Forest Park Road, Orangeville, Ontario L9W 1A1

Tel: (519) 941-3540 Cell: (519) 939-7090

Fax: (519) 941-8575 Email: Bob_Long@longenv.com

From: Alyssa Bridge [mailto:ABridge@regionofwaterloo.ca]
Sent: Thursday, April 08, 2010 9:06 AM
To: 'Bob Long'
Subject: FW: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Good Morning Bob,

Please see below.

Thanks,
Alyssa

Alyssa Bridge, MAES

Planner

Planning, Housing and Community Services

Regional Municipality of Waterloo

150 Frederick Street, 8th Floor

Kitchener, ON N2G 4J3

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mistake, please notify the sender by replying via email and destroy all copies of this original correspondence (including any attachments). Thank you for your cooperation.

From: Brian Soehner
Sent: April 8, 2010 9:05 AM
To: Alyssa Bridge
Subject: RE: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Transportation Planning - Lot Grading Plan Approval

Usually a Pit Application involves the construction of earth berms parallel to the road allowance, access and haul route road(s) and a standard lot grading plan for the MNR application. If none of these are required or occurring, then a specific lot grading plan will not be required.

From: Alyssa Bridge
Sent: April 8, 2010 8:51 AM
To: Brian Soehner
Subject: FW: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Hi Brian,

I've received the comments below from Bob Long re: NDU ZCA 01/10. Debbie had provided transportation planning comments in December/January. I've highlighted his questions re: transportation planning comments for you.

I'm meeting with him on April 29th. Could you please provide a response prior to this date?

Thanks,
Alyssa

From: Bob Long [mailto:bob_long@longenv.com]
Sent: April 5, 2010 4:40 PM
To: Alyssa Bridge
Cc: Ken.Zimmerman@essroc.com; 'Hanratty, David'; 'Caston, Wayne'; 'Steve Jefferson'; 'Schwier, Diane (MNR)'
Subject: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Thanks Alyssa.

We have reviewed your March 18th comments with our Client and consultants and just have four issues:

Hydrogeology - your approved ROPP and adopted ROP were not very clear as to the standards to be applied. I thought Golder had dealt with the vulnerability question pretty effectively, in association with our agricultural soil consultant. We would like to schedule a meeting with the Region's hydrogeologist(s) to discuss what kind of "in depth" analysis is appropriate. We prefer the weeks of April 12th and 19th, excluding the 13th, 14th, 21st and 22nd. Ken Zimmerman and likely Golder's David Hanratty will attend.

Environmental Planning - the 10 m buffer proposed from the drip line may be an excessive standard, since we will be increasing the size of the adjacent wooded areas. During rehabilitation, the existing woodland edge will be expanded by about 30 m. The Region approved the 5 m from trunk line for the existing pit. We propose either 10 m from the trunk line or preferably, 5 m from the drip line. Ken Zimmerman is a Landscape Architect with considerable rehabilitation experience. He will review your species selection comments, and those received from the GRCA, with Anthony Goodban during the updating of Anthony's Draft Level 1/2 and EIS Report and the proposed rehabilitation plans. This will likely involve consultation with the Region.

Transportation Planning - paragraph 3, Lot Grading and Drainage refers to internal drainage details and stormwater management. Golder, 2009 reported that: "there will be no alteration of surface water features". Since the proposed pit development comprises excavations of 10 to 13 m depth, there will be no additional drainage onto the abutting properties or road allowances. The site should continue to drain internally.

Recommendations - Your March 18th letter concludes with 4 recommendations pertinent to our Client's proposed Licence and Site Plan:

No. 1 & 2 refer to the conveyance of a 5.2 m road widening and 15.6 m daylighting triangle, prior to final site Plan approval. Our Client is prepared to convey these lands, but not until we are certain that the licence will be issued. Also, we will need to ensure that the conveyance of your proposed road widenings and daylighting does not reduce the excavation area and aggregate yield. I'm sure we can find a way to effect this.

No. 3 refers to the soil management guidelines which came from the DBH Surficial Soil Study, appendix 2 to our December 2009 Planning Report. These provisions were included as notes on our Site Plan Drawing 3, Progressive and Final Rehabilitation Plan. We will ensure they are included on the final Site Plan.

No. 4 as noted above, Ken Zimmerman and Anthony Goodban will update the proposed woodland buffer species.

Best regards.....Bob Long

-----Original Message-----

From: Alyssa Bridge [<mailto:ABridge@regionofwaterloo.ca>]

Sent: Thursday, March 18, 2010 11:45 AM

To: 'Steve Jefferson'; 'Bob Long'; 'Jim Kirchin'; 'Schwier, Diane (MNR)'

Subject: North Dumfries ZCA 01/10 Cambridge Aggregates Inc.

Good Morning,

Please find attached the Region's comments for ZCA 01/10 Cambridge Aggregates Inc.

If you have any questions or require clarification, please let me know.

Thanks,
Alyssa

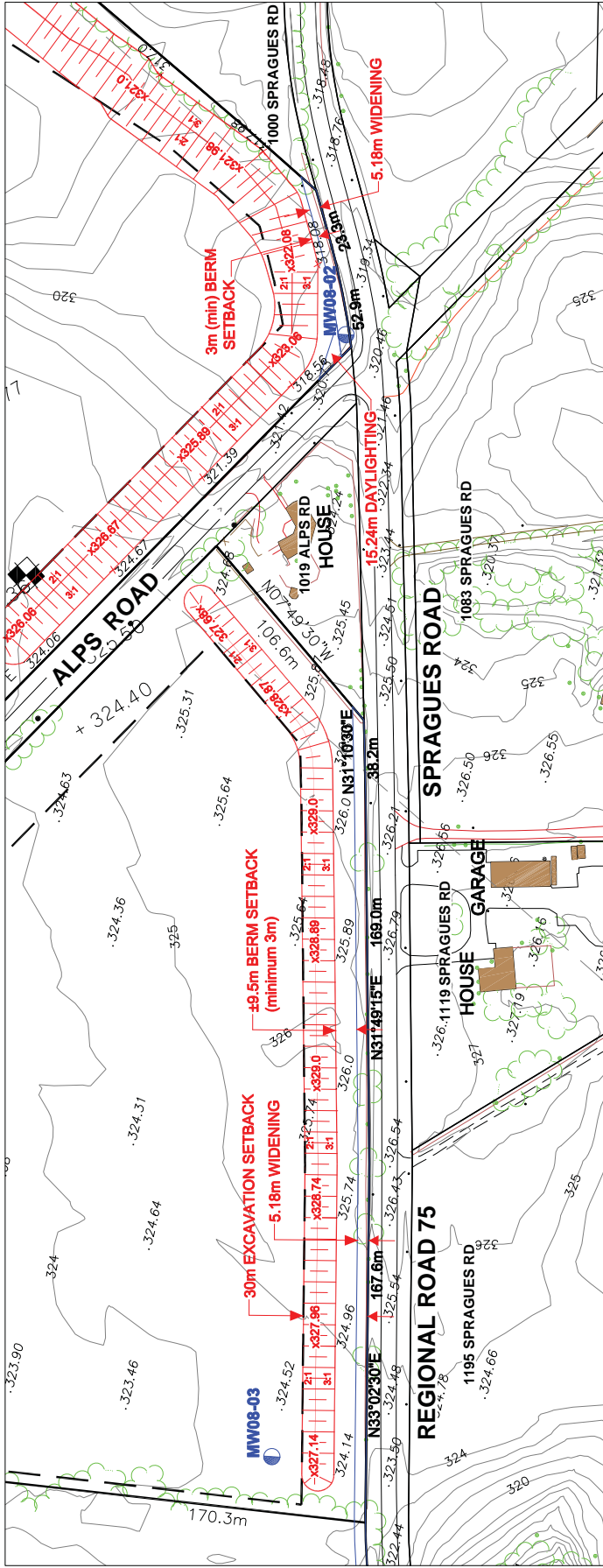
Alyssa Bridge, MAES

Planner

Planning, Housing and Community Services Regional Municipality of Waterloo 150 Frederick Street, 8th Floor Kitchener, ON N2G 4J3

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LEGEND

- BOUNDARY OF AREA TO BE LICENSED
- - - BOUNDARY OF AREA TO BE EXCAVATED
- 310 - EXISTING 1m CONTOURS
- 307.0 - EXISTING SPOT ELEVATIONS
- EXISTING TREE COVER
- EXISTING CONIFER
- EXISTING DECIDUOUS
- MW08-03 MONITOR, DECEMBER 2008
- MW08-02 MONITOR, DECEMBER 2008
- MW08-01 MONITOR, DECEMBER 2008
- PROPOSED ELEVATION
- PROPOSED BERM

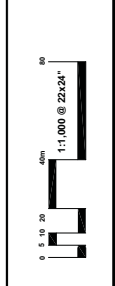
BERM & ROAD WIDENING PLAN
 SPRAGUES ROAD - REGION ROAD 75
 Township of Aprin Dumfries
 Region of Waterloo



No.	DATE	REVISIONS	INITIAL

PROJECT: CAM/WAT2
 DRAWN: T.M.L. (in AutoCAD)
 CHECKED: R.J.L.
 PLOTTED: 29 APRIL 2010
 REVISION NO. ○

No.	DATE	REVISIONS	INITIAL



Cambridge Aggregate's Placement Group
 P.O. Box 1030 Cambridge, Ontario, N1R 8Y2



May 18, 2010

Chris Gosselin
Manager of Environmental
Planning, Housing and Community Services Department
Regional Municipality of Waterloo
150 Frederick Street
Kitchener, Ontario N2G 4J3

RE: Updates to Draft Natural Environment Level 1 and 2 Technical Report and Environmental Impact Assessment: Proposed North Dumfries Pit Expansion (Goodban Ecological Consulting Inc., December 2009) Part Lots 14 & 17, Concessions 9 & 10 North Dumfries Township, Region of Waterloo

Dear Mr. Gosselin:

Based on comments received from the Regional Municipality of Waterloo and GRCA, the Draft *Natural Environment Level 1 and 2 Technical Report and Environmental Impact Assessment: Proposed North Dumfries Pit Expansion* (Goodban Ecological Consulting Inc., December 2009) will be updated to incorporate the following changes:

- Woodland Buffers:

The Natural Environment Report will be amended to recommend woodland buffers of *drip line* plus 5.0 meters.

- Rehabilitation Planting Zones:

The lists of plant species recommended in the Natural Environment Report for planting as part of the site rehabilitation will be amended based on comments from the Region.

Hemp Dogbane, White Snakeroot, Canada Anemone, Grass-leaved Goldenrod, Heart-leaved Aster, Wild Columbine and Rough-leaved Dogwood will be replaced with species more suited to dry, generally open habitats.

Bur Oak will be replaced in the rehabilitation plan with Hackberry and White Oak.

Grey Dogwood will be used sparingly in the site rehabilitation.

Suitable plant material and soils will be salvaged from hedgerows to be removed, for use in the buffers and rehabilitation side slopes, in the interest of conserving local genotypes of targeted species.

The Natural Environment Report will incorporate the recommendation from GRCA to include the collection and utilization of native acorn and nuts from pignut hickory (*Carya glabra*), black oak (*Quercus velutina*), and hackberry (*Celtis occidentalis*) from the West and South Woodlots. These will be collected and directly seeded to support the planting of live tree stock.

- Site Plans

The notes on the rehabilitation page of the final site plans will also be updated to reflect the changes discussed above. This will also include the detailed guidelines for soil handling listed on pages 31 and 32 of the Draft Natural Environment Report and DBH Soil Services' Surficial Soil Study.

We trust that this addresses the Region's comments and recommendations related to environmental planning and our application. Should you have any questions please do not hesitate to contact me.

Sincerely;



Ken Zimmerman
Aggregates Manager

CC: Alyssa Bridge, Region of Waterloo
Steve Jefferson, Township of North Dumfries
Bob Long, Long Environmental
Anthony Goodban, Goodban Ecological Consulting Inc.

LEGEND



NOTES

- AS EACH STAGE OF EXCAVATION IS COMPLETE IT IS TO BE REHABILITATED CONCURRENTLY WITH THE BEGINNING OF EXCAVATION IN THE NEXT STAGE. EDGE AND FLOOR REHABILITATION TO BE COMPLETED WITHIN 1 FULL GROWING SEASON OF THE BEGINNING OF EXCAVATION IN THE NEXT STAGE. REQUIRED STAGE 1 FLOOR AREA FOR THE CONVEYOR ROUTE WILL BE REHABILITATED UPON COMPLETION OF EXCAVATION OF ALL STAGES WHEN AGGREGATE PROCESSING AND SHIPPING IS NO LONGER REQUIRED.
- TOPSOIL AND SUBSOIL STRIPPED FROM CURRENT EXTRACTION AREAS WILL BE PLACED IN BERMS AND DNTO AREAS UNDERGOING REHABILITATION. LONG TERM SOIL STOCKPILING AND BERMING WILL BE KEPT TO A MINIMUM.
- ALL EXTRACTION FACES SHALL BE SLOPED AND GRADED TO NO STEEPER THAN 3:1. ACCOMPLISHED BY BACKFILLING WITH CLEAN COMPACTED FILL MATERIAL OBTAINED FROM WITHIN THE AREA TO BE EXCAVATED. WHERE THERE IS A DEFICIENCY OF FILL FOR SLOPE REHABILITATION, INERT FILL MAY BE IMPORTED IN ACCORDANCE WITH MNR POLICY 8.00.03.
- 0.2 m TOPSOIL AND 0.3 m MINIMUM SUBSOIL SHALL BE REPLACED ON PIT SLOPES AND THE PIT FLOOR. AND GRADED AND CULTIVATED IN PREPARATION FOR SEEDING. FERTILIZER (5-20-20) OR EQUAL MAY BE APPLIED ON THE AREAS TO BE SEED.

PIT FLOOR - AGRICULTURAL REHABILITATION

- SOIL COMPACTION SHALL BE ALLEVIATED BY RIPPING TO A MINIMUM DEPTH OF 0.3m. BY CULTIVATING AND/OR DISCING THE PIT FLOOR.
- REHABILITATED PIT FLOOR AREAS SHALL BE SEEDED WITH A GRASS/LEGUME SEED MIXTURE COMPRISING WHITE CLOVER, TIMOTHY AND PERENNIAL RYEGRASS. A COVER CROP OF OATS OR RYE GRASS MAY BE APPLIED WITHIN THE INITIAL YEAR TO HELP PREVENT EROSION.
- GRASS/LEGUME CROPPING SHOULD CONTINUE FOR 5 YEARS TO IMPROVE SOIL STRUCTURE AND ADD FERTILITY. ALL VEGETATION PLANTED ON AREAS UNDERGOING REHABILITATION SHALL BE REPLANTED IF REQUIRED TO ENSURE SUCCESSFUL ESTABLISHMENT AND PREVENT EROSION.
- THE AREA TO BE REHABILITATED IS EQUAL TO THE AREA TO BE EXCAVATED (45.8 HA, 113 AC.) PLUS ANY AREAS WITHIN THE SETBACKS WHICH HAVE BEEN DISTURBED AS A RESULT OF REMOVING BERMS. THE PIT FLOOR AREA TO BE REHABILITATED FOR AGRICULTURE WILL BE APPROXIMATELY 38 HA (93 AC.). THE REMAINING 10 HA OF SLOPES AND DISTURBED SETBACKS WILL BE REHABILITATED TO NATURAL ENVIRONMENT, AS PER NOTES 11 TO 14.
- ALL SURFACE DRAINAGE WILL BE INTERNAL THROUGH INFILTRATION INTO THE REHABILITATED PIT FLOOR.

PIT SLOPES - NATURAL ENVIRONMENT REHABILITATION

11. WOODLAND PLANTINGS

RATE: 30 KG/HA - NATIVE SEED MIX
RECOMMENDED WOODY PLANTINGS - WOODLAND:
 DECIDUOUS - RED OAK, WHITE OAK, BLACK OAK, SHAGBARK HICKORY, RED MAPLE, BASSWOOD, CONIFEROUS - WHITE PINE.
 SHRUBS - GREY DOGWOOD, ROUND-LEAVED DOGWOOD, NANNYBERRY, HIGHBUSH CRANBERRY, HAWTHORNS (IF NATIVE SPECIES ARE AVAILABLE).

12. WOODLAND NATIVE SEED MIX

USE TO ESTABLISH GROUND COVER ON SELECTED SLOPES AND WITHIN WOODLAND PLANTING ZONES.
 RATE: 30 KG/HA

RECOMMENDED NATIVE SEED MIX:

FROM PEARLY EVER-LASTING, CANADA ANEMONE, TALL ANEMONE, HEMP DOGBANE, HEART-LEAVED ASTER, HEATH ASTER, SMOOTH ASTER, NEW ENGLAND ASTER, ARROW-LEAVED ASTER, WILD COLUMBINE, CANADA WILD-RYE, SLENDER WHEAT GRASS, WHITE SNAKEROOT, GRASS-LEAVED GOLDENROD, WOODLAND SUNFLOWER, WILD BERGAMOT, FOXGLOVE, BEAR TONGUE, BLACK-EYED SUSAN, CANADA GOLDENROD.

13. OAK SAVANNA PLANTINGS:

DECIDUOUS - WHITE OAK, BLACK OAK, BUR OAK, SHAGBARK HICKORY.
 CONIFEROUS - WHITE PINE.
 SHRUBS - GREY DOGWOOD, ROUND-LEAVED DOGWOOD, HAWTHORNS (IF NATIVE SPECIES ARE AVAILABLE).

14. OAK SAVANNA PRAIRIE SEED MIX:

RATE: 30 KG/HA - PRAIRIE SEED MIX
RECOMMENDED PRAIRIE SEED MIX:
 FROM (70% GRASSES/SEDGES; 30% FORBS)
 BIG BLUESTEM, LITTLE BLUESTEM, INDIAN GRASS, SWITCH GRASS, CANADA WILD-RYE, PENNSYLVANIA SEDGE, AMERICAN HAZEL, NEW JERSEY TEA, FROST ASTER, SMOOTH ASTER, ARROW-LEAVED ASTER, BUTTERFLY-WEED, ROUND-HEADED BUSH- CLOVER, WOODLAND SUNFLOWER, EARLY GOLDENROD, GRAY GOLDENROD, HAIRY BEAR TONGUE, WILD BERGAMOT, BLACK-EYED SUSAN.



**Cambridge Aggregates
 Italcementi Group**

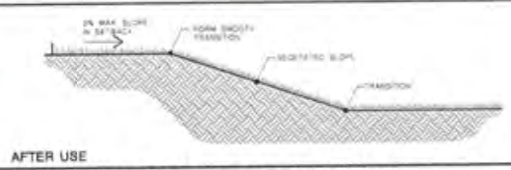
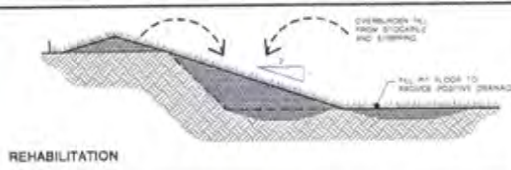
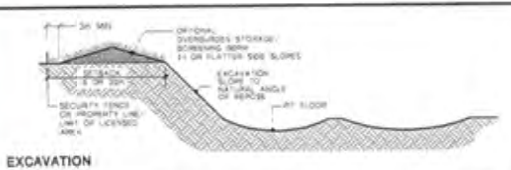
P.O. Box 1033 Cambridge, Ontario N1R 8T2

**NORTH DUMFRIES PIT
 EXPANSION**

PART OF LOTS 14 AND 15 CONCESSION 10
 PART OF LOTS 14 AND 15 CONCESSION 9
 TOWNSHIP OF NORTH DUMFRIES
 REGIONAL MUNICIPALITY OF WATERLOO

3 of 3

**PROGRESSIVE
 AND FINAL
 REHABILITATION
 PLAN**



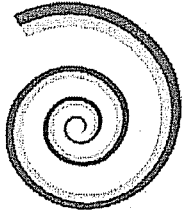
TYPICAL EDGE STANDARD

PROJECT: C14FWAT2	DRAFT
DRAWN: T.M.L. (S) Author	
CHECKED: R.J.L.	
PLOTTED: 22 DECEMBER 2009	
AMENDMENT NO. ○	

No.	DATE	DESCRIPTION	APP'D
AMENDMENTS			



**LONG ENVIRONMENTAL
 CONSULTANTS INC.**
 ENVIRONMENTAL ENGINEERS & PLANNERS
 Orangeville, Ontario



Cambridge Aggregates
Italcementi Group

P.O. Box 1030
Cambridge, ON
N1R 5Y2

Tel: 519-623-1241
Toll free: 1-866-520-1241
Fax: 519-623-6428

May 26, 2010

Amanda Sills, M.Sc.
Project Hydrogeologist
Regional Municipality of Waterloo
150 Frederick Street
Kitchener, Ontario N2G 4J3

RE: Updates to Preliminary Water Resource Assessment Report, Proposed North Dumfries Pit Expansion (Golder Associates Ltd., December 2009) Part Lots 14 & 17, Concessions 9 & 10 North Dumfries Township, Regional Municipality of Waterloo

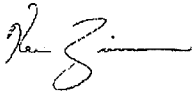
Dear Ms. Sills:

Based on comments received from the Regional Municipality of Waterloo and GRCA, the *Preliminary Water Resource Assessment Report, Proposed North Dumfries Pit Expansion* (Golder Associates Ltd., December 2009) will be re-issued as a final report to accompany the Aggregate Resources Act Application and incorporate the following changes:

- Results from a door to door well survey (1 km radius down gradient from site boundary), including water sampling results from those wells, subject to agreement and access, will be added to the report;
- A discussion of the long term implications, if any, for the down-gradient domestic wells completed in the overburden (within 1 km of the site boundary), and of returning the site to agricultural land uses after extraction, including a discussion of groundwater flow, stratigraphy, nitrate concentrations in monitoring wells, domestic well locations/depth etc., and current groundwater quality of these domestic wells (if available) will be added to the report. In addition, the attached new Draft Figure will be included in the report to indicate selected characteristics of these domestic wells as they relate to this discussion; and
- The monitoring program proposed during, and for two years following, extraction will be discussed, with emphasis on nitrates, as will the contingency plan to be implemented if elevated nitrate concentrations are observed during this monitoring program.

We trust that this addresses the Region's comments and recommendations related to groundwater resources and our application. Should you have any questions please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Ken Zimmerman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Ken Zimmerman
Aggregates Manager

CC: Alyssa Bridge, Region of Waterloo
Steve Jefferson, Township of North Dumfries
Bob Long, Long Environmental
David Hanratty, Golder Associates Ltd.