



# TOARC 2014 ANNUAL REPORT

Rehabilitating  
Legacy Pits  
and Quarries



# Board of

# DIRECTORS

## 2014

### **Representing the Ontario Stone, Sand & Gravel Association (OSSGA)**

Ken Lucyshyn | Chairman of the Board  
Mark Zinn | Secretary/Treasurer  
John Moroz  
Ed Persico

### **Representing the Nature Conservancy of Canada (NCC)**

John Riley

### **Representing the Association of Municipalities of Ontario (AMO)**

Marolyn Morrison

### **Representing the Aggregate Industry at Large (Non OSSGA)**

Gord Lavis

### **Representing the Ministry of Natural Resources and Forestry (MNR) as an "Ex Officio Member"**

Dan Marinigh

## 2015

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Dennis Lever

### **Representing the Aggregate Industry at Large (Non OSSGA)**

Kerry Doughty

### **Representing the Ministry of Natural Resources and Forestry (MNR) as an "Ex Officio Member"**

Monique Rolf von den Baumen-Clark

June 12, 2015

Honourable Bill Mauro  
Minister of Natural Resources and Forestry  
Suite 6630, 6th Floor, Whitney Block  
99 Wellesley Street West  
Toronto, Ontario M7A 1W3

Minister Mauro;

On behalf of the Board of Directors, I am pleased to submit the 2014 Annual Report of The Ontario Aggregate Resources Corporation.

This annual report includes audited financial statements for the Aggregate Resources Trust and The Ontario Aggregate Resources Corporation for the fiscal year ended December 31, 2014. Included within the financial statements for the Aggregate Resources Trust is a schedule of rehabilitation costs for projects completed by the Management of Abandoned Aggregate Properties (MAAP) program in 2014. The report also reviews a number of the rehabilitation research projects being funded through the MAAP program, as well as their application to creative rehabilitation solutions.

Yours truly,



Ken Lucyshyn  
Chairman of the Board



# Chairman's Message

2014

Aggregate production from licenced sources was down again in 2013 (compared to 2012) by approximately 7 million tonnes or 5% to 132 million tonnes. This is the least amount of production reported from aggregate licences in the Province dating back to 1999. Total production for the Province at 143 million tonnes was at it's lowest level since 1996.

This resulted in a further reduction of approximately \$1.2 million in licence fees being collected in 2014. The total fees of \$17.9 million invoiced (compared to \$19.1 million in 2013, \$19.6 million in 2012) was disbursed amongst designated recipients as follows:

	(\$ Million)
Local Municipalities	8.2
Counties & Regions	2.1
MAAP Program	0.7
Province (from licence fees)	4.8
Province (from royalties and permit fees)	2.1
<b>Total</b>	<b>17.9</b>

The associated funding to the MAAP Program at \$0.005/tonne was of course reduced proportionally. The rate which has not changed since the inception of the program in 1990, despite the effects of inflationary pressures over 24 years, continues to challenge the MAAP staff to do more with less!

In 2014, the MAAP program conducted work on 13 sites at a cost of over \$354,000. This was a reduction from the previous year spend by \$104,000. The MAAP staff is challenged with a reduction in site licence fees resulting from the reduced production and of course the fact that the funding rate per tonne has not changed since 1990! The work consisted of 12 sites in Bruce County and 1 site in the Region of Durham.

In addition to their construction design and management responsibilities, the MAAP staff also visited in excess of 600 sites around the Province. Much of their time was spent on site visits to catalogue, evaluate and document the many sites in northern designated areas. There was an expectation that many of these sites would require little or no intervention by MAAP staff as sites that occur on Crown Land (which do not qualify for the program) were mistakenly included in the original MNRF inventory. In addition, the size of many of the northern sites was extremely small and in remote locations, allowing for naturalization to quickly occur and the associated files could potentially be closed. The MAAP staff also continues in the process of re-evaluating and updating the older site inventories. As a result of their focus this past year the number of closed files increased from 4,164 to 4,647.

The listing by category of closed files now stands as follows:

Developed	579
Licensed	258
No Historical extraction	343*
Naturalized (to create new habitat)	1,581
Rehabilitated (by owner)	540
Situated on Crown Land	221
Landowner Not Interested	688
Rehabilitated by MAAP/MNRF	437
<b>Total Files Closed</b>	<b>4,647</b>

\* Files where no disturbances could be found or where it was determined the site disturbance was not a result of aggregate extraction.



Total file count increased as eight new files were added during the year to a total of 7,990 legacy sites in our database (eMAAP). With 4,647 files now closed, there still remain 3,343 files or sites that need to be dealt with! Our expectation is that approximately 2,900 of these files will require intervention by MAAP staff.

Mr. Paul Hartnett, MAAP Construction Supervisor trialed the use of a drone on four MAAP sites in Bruce County to digitally capture video and still imagery as well as survey the MAAP site. The use of the drone proved to be very successful in that it provided a significantly more detailed land survey complete with video documentation of the entire site before construction. However, most importantly it improves safety and removes the need of our staff to access potentially higher risk sections of sites such as steep slopes or water ways. The Board would like to thank Paul for his initiative to trial and implement the use of this technology.

Dr. Paul Richardson's (Post-Doctoral Fellowship) Afforested Environment Study continued throughout 2014 and was completed in the first half of 2015. The study which looks to improve one's ability to plan and carry out forest creation as an opportunity to mitigate or offset woodland losses as a result of aggregate extraction. The Ontario Aggregate Resource Corporation (TOARC) has been pleased to support this valuable research by Dr. Richardson. Also TOARC would like to thank Dr. Stephen Murphy from the Centre for Ecosystem Resilience & Adaptation at the University of Waterloo and Mitacs for supporting Dr. Richardson throughout this study. The summary report is included elsewhere in this annual report.

The MAAP study on "Aggregates to Agriculture" also concluded early in 2015. Ms. Caroline Dykstra, a MAAP employee undertook a project in 2013 to increase the amount of information known about agricultural rehabilitation of post-extraction aggregate sites in Southern Ontario. Phase 1 of the study focused on gathering information on locations, landowners, site history and current site conditions. Phase 2 of the study focused on yield and soil conditions at fourteen rehabilitated sites comparing their conditions to undisturbed sites. An update on the study is included elsewhere in this annual report.

As part of the 2012/2013 Aggregate Resources Act Review, Ms. Danielle Solondz, TOARC Project Coordinator and Mr. Bruce Semkowski, TOARC President, participated on the MNRF Rehabilitation Information Working Group. As a result of their participation and the recognition that "education, training, publishing and dissemination of information on management including rehabilitation, are defined as "Trust Purposes", the Board approved the funds and resources to create an electronic database called "eSURRENDER".

eSURRENDER will contain information about all former aggregate licences and permits in the Province and will be available to all including the general public through the TOARC website. eSURRENDER is expected to contain information such as location, size, municipality, licence/permit conditions, land use classification before/post extraction, imagery, etc. TOARC wishes to thank the Ontario Stone Sand and Gravel Association (OSSGA) for making available the exceptional work they had completed on their "Study of Aggregate Site Rehabilitation in Ontario" and encouraging TOARC to continue the research.

Tonnage Production Audits are a mandate of the Aggregate Resource's Trust. With this in mind the Board reviewed the number of client audits completed by TOARC staff and BDO Canada LLP who perform audits under contract. As a result of this review, TOARC hired Mr. Darren Nauth to work full time on Tonnage Production Audits.

Trust funds increased in the year ending 2014 to \$20,221,896 from \$19,516,607 at the yearend 2013. The Trust saw significant gains in both the "realized portion" of the portfolio and the "unrealized changes in fair value portion". However total revenue decreased by \$1,437,150 to \$2,019,739 but still exceeded expenses by \$17,366. These gains continue to be driven as a result of the recovery of investment markets in North America. The Trustee's expenses increased by \$14,789. This was driven mainly by increased salaries and employee benefits expenses as a result of adding staff, offset by lower Professional fees.

I want to take this opportunity to offer special thanks to Mr. Gord Lavis of Lavis Contracting Co. Ltd. who retired from the Board as the Non-OSSGA Representative. Mr. Lavis, the longest serving Board member, started in 1997 concluding in 2014, gave 18 years of dedicated service to TOARC! I would like to welcome Mr. Kerry Doughty of Doughty Aggregates (Peterborough) Ltd. who has agreed to replace Mr. Lavis as the Non-OSSGA Representative.

I would also like to thank Mayor Marolyn Morrison from the Town of Caledon who served as the Association of Municipalities of Ontario (AMO) Representative for the past 2 years for her service. I am pleased to welcome Mayor Dennis Lever of the Township of Puslinch who has agreed to represent AMO.

Respectfully submitted,



Ken Lucyshyn  
Chairman of the Board

# Aggregate Resources Trust

## 2014 Maap Project Summary

Project Number	Landowner	Location	Rehabilitation End Use	Area (ha)	Cost
14-01	CLOCA Pit, Durham County	Durham County	Wheelchair Accessible Nature Trail	0.58	<b>51,117</b>
14-02A	Rourke Pit, Bruce County	Bruce County	Agriculture	0.85	<b>20,006</b>
14-02B	Franklin Pit, Bruce County	Bruce County	Agriculture	0.30	<b>8,395</b>
14-02C	Wiley Pit, Bruce County	Bruce County	Agriculture	0.36	<b>11,468</b>
14-02D	Christie Pit, Bruce County	Bruce County	Agriculture	0.25	<b>7,408</b>
14-03	Emke Pit, Bruce County	Bruce County	Agriculture	7.50	<b>79,480</b>
14-04	Kuephfor Pit, Bruce County	Bruce County	Agriculture	0.90	<b>39,241</b>
14-05B	Benson Pit, Bruce County	Bruce County	Naturalized	2.30	<b>29,258</b>
14-05C	Schnurr Pit, Bruce County	Bruce County	Agriculture	1.40	<b>24,927</b>
14-05D	Veenhof Pit, Bruce County	Bruce County	Agriculture	0.96	<b>8,576</b>
14-06A	Martin Pit, Bruce County	Bruce County	Agriculture	4.00	<b>15,465</b>
14-06B	Scott Pit, Bruce County	Bruce County	Agriculture	1.90	<b>49,932</b>
14-07	White Pit, Bruce County	Bruce County	Naturalized	0.49	<b>8,780</b>
				<b>21.79</b>	<b>354,053</b>

\* Total project costs incurred for 2014 were \$394,312. The difference between the \$354,053 shown and the total was monies spent on various projects carried over from 2013 (mainly seeding and tree planting) and some 2015 pre-rehabilitation costs

# Aggregate Resources Trust

## 2014 Summary of Maap Rehabilitation Costs

Year	Number of New Sites	Area Rehabilitated (ha)	Total Costs**	Cost/(ha)	Avg Cost per site	Avg Area Rehabilitated (ha)
*1992-96	52	77.99	\$726,480	\$9,315	\$13,971	1.50
1997	15	22.40	\$497,973	\$22,231	\$33,198	1.49
1998	10	18.35	\$219,199	\$11,945	\$21,920	1.84
1999	16	30.45	\$366,636	\$12,041	\$22,915	1.90
2000	17	28.50	\$411,226	\$14,429	\$24,190	1.68
2001	21	25.50	\$320,337	\$12,562	\$15,254	1.21
2002	10	14.25	\$288,844	\$20,270	\$28,884	1.43
2003	19	46.39	\$342,897	\$7,392	\$18,047	2.44
2004	15	27.35	\$414,986	\$15,173	\$27,666	1.82
2005	28	75.45	\$498,819	\$6,611	\$17,815	2.69
2006	28	48.50	\$510,556	\$10,527	\$18,234	1.73
2007	23	39.11	\$740,796	\$18,941	\$32,209	1.70
2008	29	45.10	\$482,875	\$10,707	\$16,651	1.56
2009	19	22.29	\$298,699	\$13,401	\$15,721	1.17
2010	19	21.35	\$298,205	\$13,967	\$15,695	1.12
2011	38	34.40	\$274,436	\$7,978	\$7,222	0.91
2012	30	38.10	\$444,222	\$11,659	\$14,807	1.27
2013	28	44.13	\$490,054	\$11,105	\$17,502	1.58
2014	13	21.79	\$354,054	\$16,248	\$27,235	1.68
***2015	5		\$7,738			
<b>Total</b>	<b>435</b>	<b>681.40</b>	<b>\$7,989,032</b>	<b>\$11,713</b>	<b>\$18,561</b>	<b>1.58</b>

\* 1992-1996 data is based on information provided by MNRF

\*\* Total Costs have been restated (except for MNRF contracts) to conform with the Trust's revised financial statement presentation

\*\*\* 2015 Pre-rehabilitation costs spent in 2014

# Aggregates to Agriculture

Protecting Ontario's rural heritage is important - especially with increasing population growth and urbanization. Agricultural rehabilitation is one way in which the aggregate industry is addressing concerns regarding farmland conservation in Ontario. Controversy continues, however, due to a lack of information on the rates and success of rehabilitation practices across Ontario. This was emphasized in the recent Review of the Aggregate Resources Act (2013) which highlighted agricultural rehabilitation as an area of aggregate rehabilitation in need of more study.

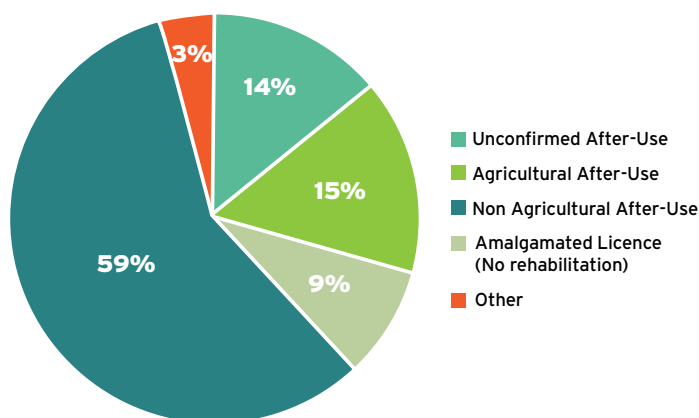
In 2013 and 2014, MAAP undertook a project to increase the amount of information known about agricultural rehabilitation of post-extraction aggregate sites in Southern Ontario. Phase 1 of the study focused on creating a database of sites which included information on locations, landowners, site history and current site conditions. Phase 2 of the study focused on yield and soil conditions at fourteen rehabilitated sites comparing the conditions to undisturbed sites.

## Phase 1 - Results

Site visits and assessments were completed at 185 sites and partially completed at an additional 87 sites which were confirmed to have agricultural rehabilitation. These sites made up approximately 15% of the more than 1,700 sites from across Southern Ontario which were evaluated in the study (Figure 1). The database integrated information from a number of sources including the MAAP database, MNR ALPS database, OSSGA Study of Site Rehabilitation and MTO sites. Of the sites that were assessed in the study, 26% were legacy sites rehabilitated by the MAAP program, 46% were surrendered or progressively rehabilitated licenced sites, 12% were wayside permits surrendered by the MTO and 16% had unknown statuses (indicating that information regarding the type of licence/permit could not be found).

Farmers who owned the rehabilitated agricultural land were asked to rate the land on a scale of one to ten, with one meaning the land was only marginally suited for its agricultural use and ten indicating

**Figure 1** Site status of post-extraction aggregate sites in Southern Ontario.



'Unconfirmed after-use' was assigned to sites which were not visible from public roadways, landowner contact could not be established, and/or the exact location of the site could not be ascertained.

'Amalgamated licence' was assigned to sites where the licence number had been surrendered because the site had been included into another licence number.

'Other' included sites that could not be visited due to time constraints, loss of pit locational information and where landowners declined to be included in the study.





that the quality and production capability of the rehabilitated land was the same as the surrounding land. Sixty-six percent of the farmers surveyed rated the rehabilitated land above a five out of ten, and 34% rated it below a five (Figure 2). Many of the farmers said that the rehabilitated land produced well in wet years, but performed poorly in dry years. Some of the farmers were optimistic that the rehabilitated land was slowly improving over time. A few farmers were less positive, suggesting that the land had been irreparably damaged by poor rehabilitation.

### **Phase 2 - Objective and Sampling Strategy**

Yields were measured in 2014 at four sites growing winter wheat, four with corn and six with soybeans. In general, yield of winter wheat and soybeans were similar to average yields for Ontario and corn yields were lower than Ontario averages. Crop yields were significantly different (at  $p < 0.01$ ) between the undisturbed and the rehabilitated lands at 6 of the 14 study sites. This included three of the winter wheat

sites, two corn sites and one soybean site. Three of these were at legacy pits and three at surrendered sites. Sites where yields were lower in the rehabilitated areas were more likely to have had limited soil resources available for rehabilitation and slope differences between the measured areas.

In general, the anecdotal farmer's ratings corresponded well with measured yields. At the legacy sites, farmer's ratings of 7 and 9 showed no differences in yields between the rehabilitated and undisturbed areas and the ratings of 5 and 3.5 showed differences. At surrendered sites, farmer ratings did not correlate as well with the measured yields due to more middle range ratings (sites rated as 6 and 6.5) which showed both significant and not significant differences in yields.

### **Phase 2- Soil and Land Characteristics**

Soil bulk density in the top layer of the soil was not significantly different between the rehabilitated and undisturbed land areas at twelve of the fourteen sites. However, none



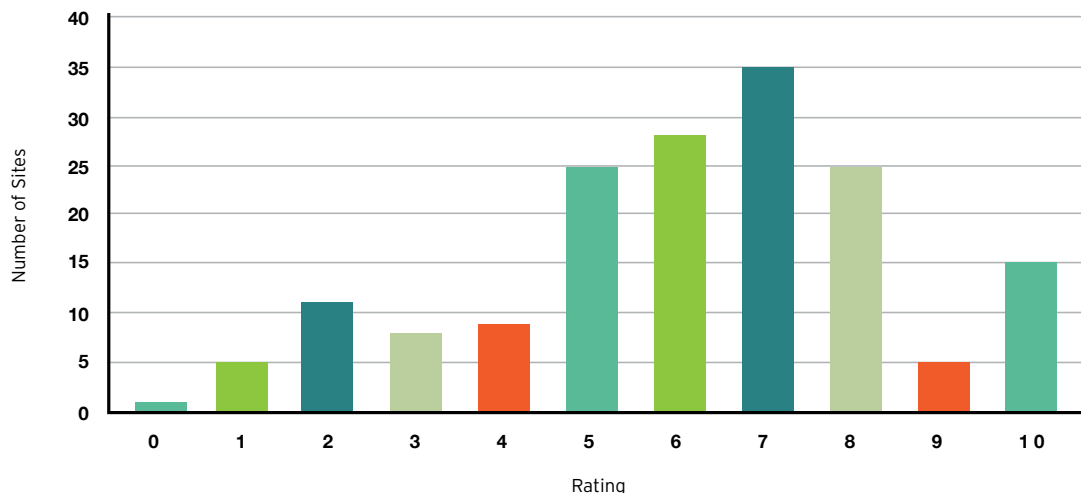


of the bulk density values were in a range that would negatively affect root growth. Stoniness was measured as the percent of ground covered in stones in 1 m by 1 m quadrats. Stoniness percentages were different at most of the sites with the rehabilitated land (average of 54% of ground covered in stones) having significantly higher levels of ground covered in stones than the undisturbed land (average of 4% of ground covered in stones). This can cause problems for farm machinery and dilutes the amount of soil (and therefore nutrients) that plants have access to.

Soil chemical characteristics including pH, soil organic matter content, cation exchange capacity (CEC) and nutrients (P, K, Mg, Ca) were also measured. Overall, pH was higher in the rehabilitated land (average of 7.61) than in the undisturbed land (average of 7.26). Cation exchange capacity, which is a measure of a soils ability to hold onto positively charged nutrients (such as Mg, K, Na and Ca) and resist acidification, was also higher in the rehabilitated land than in the undisturbed land. Soil organic matter content was not significantly different between the rehabilitated (average of 2.97%) and undisturbed (average of 3.24%) sites. These values represent land that is slightly alkaline and common to Ontario soils.

The height and steepness of the largest slope on the rehabilitated land was recorded at each site. At legacy sites, higher slope heights were correlated with significantly lower yields and farmer ratings of less than 5. There was not a strong correlation at the surrendered sites; sites in all slope categories showed no differences in yield.

**Figure 2** Number of agricultural rehabilitation sites rated from one to ten by farmers.







## Phase 1 and 2 - Conclusions

The objectives of the study were to determine the extent and success of aggregate rehabilitation to agriculture in Ontario. Phase 1 revealed that 15% of aggregate site rehabilitation in Southern Ontario has resulted in agricultural land-uses. The success of these projects was more difficult to assess, with direct comparison of land pre- and post-extraction not possible due to the limited scope and timeline of the research.

The study suggests that while success rates are high, there may be opportunity for improvement in agricultural rehabilitation of aggregate extraction sites in Southern Ontario. Yield measurements showed that six of nine surrendered sites and two of five legacy sites had crop yields on the rehabilitated land comparable to the undisturbed

land. Legacy pits are often a 'worst case scenario' for rehabilitation, with limited soil resources on site. The 40% of legacy sites that did not have significant differences may indicate that farm management strategies can help ameliorate soils over time. The 67% of surrendered sites in this study that had no differences between the rehabilitated and undisturbed areas indicates that having soil on site and pre-planning is important for rehabilitation success.

Finding the differences that lead to more successful agricultural rehabilitation was difficult in this study because of the multiple farmers, soils and management practices used. Recommendations for further research that is able to examine sites before, during and after extraction would allow for more precision.



# Eliminating Legacy Sites One by One

The Management of Abandoned Aggregate Properties (MAAP) program has the task of assessing and rehabilitating (as necessary) over 7,900 sites identified as former pits and quarries (legacy pits and quarries) in areas of the Province designated under the Aggregate Resources Act.

In 2014 MAAP undertook 13 projects, which resulted in 21.79 hectares (53.8 acres) of land being rehabilitated and 133,000 m<sup>3</sup> of earth moved.

## **Kuepfor Pit, Bruce County, Township of Elderslie**

This 1ha (2.5 acres) pit was located off Bruce County Road 9 and was extremely accessible and visible. The legacy pit was a fairly deep site, approximately 9 meters deep, with straight vertical walls on three sides. New buildings were in close proximity to the west pit face and an active Township pit was located to the east. As a result, construction was constricted to only the north and south portions of the site.

A very large embankment of material existed at the south end of the site between the pit and the road. The County was keen to see the embankment eliminated as it created a high ridge to the road and forced the dominant northwestern winds to drop their snow load onto the highway. Material and topsoil was utilized from the constricted area to create a pasture which would be an extension of the existing paddock at the north end of the site. Moving over 31,000m<sup>3</sup> of material from the north and south ends of the pit, Harold Sutherland Construction Ltd., Kemble ON, was able to create a relatively gentle 8:1 slope.



Before



During



After





## Emke Pit, Bruce County, Township of Elderslie

This expansive 10 ha (25 acres) legacy pit was highly visible to anyone travelling down County Road 19. The landowner was currently using the pit as pastureland but a 10 acre portion that was prone to seasonal flooding and multiple pit faces made much of the pasture impractical.

The main challenges for rehabilitation at this site were the size and complexity of the landscape in addition to the apparent lack of topsoil. To obtain a detailed survey of the complex site, MAAP commissioned High-Eye Aerial Imaging Inc.'s surveying drone to provide MAAP with a highly detailed 3D model of the site. This step was integral to developing the grading plan.

Despite Mr. Hartnett completing test pits as part of the inventory and analysis of the site, very little topsoil was discovered. It was only during the construction phase that it was discovered that there was a great deal more topsoil (an additional ~4000m<sup>3</sup>) than previously estimated. The found material was judiciously applied to the finished grade and further supplemented by a stockpile of manure that was spread out to add nutrient to the otherwise dead soils. Cedarwell Excavating Ltd., Hanover ON., moved over 40,000m<sup>3</sup> of material to rehabilitate this site.

The landowner has sown winter wheat with an under seeding of Pickseed mixed pasture seed at a rate of 50kg/ha. While it will be awhile before the site will be able to support livestock grazing, it is now well on the way to being able to do so from a relatively barren, unused part of the farm.



Before



During



After



# The Feasibility of Mitigating Hardwood Forest Removal through Afforestation of Farmland

The Afforested Environments Study (AES), led by Dr. Paul Richardson and Professor Stephen Murphy at the University of Waterloo, reached successful completion at the end of April 2015. The research has substantially improved our capacity to plan and carry out forest creation projects aimed at compensating for impacts of forest removals, which are occasionally needed to access sustainable, close-to-market aggregate resources in Ontario. Such activities are becoming increasingly important to aggregate production because regulators, the public, and producers themselves are becoming increasingly concerned with meeting the goal of no net loss of vital ecosystems such as mature hardwood forests from the landscape. Emerging practices such as planting new forests that are twice as large in area as stands facing removal, or strategically located to reconnect existing forest fragments, may actually help the aggregates sector contribute to achieving net gain of forest cover.

The chief barricade to this situation is the fear that while planted forests may match or exceed removed stands in quantity, they are sorely

lacking in quality. For Ontario's biodiversity, the chief value of forests lies not in the amount of CO<sub>2</sub> pulled from the atmosphere or the volume of wood produced, but rather the rich, diverse, and unique environmental conditions that provide patches of optimal habitat for so many species. This is especially prevalent in the mature natural hardwood stands that cap many mineral deposits. To what extent do created forests recuperate such habitat conditions, or the complex ecological communities these sustain in nature? How much time is needed after tree planting before habitat or vegetation community targets are reached, especially in the understory, where forest biodiversity is greatest and the largest gains are needed? Which ecosystem features can be replicated, and which are unlikely to emerge no matter how much time passes? Given that the most commonly used methods of forest creation involve uniform plantings of quick-growing, regularly-harvested softwood species while the long-term goal is a spatially diverse, self-sustaining hardwood forest, should conventional methods be applied to ecosystem compensation at all, or should alternative approaches be sought?





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**Mature natural hardwood forests are valuable for the unique habitat features they provide and the diverse organisms these sustain.**

The AES addressed these questions by comparing mature natural hardwood forests - “targets” for compensatory forest creation - to woodlots planted between 30 and 90 years before the study. Most investigated woodlots reflected conventional forestry approaches to new forest creation - e.g. rows of low-diversity, regularly-thinned softwood trees planted - but additional sites spanning the age gradient were included where thinning had been minimal or where both hardwood and softwood species had been planted. All sites were sampled over 3 years to gather a large, comprehensive dataset of ecological attributes ranging from characteristics of the canopy-forming tree community to properties of the understory vegetation, coarse woody debris (e.g. fallen logs, stumps and standing dead trees), the duff layer (e.g. surface cover by leaf litter and other materials), the topsoil (e.g. pH, organic material, nutrients, moisture), and underlying topography (e.g. pits and mounds in the forest floor). The most novel component of the study assessed the similarity of planted woodlots to target forests from the perspective of sensitive herb species which grow optimally in mature hardwood forests. This was accomplished by carefully excavating living wild leek bulbs and wild ginger rhizomes from the target forests and relocating these to every woodlot, as well as to new locations within the home forests. Transplant success was monitored over three years and woodlots which supported the plant indicators (“phytometers”) as successfully as did the target forests were inferred to be equivalent to with respect to ecologically relevant habitat features.

The wealth of data accumulated was streamlined via step-wise analysis of 42 distinct forest attributes. For each, the range of the variable within planted woodlots was compared to the range within target hardwood forests, and the degree to which similarity depended on the age of the woodlot, the types of trees planted, and the intensity of thinning was determined. For features exhibiting increasing similarity to targets with woodlot age, researchers calculated how much time would be needed for the woodlots to become indistinguishable from the target forests. This enabled organization of the 42 forest features along a scale considering the feasibility of recuperating target features within planted woodlots; it also provided insight into management practices most likely to achieve this goal. Features typically recuperated within the first 30 years of forest planting were ranked “Likely” while properties found to be permanently dissimilar from target forests were ranked “Unlikely”. Features were respectively ranked as “Feasible”, “Possible” or “Challenging” to recover if they required 31-60 years, 61-90 years or 91-150 years.

### **Can We Recreate Hardwood Forests?**

The results of this analysis revealed some cause for optimism but also suggest caution when planning compensatory afforestation. Of the forest attributes investigated, 33% (i.e. 14/42) fell into the Likely feasibility class, 17% were Feasible, 29% were Possible, 7% were Challenging and 14% were Unlikely to

be recuperated using conventional management. Put another way, if a new forest were planted today using typical methods, in 90 years this would most likely be indistinguishable from natural hardwood forests with respect to nearly 80% of investigated features. An additional 60 years of stand development would be required to increase the success rate to 86%, and a residual 14% of features will probably remain distinct from target forests no matter how much time passes.

### Likely to Recreate Forests?

Features classified as Likely come from all forest strata, from percent canopy closure and tree density to percent cover by ground flora, surface cover by bare soil and fine woody debris, and the texture and cation exchange capacity of the topsoil. For many such features, woodlots could not be distinguished from target forests because both forest types exhibited strong site-to-site variation. This supports the idea that the natural dynamics of target forests across a landscape should be considered carefully when setting specific targets for afforestation, aiming to create conditions that fall within the range of variation of natural reference forests without expecting to perfectly replicate any specific forest or narrow range of target values.

### Feasible to Recreate Forests?

Target forest features classified as Feasible changed substantially with woodlot age, usually converging with target values 50-60 years after tree planting. For some features, only specific

types of woodlots eventually met the target. The diversity of tree species, for example, only followed this trend where hardwoods had been planted alongside softwoods initially; surface cover by fallen leaf and needle litter each only reached target levels in thinned, softwood-only woodlots, requiring just less than 60 years. The diversity of trunk diameter size-classes present similarly increased and reached targets over this duration, but only in thinned softwood plantations. Soil micronutrients including calcium and magnesium also converged with targets over 60 years but these bear watching because they tended to overshoot, continue to drop below target levels as woodlots aged beyond 60 years.

Feasible features mostly followed a well-defined trajectory of increasing similarity to target forests over time, converging 70-90 years after tree-planting. The volume, composition and decay state of coarse woody debris as well as the frequency of pit-and-mound structures on the forest-floor exhibited this pattern. The capacity for such features to directly support diverse vegetation (e.g. mosses, ferns, and herbs growing from decaying stumps) also emerged over this timespan. Perhaps most tellingly, both wild leek and wild ginger transplants followed survival patterns indicating that planted woodlots spontaneously generate highly suitable habitat conditions for natural heritage herb species within 70-90 years of tree planting, but only for woodlots where hardwood species were not initially planted. This is most likely because the selected softwood species grow

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**After 70-90 years of forest development, planted woodlots closely resemble natural hardwood forests with respect to many understorey habitat and vegetation features.**





faster than hardwoods and create a semi-closed canopy relatively quickly, providing refuge for native hardwood species colonizing from other forests in the landscape. The relatively quick development of target habitat conditions in thinned woodlots suggests that periodically creating canopy gaps and reduce competition with planted trees, accelerates suitable habitat development. In line with these changes, although the total number of spontaneously colonizing understorey plant species remained constant, in thinned woodlots the proportion corresponding to non-natives dropped steeply to the low levels characterizing target forests (i.e. from approximately 40% to 5%) about 90 years after stand establishment.

### Challenging to Recreate Forests?

The three features found to be Challenging to recover were the species composition of the tree community (projected to require 105 years where hardwoods were planted but 130 years where they were not), the species composition of the understorey (expected to require 150 years regardless of planting or thinning management), and the frequency of encountering small pits on the forest floor (projected to grow to target-forest levels over 130 years). The slow development of pits is of low concern since these may be created artificially and were found to be less important than mounds for hosting biodiversity. The slow development of vegetation composition is of much greater concern, however, as this links directly to a chief goal of compensatory afforestation: support

for specific plant species and communities reflecting the landscape's natural history. The discovery that planted forests are on a slow but nevertheless progressive trajectory towards compositional equivalence to targets suggests this goal can eventually be reached, even if management practices do not evolve. The extensive time lag required is problematic, though, as the ecological processes driving forest development are themselves undergoing change due to shifting climate and land-uses, and may operate differently over the next century than over the last one. Finding an effective but cost-efficient and environmentally responsible means to fast track assembly of target communities in this context should thus be an important focus for future research.

### Unlikely to Recreate Forests?

Three of the target features determined to be Unlikely relate to this as they represent aspects of understorey plant biodiversity. The number of plant species present per site, the number of species present per square-meter plot, and the evenness of abundances of different species within each plot were all lower in plantations than reference forests and showed no sign of increasing as the stands aged. While each target hardwood forest supported an average of 46 understorey herb species, for example, planted softwood lots supported only 34 species. The other 3 Unlikely features relate to soil properties which may be at least partially responsible for this gap in understorey similarity. Soils underlying areas of human activity often





become compacted and disturbed, resulting in high bulk density and low organic material, which can reduce moisture retention, nutrition, and capacity to support plant growth. This appears to be the case for afforested farmlands, as bulk density was higher while organic material and moisture concentrations were lower in planted compared to natural forests, independent of woodlot age or management.

Further research should thus also focus on developing management interventions capable of efficiently altering soil moisture, organic matter and bulk density in woodlots to more closely match target natural stands. It may be that both vegetation and soil similarity to targets can be increased dramatically by relocating bulk quantities of topsoil - including its inherent bank of plant seeds, roots and beneficial microorganisms - from natural stands facing removal, to created forests. To be successful, however, innovative means must be developed for overcoming the considerable environmental differences between newly afforested fields and mature forest floors. In the interim, an alternative solution may be to direct transfer of soil and propagules to 60-80 year-old thinned softwood plantations where phytometers indicate suitable habitat conditions have spontaneously developed but vegetation has not yet followed suit.

### **It is Feasible!**

The chief significance of the Afforested Environments Study is that aggregate producers - and indeed, managers within a number of development-related industries - can now plan

and implement compensatory afforestation with high confidence that the outcome will be nearly complete ecological replacement of the forest ecosystems facing removal. A major practical advance coming from the research is that managers can now accurately predict how long compensation will take, plan for different time-lags associated with different target features, and implement effective interventions for minimizing time-lags and maximizing the degree of similarity to target forests. The findings highlight the importance of explicitly defining and prioritizing goals early in afforestation planning since methods which are most effective for meeting one goal may be least effective for meeting another. Planting hardwoods species, for example, may accelerate canopy-level similarity but impede desired developments in the understorey. Crucially, the study results provide tools and evidence for demonstrating that not only is it possible to develop aggregate resources with no net loss of forest ecosystems, but strategic application of best afforestation practices can yield net gains by improving connectivity among forest fragments and providing rare refugia for heritage biodiversity.





# AGGREGATE RESOURCES TRUST

Financial  
Statements

For the year ended  
December 31, 2014



# Independent Auditor's Report

## To the Trustee of Aggregate Resources Trust:

We have audited the accompanying financial statements of Aggregate Resources Trust (the "Trust"), which comprise the statement of financial position as at December 31, 2014, and the statements of revenue and expenses and changes in fund balances, and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Trust's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Trust's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of the Trust as at December 31, 2014 and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

**BDO CANADA LLP**

Chartered Professional Accountants, Licensed Public Accountants

Burlington, Ontario  
February 25, 2015

# Aggregate Resources Trust

## Statement of Financial Position

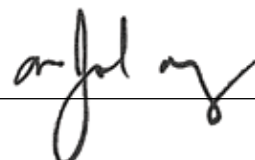
	December 31 2014 \$	December 31 2013 \$
<b>ASSETS</b>		
<b>CURRENT</b>		
Cash	820,019	1,165,164
Short-term investments [note 2]	541,553	314,993
Due from Licensees and Permittees	150,951	180,590
HST recoverable	43,921	52,117
Interest and dividends declared receivable	25,885	29,500
Prepaid expenses	29,535	28,595
<b>Total current assets</b>	<b>1,611,864</b>	<b>1,770,959</b>
Investments [note 3]	19,062,473	18,284,034
Capital assets, net [note 4]	152,352	86,340
	<b>20,826,689</b>	<b>20,141,333</b>
<b>LIABILITIES AND TRUST FUNDS</b>		
<b>CURRENT</b>		
Accounts payable and accrued liabilities	199,260	247,324
Due to the Ontario Stone, Sand & Gravel Association [note 5]	2,938	1,539
Wayside permit deposits	53,246	13,105
Deferred Aggregate Resources Charges	59,662	39,263
Deferred lease costs	—	6,356
Due to Governments	267,290	317,139
Current Portion - Conditional Sales Contract - Auto Loan [note 6]	4,715	—
<b>Total Current Liabilities</b>	<b>587,111</b>	<b>624,726</b>
<b>Conditional Sales Contract - Auto Loan</b> [note 6]	<b>17,682</b>	<b>—</b>
<b>Total liabilities</b>	<b>604,793</b>	<b>624,726</b>
<b>TRUST FUNDS</b>		
Rehabilitation Fund [see schedules]	17,860,654	17,030,637
Abandoned Pits and Quarries Rehabilitation Fund [see schedules]	2,361,242	2,485,970
<b>Total Trust Funds</b>	<b>20,221,896</b>	<b>19,516,607</b>
	<b>20,826,689</b>	<b>20,141,333</b>

The accompanying notes and schedules are an integral part of these financial statements.

On behalf of the Trust by The Ontario Aggregate Resources Corporation as Trustee:



Director



Director

# Aggregate Resources Trust


## Statement of Revenue and Expenses and Changes in Fund Balances

<b>For The Year Ended December 31</b>	<b>2014</b>	<b>2013</b>
	<b>\$</b>	<b>\$</b>
<b>REVENUE</b>		
Investment income [note 3]	1,254,640	1,265,312
Unrealized changes in fair value	753,350	2,183,143
Publications	979	2,174
Gain on disposal of capital assets	10,770	6,260
	<b>2,019,739</b>	<b>3,456,889</b>
<b>EXPENSES</b>		
Trustee's expenses [note 9]	1,137,480	1,130,442
Amortization	46,569	48,245
Investment management fees	136,382	126,955
	<b>1,320,431</b>	<b>1,305,642</b>
<b>Excess of revenue over expenses before the following</b>	<b>699,308</b>	<b>2,151,247</b>
Aggregate Resources Charges	17,809,755	18,919,106
Allocated to the Governments	(17,121,832)	(18,198,757)
Allocated to the Crown	(687,923)	(720,349)
Expenditures incurred in meeting the Trust purposes [see schedules]	(681,942)	(666,913)
<b>Excess of revenue over expenses for the year</b>	<b>17,366</b>	<b>1,484,334</b>
Trust Funds, beginning of year	19,516,607	17,311,924
Funds reinvested by the Crown	687,923	720,349
<b>Trust Funds, End of Year</b>	<b>20,221,896</b>	<b>19,516,607</b>

The accompanying notes and schedules are an integral part of these financial statements.







## Statement of Cash Flows

<b>For The Year Ended December 31</b>	<b>2014</b>	<b>2013</b>
	<b>\$</b>	<b>\$</b>
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
Excess of revenue over expenses for the year	17,366	1,484,334
Add (less) items not involving cash		
Amortization	46,569	48,245
Unrealized changes in fair values	(753,350)	(2,183,142)
Gain on disposal of capital assets	(10,770)	(6,260)
	(700,185)	(656,823)
Net change in non-cash working capital balances related to operations		
Due from Licensees and Permittees	29,639	80,406
HST recoverable	8,196	(20,715)
Due from Ontario Stone, Sand & Gravel Association	—	5,085
Interest and dividends declared receivable	3,615	(1,606)
Prepaid expenses	(940)	(11,650)
Accounts payable and accrued liabilities	(48,064)	74,003
Due to Ontario Stone, Sand & Gravel Association	1,399	1,262
Wayside permit deposits	40,141	(8,775)
Deferred Aggregate Resources Charges	20,399	(32,706)
Deferred lease costs	(6,356)	(8,475)
Due to Governments	(49,849)	(98,641)
<b>Cash used in operating activities</b>	<b>(702,005)</b>	<b>(678,635)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Purchase of capital assets	(112,581)	(35,072)
Proceeds on disposal of capital assets	10,770	7,312
Purchase of short-term investments	(20,816,485)	(20,012,917)
Sale of short-term investments	20,589,924	19,798,199
Purchase of investments	(1,376,474)	(2,153,934)
Sale of investments	1,351,386	2,287,289
<b>Cash used in investing activities</b>	<b>(353,460)</b>	<b>(109,123)</b>
<b>CASH FLOWS FROM FINANCING ACTIVITY</b>		
Funds reinvested by the Crown	687,923	720,349
Conditional Sales Contract - Auto Loan	22,397	—
<b>Cash provided by financing activity</b>	<b>710,320</b>	<b>720,349</b>
<b>Net decrease in cash during the year</b>	<b>(345,145)</b>	<b>(67,409)</b>
Cash, beginning of year	1,165,164	1,232,573
<b>Cash, end of year</b>	<b>820,019</b>	<b>1,165,164</b>

### SUPPLEMENTAL CASH FLOW INFORMATION

For the year ended December 31	2014	2013
	\$	\$
Cash received from interest	370,738	397,943

The accompanying notes and schedules are an integral part of these financial statements



# Aggregate Resources Trust

<b>For The Year Ended December 31, 2014</b>	<b>Aggregate Resources Fund \$</b>	<b>Rehabilitation Fund \$</b>	<b>Abandoned Pits and Quarries Rehabilitation Fund \$</b>	<b>Total \$</b>
<b>REVENUE</b>				
Investment income [note 3]	—	1,089,984	164,656	1,254,640
Unrealized changes in fair value	—	641,064	112,286	753,350
Publications	—	94	885	979
Gain on disposal of capital assets	—	20	10,750	10,770
	—	1,731,162	288,577	2,019,739
<b>EXPENSES</b>				
Trustee's expenses [note 9]	—	597,196	540,284	1,137,480
Amortization	—	17,918	28,651	46,569
Investment management fees	—	116,229	20,153	136,382
	—	731,343	589,088	1,320,431
<b>Excess (deficiency) of revenue over expenses before the following</b>	<b>—</b>	<b>999,819</b>	<b>(300,511)</b>	<b>699,308</b>
Aggregate Resources Charges	17,809,755	—	—	17,809,755
Allocated to the Governments	(17,121,832)	—	—	(17,121,832)
Allocated to the Crown	(687,923)	—	—	(687,923)
Expenditures incurred in meeting the Trust purposes [see schedules]	—	(169,802)	(512,140)	(681,942)
<b>Excess (deficiency) of revenue over expenses for the year</b>	<b>—</b>	<b>830,017</b>	<b>(812,651)</b>	<b>17,366</b>
Trust Funds, beginning of year	—	17,030,637	2,485,970	19,516,607
Funds reinvested by the Crown	687,923	—	—	687,923
Interfund transfer	(687,923)	—	687,923	—
<b>Trust Funds, end of year</b>	<b>—</b>	<b>17,860,654</b>	<b>2,361,242</b>	<b>20,221,896</b>

The accompanying notes and schedules are an integral part of these financial statements.

## Schedules of Statement of Revenue and Expenses and Changes in Fund Balances for the Aggregate Resources Fund, Rehabilitation Fund and Abandoned Pits and Quarries Rehabilitation Fund

<b>For The Year Ended December 31, 2013</b>	<b>Aggregate Resources Fund \$</b>	<b>Rehabilitation Fund \$</b>	<b>Abandoned Pits and Quarries Rehabilitation Fund \$</b>	<b>Total \$</b>
<b>REVENUE</b>				
Investment income [note 3]	—	1,096,989	168,323	1,265,312
Unrealized changes in fair value	—	1,856,763	326,380	2,183,143
Publications	—	139	2,035	2,174
Gain on disposal of capital assets	—	6,260	—	6,260
	—	2,960,151	496,738	3,456,889
<b>EXPENSES</b>				
Trustee's expenses [note 9]	—	511,118	619,324	1,130,442
Amortization	—	15,891	32,354	48,245
Investment management fees	—	107,470	19,485	126,955
	—	634,479	671,163	1,305,642
<b>Excess (deficiency) of revenue over expenses before the following</b>	—	2,325,672	(174,425)	2,151,247
Aggregate Resources Charges	18,919,106	—	—	18,919,106
Allocated to the Governments	(18,198,757)	—	—	(18,198,757)
Allocated to the Crown	(720,349)	—	—	(720,349)
Expenditures incurred in meeting the Trust purposes [see schedules]	—	(57,223)	(609,690)	(666,913)
<b>Excess (deficiency) of revenue over expenses for the year</b>	—	2,268,449	(784,115)	1,484,334
Trust Funds, beginning of year	—	14,762,188	2,549,736	17,311,924
Funds reinvested by the Crown	720,349	—	—	720,349
Interfund transfer	(720,349)	—	720,349	—
<b>Trust Funds, end of year</b>	—	17,030,637	2,485,970	19,516,607

The accompanying notes and schedules are an integral part of these financial statements.

# Aggregate Resources Trust

## Schedules of Rehabilitation Costs for the Rehabilitation Fund

### For The Year Ended December 31, 2014

<b>Project Number</b>	<b>Project Name</b>	<b>Paid or Payable / (Recovered) \$</b>
12-001B	Stone Pit, Renfrew County	240
13-002	Neuman Pit, Hastings County	240
14-001	Nutall Pit, District of Sudbury	76,355
14-002	Ed's Landscaping Pit, District of Kenora	4,000
14-003	1080678 Ontario Inc. Pit, Simcoe County	25,025
14-004	Parent Pit, Renfrew County	6,100
<b>RECOVERIES</b>		
12-001B	Stone Pit, Renfrew County	(1,400)
	Education	
	Student Rehabilitation Design Competition	10,139
	Rehabilitation Tour Sudbury & surrounding area	1,500
	Tendering, consulting and other	47,603
		<b>169,802</b>

The accompanying notes are an integral part of these financial statements

### For The Year Ended December 31, 2013

<b>Project Number</b>	<b>Project Name</b>	<b>Paid or Payable \$</b>
13-001	Levesque Pit, District of Timiskaming	19,520
13-002	Neuman Pit, Hastings County	18,583
	Education	
	Student Rehabilitation Design Competition	11,155
	Rehabilitation Tour Simcoe County & surrounding area	1,500
	Tendering, consulting and other	6,465
		<b>57,223</b>

The accompanying notes are an integral part of these financial statements



## Schedule of Rehabilitation Costs for the Abandoned Pits and Quarries Rehabilitation Fund

### For The Year Ended December 31, 2014

Project Number	Project Name	Paid or Payable \$
13-03B	GRCA Redstone Pit, Wellington County	6,460
13-05A	G. Martin Pit, Wellington County	7,000
13-08	Guy Pit, Durham County	2,400
13-09A	Senn Pit, Durham County	1,200
13-09B	Swindells Pit, Durham County	1,200
13-10A	Warriner Pit, Durham County	2,659
13-10B	Piney Pit, Durham County	5,884
13-10C	Coxworth Pit, Durham County	636
13-11A	Kemp Pit, Durham County	1,180
13-11C	Woodley Pit, Durham County	1,000
13-12	Halminem Pit, Durham County	2,900
14-01	CLOCA Sisson Pit, Durham County	51,117
14-02A	Rourke Pit, Bruce County	20,006
14-02B	Franklin Pit, Bruce County	8,395
14-02C	Wiley Pit, Bruce County	11,468
14-02D	Christie Pit, Bruce County	7,408
14-03	Emke Pit, Bruce County	79,480
14-04	Kuephfor Pit, Bruce County	39,241
14-05B	Benson Pit, Bruce County	29,258
14-05C	Schurr Pit, Bruce County	24,927
14-05D	Veenhof Pit, Bruce County	8,576
14-06A	Martin Pit, Bruce County	15,465
14-06B	Scott Pit, Bruce County	49,932
14-07	White Pit, Bruce County	8,780
15	Kuhl Pit, Grey County	1,788
15	Belyea Pit, Hastings County	1,488
15	Brouillette Pit, Hastings County	1,488
15	Mackey Pit, Hastings County	1,488
15	Palmateer Pit, Hastings County	1,488
	Research costs	
	Dr. Richardson - Determining the time span and ecological conditions necessary for afforested environments to support older-growth understorey communities	44,912
	TOARC Internal Research on Agricultural Rehabilitation	70,009
	Tendering, consulting and other	2,907
		<b>512,140</b>

The accompanying notes are an integral part of these financial statements

# Aggregate Resources Trust

## Schedule of Rehabilitation Costs for the Abandoned Pits and Quarries Rehabilitation Fund

### For The Year Ended December 31, 2013

Project Number	Project Name	Paid or Payable / (Recovered) \$
11-08	Myles Pit, Bruce County	4,563
12-04A	Schut Pit, Northumberland County	462
12-04B	Cook Pit, Northumberland County	410
12-04D	Self Pit, Northumberland County	7,319
12-04E	Scott Pit, Northumberland County	1,186
12-07	Sheppard Pit, Northumberland County	2,771
12-09C	McNichol Pit, Northumberland County	331
13-01	Timmings Pit, Wellington County	62,533
13-02A	Zelasko Pit, Wellington County	19,807
13-02B	Hartung Pit, Wellington County	57,010
13-03A	Weber Pit, Wellington County	13,539
13-03B	GRCA Redstone Pit, Wellington County	3,645
13-03C	GRCA Ariss Pit, Wellington County	3,507
13-03D	Bowier Pit, Wellington County	34,585
13-04	Arnold Pit, Wellington County	38,086
13-05A	G. Martin Pit, Wellington County	13,835
13-05B	L. Martin Pit, Wellington County	11,226
13-05C	Sherman Pit, Wellington County	21,725
13-06A	Hessels Pit, Wellington County	6,400
13-06B	GRCA Neumann Pit, Wellington County	11,419
13-06C	Brohman Pit, Wellington County	5,940
13-06D	J. Martin Pit, Wellington County	12,350
13-07	Windsor Feminist Theatre Quarry, Essex County	8,916
13-08	Guy Pit, Durham County	24,673
13-09A	Senn Pit, Durham County	7,373
13-09B	Swindells Pit, Durham County	11,673
13-09C	LeBlanc Pit, Durham County	13,673
13-10A	Warriner Pit, Durham County	5,506
13-10B	Piney Pit, Durham County	8,693
13-10C	Coxworth Pit, Durham County	7,433
13-10D	Ross Pit, Durham County	7,814
13-11A	Kemp Pit, Durham County	5,173
13-11B	Davidson Pit, Durham County	10,173
13-11C	Woodley Pit, Durham County	8,400
13-12	Halminem Pit, Durham County	22,428





## Schedule of Rehabilitation Costs for the Abandoned Pits and Quarries Rehabilitation Fund Continued

### For The Year Ended December 31, 2013

Project Number	Project Name	Paid or Payable / (Recovered) \$
	Research costs	
	Dr. Klironomos - Fungal & Soil Ecology - Native prairie plant response to mycorrhizal inoculation and soil carbon amendments	12,750
	Dr. Richardson - Determining the time span and ecological conditions necessary for afforested environments to support older-growth understorey communities	76,425
	Recoveries NSERC & Centre for Ecosystem Resilience & Adaptation	(13,474)
	TOARC Internal Research on Agricultural Rehabilitation	56,418
	Tendering, consulting and other	2,994
		<b>609,690</b>

The accompanying notes are an integral part of these financial statements



# Aggregate Resources Trust

## Notes to Financial Statements

December 31, 2014

### 1. NATURE OF OPERATIONS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

#### Formation and Nature of Trust

Aggregate Resources Trust [the "Trust"] was settled by Her Majesty the Queen in Right of the Province of Ontario [the "Crown"] as represented by the Minister of Natural Resources [the "Minister"] for the Province of Ontario pursuant to Section 6.1(1) of the Aggregate Resources Act, R.S.O. 1990, Chap. A.8 as amended [the "Act"]. The Minister entered into a Trust Indenture dated June 27, 1997 [the "Trust Indenture"] with The Ontario Aggregate Resources Corporation ["TOARC"] appointing TOARC as Trustee of the Trust.

The Trust's goals are: [a] the rehabilitation of land for which a Licence or Permit has been revoked and for which final rehabilitation has not been completed; [b] the rehabilitation of abandoned pits and quarries, including surveys and studies respecting their location and condition; [c] research on aggregate resource management, including rehabilitation; [d] making payments to the Crown and to regional municipalities, counties and local municipalities in accordance with regulations made pursuant to the Act; [e] the management of the Abandoned Pits and Quarries Rehabilitation Fund; and [f] such other purposes as may be provided for by or pursuant to Section 6.1(2)5 of the Act.

In 1999 the Trust's purposes were expanded by amendment to the Trust Indenture to include:

[a] " the education and training of persons engaged in or interested in the management of the aggregate resources of Ontario, the operation of pits or quarries, or the rehabilitation of land from which aggregate has been excavated; and

[b] the gathering, publishing and dissemination of information relating to the management of the aggregate resources of Ontario, the control and regulation of aggregate operations and the rehabilitation of land from which aggregate has been excavated."

In accordance with the Trust Indenture, TOARC administers the Trust which consists of three funds: the Aggregate Resources Fund, the Rehabilitation Fund and the Abandoned Pits and Quarries Rehabilitation Fund. TOARC is a mere custodian of the assets of the Trust and all expenditures made by TOARC are expenditures of the Trust.

Prior to the creation of the Trust, the Trust's goals were pursued by the Minister and, separately, the Ontario Stone, Sand & Gravel Association [the "OSSGA"] formerly The Aggregate Producers' Association of Ontario [the "APAO"]. Upon the creation of the Trust, rehabilitation security deposits held by the Crown, as represented by the Minister, were to be transferred to the Trust. In addition, the Crown directed the OSSGA to transfer, on behalf of the Crown, the Abandoned Pits and Quarries Rehabilitation Fund to the Trust. By December 31, 1999, the Minister and the OSSGA had transferred \$59,793,446 and \$933,485, respectively, to the Trust.



## Notes to Financial Statements Continued

Pursuant to the Trust Indenture, TOARC “shall pay and discharge expenses properly incurred by it in carrying out and fulfilling the Trust purposes and the administration of the Trust . . .” [Section 7.02].

The Aggregate Resources Fund is for the collection of the annual licence and permit fees, royalties, and wayside permit fees [aggregate resources charges] collected on behalf of the Minister. Effective for the 2007 production year the annual licence fee increased from \$0.06 per tonne to \$0.115 per tonne. The licence fees are due by March 15 of the following year, and are disbursed within six months of receipt. The fees are disbursed as follows: [a] \$0.06 to the lower tier municipality, [b] \$0.015 to the upper tier municipality, [c] \$0.035 to the Crown, collectively [the “Governments”] and [d] \$0.005 to the Trust. Minimum annual fees were increased effective for the 2007 production year:

- a Class A licence from \$200 to \$400 or \$0.115 per tonne whichever is greater;
- a Class B licence from \$100 to \$200 or \$0.115 per tonne whichever is greater;
- the minimum wayside fee from \$100 to \$400 or \$0.115 per tonne whichever is greater;
- the annual aggregate permit fee from \$100 to \$200; and
- the minimum royalty rate for aggregate extracted on Crown land from \$0.25 to \$0.50 per tonne.

For production prior to 2007 all aggregate resources charges remain at the old fee schedule with the \$0.06 licence fee being disbursed as follows: [a] \$0.04 to the lower tier municipality, [b] \$0.005 to the upper tier municipality, [c] \$0.01 to the Crown, collectively [the “Governments”] and [d] \$0.005 to the Trust.

The funds reinvested by the Crown to the Trust from the Aggregate Resources Fund will be transferred within the Trust and used for the Rehabilitation Fund and the Abandoned Pits and Quarries Rehabilitation Fund. In addition, the Trust collects the royalty payments and annual fees related to aggregate permits and also disburses the funds to the Crown within six months of receipt.

The Rehabilitation Fund represents the rehabilitation security deposits, contributed by Licensees and Permittees, held by the Crown and, in accordance with the Trust Indenture, transferred to the Trust. TOARC has been directed by the Minister to refund approximately 3,000 individual licensee and permittee accounts based on the formula of retaining \$500 per hectare disbursed on licenses and 20% of the deposit amount for aggregate permits. As a result, the Trust has refunded approximately \$48.6 million as per the Crown’s directions. The balance of funds will be used to ensure the rehabilitation of land where licenses and/or permits have been revoked and final rehabilitation has not been completed.

The Abandoned Pits and Quarries Rehabilitation Fund is for the rehabilitation of abandoned sites and related research. Abandoned sites are pits and quarries for which a licence or permit was never in force at any time after December 31, 1989.

The Trust’s expenses [or Trustee’s expenses] are the amounts paid pursuant to Article 7.02 of the Trust Indenture.

# Aggregate Resources Trust

## Notes to Financial Statements Continued

Pursuant to Section 4.01 of the Trust Indenture, the Trust's assets and the income and gains derived therefrom are property belonging to the Province of Ontario within the meaning of Section 125 of the Constitution Act, 1867 and, by reason of Section 7.01 of the Trust Indenture, the amounts paid by the Trustee pursuant to Article 7 are paid to or for the benefit of the Crown.

### **Basis of Accounting**

The financial statements of the Trust have been prepared in accordance with Canadian accounting standards for not-for-profit organizations.

### **Use of Estimates**

The preparation of financial statements in accordance with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from management's best estimates as additional information becomes available in the future. The financial statements have, in management's opinion, been properly prepared using careful judgment within reasonable limits of materiality and within the framework of the accounting policies of the Trust.

### **Aggregate Resources Charges**

Aggregate resources charges collected on behalf of the Minister are recorded upon receipt of a tonnage report from Licensees and Permittees. Aggregate resources charges are based on the tonnage produced in the preceding period by the Licensees and Permittees as reported by the Licensees and Permittees. If there is no production in the preceding period, an annual fee is recognized for Permittees.

Deferred Aggregate Resources Charges represents prepayments and overpayments of fees charged to Licensees and Permittees.

### **Capital Assets**

Capital assets are recorded at cost less accumulated amortization. Amortization is recorded to write off the cost of capital assets over their estimated useful lives on a straight-line basis as follows:

Computer equipment and software	3 to 5 years
Furniture and fixtures	5 years
Leasehold improvements	5 years
Vehicle	3 years







## Notes to Financial Statements Continued

### **Deferred Lease Costs**

Deferred lease costs represent leasehold improvements that are being reimbursed by the landlord and are being amortized over the term of the lease.

### **Financial Instruments**

Financial instruments are recorded at fair value when acquired or issued. In subsequent periods, equities and pooled funds traded in an active market are reported at fair value, with realized gains and losses and unrealized changes in fair values of investments recorded in the Statement of Revenue and Expenses and Changes in Fund Balances under investment income and unrealized changes in fair value respectively. In addition, all promissory notes, treasury bills and bonds have been designated to be in the fair value category, with realized gains and losses and unrealized changes in fair values of investments recorded in the Statement of Revenue and Expenses and Changes in Fund Balances under investment income and unrealized changes in fair value respectively. All other financial instruments are reported at cost or amortized cost less impairment, if applicable. Financial assets are tested for impairment when changes in circumstances indicate the asset could be impaired. Transaction costs on the acquisition, sale or issue of financial instruments are included in the Statement of Revenue and Expenses and Changes in Fund Balances under investment income for those items remeasured at fair value at each statement of financial position date and charged to the financial instrument for those measured at amortized cost.

### **Revenue Recognition**

Investment income is recognized in the period in which it is earned.

### **Foreign Currency Translation**

Foreign currency accounts are translated into Canadian dollars as follows:

Foreign currency assets and liabilities are translated into Canadian dollars by the use of the exchange rate prevailing at the yearend date for monetary items and at exchange rates prevailing at the transaction date for non-monetary items. The resulting foreign exchange gains and losses are included in investment income in the current period.



# Aggregate Resources Trust

Notes to  
Financial  
Statements  
Continued

December 31, 2014

## 2. SHORT-TERM INVESTMENTS

Short-term investments consist of:

	2014 \$	2013 \$
Canadian Wheatboard Note, bearing interest at 1.0% per annum matures January 20, 2015	99,913	—
Province of Quebec Note, bearing interest at 1.0% per annum matures January 20, 2015	74,881	—
Province of Ontario Treasury bill, bearing interest at 1.0% per annum matures January 21, 2015	104,749	—
Province of Ontario Treasury bill, bearing interest at 1.0% per annum matures February 18, 2015	59,853	—
Province of Quebec Treasury bill, bearing interest at 1.0% per annum matures February 27, 2015	49,910	—
Husky Energy Bond, bears interest at 3.75% per annum, matures March 12, 2015	20,088	—
Wells Fargo Bond, bears interest at 4.38% per annum, matures June 30 2015	50,711	—
Thompson Reuters Bond, bears interest at 5.70% per annum, matures July 15 2015	66,379	—
Enbridge Pipelines Bond, bears interest at 2.268% per annum, matures August 19, 2015	15,069	—
Province of Quebec Promissory Note, bears interest at 0.90% per annum, matured January 09, 2014	—	99,871
Government of Canada Treasury Bill, bears interest at 0.90% per annum, matured January 10, 2014	—	144,864
Province of Ontario Treasury Bill, bears interest at 0.90% per annum, matured January 22, 2014	—	49,901
Shaw Communications Bond, bearing interest at 6.50% per annum, matured June 2, 2014	—	20,357
	<b>541,553</b>	<b>314,993</b>

## Notes to Financial Statements Continued

December 31, 2014

### 3. INVESTMENTS

Investments consist of the following:

	2014		2013	
	Fair Value \$	Cost \$	Fair Value \$	Cost \$
Bonds				
Government of Canada and Agencies	2,690,280	2,596,696	2,368,101	2,308,590
Crown Corporations	248,000	247,836	209,356	207,836
Corporate	222,235	215,099	422,020	412,110
Canadian Equities	1,844,046	1,169,911	1,878,054	1,266,923
Foreign Equities	4,277,719	3,587,385	4,199,671	3,618,863
Pooled Funds	9,780,193	7,496,876	9,206,832	7,477,484
	<b>19,062,473</b>	<b>15,313,803</b>	<b>18,284,034</b>	<b>15,291,806</b>

The Government of Canada and Agencies bonds bear interest at rates ranging from 1.371% to 10.95% per annum [2013 - 1.385% to 10.95%] with maturity dates ranging from April 19, 2016 to November 30, 2023.

The Crown Corporations bonds bear interest at rates ranging from 1.383% to 4.640% per annum [2013 - 1.385% to 4.640%] with maturity dates ranging from March 3, 2016 to December 1, 2019.

The Corporate bonds bear interest at rates ranging from 2.654% to 6.650% per annum [2013 - 2.275% to 6.650%] with maturity dates ranging from February 15, 2016 to November 16, 2020.

Investment income is broken down as follows:

	2014 \$	2013 \$
Interest income	379,932	397,869
Dividends	386,098	265,592
Realized capital gains [net]	482,304	597,168
Foreign exchange gains (losses) [net]	6,201	4,563
Other income	105	120
	<b>1,254,640</b>	<b>1,265,312</b>

Investment income of the Rehabilitation Fund includes interest earned on Aggregate Resources Charges collected on behalf of the Minister of \$142,082 [2013 - \$147,713].

# Aggregate Resources Trust

Notes to  
Financial  
Statements  
Continued

December 31, 2014

## 4. CAPITAL ASSETS

Capital assets consist of the following:

	2014			2013		
	Cost \$	Accumulated Amortization \$	Net Book Value \$	Cost \$	Accumulated Amortization \$	Net Book Value \$
Computer equipment and software	273,887	181,417	92,470	238,132	166,773	71,359
Furniture and fixtures	105,169	96,818	8,351	103,286	92,687	10,599
Leasehold improvements	—	—	—	46,700	42,318	4,382
Vehicles	55,170	3,639	51,531	34,215	34,215	—
	<b>434,226</b>	<b>281,874</b>	<b>152,352</b>	<b>422,333</b>	<b>335,993</b>	<b>86,340</b>

## 5. DUE TO THE ONTARIO STONE, SAND & GRAVEL ASSOCIATION

Amounts due to the Association are unsecured, non-interest bearing and are due on demand. These transactions are in the normal course of operations and are measured at the exchange value (the amount of consideration established and agreed to by the related parties).

## 6. CONDITIONAL SALES CONTRACT - AUTO LOAN

	\$
Conditional Sales Contract - Auto Loan	22,397
Less current portion	(4,715)
	<b>17,682</b>

The Conditional Sales Contract bears no interest and has an original term of sixty months maturing September 30, 2019 with monthly payments of \$393.





## Notes to Financial Statements Continued

December 31, 2014

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### 7. COMMITMENTS

The Trust has entered into a number of Research Funding Agreements. The future annual payments, in total and over the next five years, are as follows:

	\$
2015	203,824
2016	129,540
2017	132,130
2018	134,770
2019	137,470
	<u>737,734</u>

### 8. LEASE COMMITMENTS

The future minimum annual lease payments (excluding HST) are as follows:

	\$
2015	66,820
2016	50,115
	<u>116,935</u>



# Aggregate Resources Trust

Notes to Financial Statements Continued

December 31, 2014

## 9. TRUSTEE'S EXPENSES

### For The Year Ended December 31, 2014

	Rehabilitation Fund \$	Abandoned Pits and Quarries Rehabilitation Fund \$	Total \$
<b>EXPENSES</b>			
Salaries and employee benefits	385,241	403,741	788,982
Board expenses	3,743	3,743	7,486
Professional fees	86,086	6,854	92,940
Data processing	12,025	18,944	30,969
Travel	28,040	49,651	77,691
Communication	22,980	23,231	46,211
Office	16,359	7,974	24,333
Office lease, taxes and maintenance	39,596	24,585	64,181
Insurance	3,126	1,561	4,687
<b>Trustee Expenses</b>	<b>597,196</b>	<b>540,284</b>	<b>1,137,480</b>

### For The Year Ended December 31, 2013

	Rehabilitation Fund \$	Abandoned Pits and Quarries Rehabilitation Fund \$	Total \$
<b>EXPENSES</b>			
Salaries and employee benefits	285,055	458,258	743,313
Board expenses	2,375	2,375	4,750
Professional fees	93,487	36,820	130,307
Data processing	14,325	18,003	32,328
Travel	32,286	48,055	80,341
Communication	26,081	23,865	49,946
Office	14,981	7,310	22,291
Office lease, taxes and maintenance	39,402	23,077	62,479
Insurance	3,126	1,561	4,687
<b>Trustee Expenses</b>	<b>511,118</b>	<b>619,324</b>	<b>1,130,442</b>



## Notes to Financial Statements Continued

December 31, 2014

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### 10. FINANCIAL INSTRUMENTS RISKS

#### **Credit Risk**

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The Trust is exposed to credit risk resulting from the possibility that a customer or counterparty to a financial instrument defaults on their financial obligations. The Trust is subject to credit risk through its due from Licensees and Permittees and interest and dividends declared receivable. This risk has not changed from the prior year.

#### **Interest Rate Risk**

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Trust is exposed to interest rate risk arising from the possibility that changes in interest rates will affect the value of fixed income denominated investments. This risk has not changed from the prior year.

#### **Liquidity Risk**

Liquidity risk is the risk that the Trust encounters difficulty in meeting its obligations associated with its financial liabilities. Liquidity risk includes the risk that, as a result of operational liquidity requirements, the Trust will not have sufficient funds to settle a transaction on the due date; will be forced to sell financial assets at a value, which is less than what they are worth; or may be unable to settle or recover a financial asset. Liquidity risk arises from the Trust's accounts payable and accrued liabilities, due to the Ontario, Stone, Sand & Gravel Association and due to Governments. This risk has not changed from the prior year.

#### **Market Risk**

The Trust is subject to market risk with respect to its investments. The values of these investments will fluctuate as a result of changes in market prices or other factors affecting the value of the investments. This risk has not changed from the prior year.



# Independent Auditor's Report

To the Shareholder of The Ontario Aggregate Resources Corporation:

We have audited the accompanying financial statements of The Ontario Aggregate Resources Corporation (the "Corporation"), which comprise the balance sheet as at December 31, 2014 and a summary of significant accounting policies and other explanatory information.

## **Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for private enterprises, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

## **Auditor's Responsibility**

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Corporation's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Corporation's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

## **Opinion**

In our opinion, the financial statements present fairly, in all material respects, the financial position of The Ontario Aggregate Resources Corporation as at December 31, 2014 and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for private enterprises.

**BDO CANADA LLP**

Chartered Professional Accountants, Licensed Public Accountants

Burlington, Ontario  
February 25, 2015





# The Ontario Aggregate Resources Corporation

## Balance Sheet

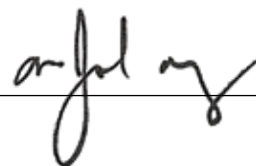
	December 31 2014 \$	December 31 2013 \$
<b>ASSET</b>		
Cash	1	1
<b>SHAREHOLDER'S EQUITY</b>		
Share capital		
Authorized and issued, 1 common share	1	1
Retained earning	—	—
<b>Total shareholder's equity</b>	<b>1</b>	<b>1</b>

The accompanying note is an integral part of these financial statements

On behalf of the Board:



Director



Director



# The Ontario Aggregate Resources Corporation

Note to  
Financial  
Statements

December 31, 2014

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## 1. NATURE OF OPERATIONS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

### Formation and Nature of Corporation

The Ontario Aggregate Resources Corporation [the "Corporation"] was incorporated on February 20, 1997. The Corporation's sole shareholder is the Ontario Stone, Sand & Gravel Association [the "OSSGA"] (formerly The Aggregate Producers' Association of Ontario [the "APAO"]), a not-for-profit organization. The Corporation's sole purpose is to act as Trustee of the Aggregate Resources Trust [the "Trust"]. On June 27, 1997, the Corporation and Her Majesty the Queen in Right of the Province of Ontario [the "Crown"], as represented by the Minister of Natural Resources [the "Minister"], entered into a Trust Indenture, appointing the Corporation as Trustee of the Trust.

In accordance with the Indenture Agreement, the Corporation manages the administrative expenses as Trustee of the Trust which consists of three funds: the Aggregate Resources Fund, the Rehabilitation Fund and the Abandoned Pits and Quarries Rehabilitation Fund.

The Trust's assets managed by the Corporation, amounting to approximately \$20.2 million, are not included in the accompanying balance sheet. The beneficial owner of the Trust's assets is the Crown.

The financial statements do not include an income statement or statement of cash flows as there is no activity in the Corporation.

### Basis of Accounting

The financial statements of the Corporation have been prepared in accordance with Canadian accounting standards for private enterprises.

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### Production Reporting - Audit Program

TOARC, on behalf of the Trust, initiated an audit program in 2000 to monitor the completeness and accuracy of production reports submitted by licensees and permittees. The program is designed to educate licence and permit holders with respect to their obligations for record keeping under the Aggregate Resources Act in addition to assuring that aggregate production is being reported properly. The audit program is currently being reviewed by the TOARC Board regarding the selection process.

Since the inception of the program, TOARC has audited 681 clients covering 2,088 licences and permits resulting in an additional \$1,021,035 of net aggregate resource fees collected.

### Revoked Licences and Permits

Under Subsection (v) (i) of the Trust Indenture, TOARC has the responsibility for "the rehabilitation of land for which a Licence or Permit has been revoked and for which final rehabilitation has not been completed". Since inception of the Trust, 101 licences and 221 permits have been revoked. In the case of licences, 71 have been rehabilitated or the files have been closed for other reasons. In the case of permits, 122 have been rehabilitated or closed for other reasons. To date the Trust has expended \$885,106 in net direct costs for rehabilitation of revoked sites.

# PROFESSIONAL ASSISTANCE

## **Banking Institution**

Scotiabank®

## **Investment Advisors**

T.E. Investment Counsel Inc.

## **Investment Managers**

Burgundy Asset Management Ltd.  
Letko Brosseau & Associates Inc.

## **Auditors**

BDO Canada LLP

## **Legal Counsel**

Blake, Cassels & Graydon LLP

## **Shareholder**

Ontario Stone, Sand & Gravel Association





