Master Site Development Plan

BIG HILL SPRINGS GRAVEL PIT

Bylaw C-7226-2012
Adopted: December 11 2012
Big Hill Springs Gravel Pit
Master Site Development Plan

Prepared in support of a proposed amendment to Bylaw C-4841-97 to redesignate the NW-36-26-4-W5M

from
Ranch and Farm District

to
Natural Resource Industrial District and Ranch and Farm Two District

Prepared for:
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List of Abbreviations
AESRD Alberta Environment and Sustainable Resource Development
AT Alberta Transportation
BHSGP Big Hill Springs Gravel Pit
CEAA Canadian Environmental Assessment Agency
DP Development Permit
EPEA Environmental Protection and Enhancement Act
GEPO Gravel Extraction and Processing Operations
LOS Level of Service
MSDP Master Site Development Plan
NRI Natural Resource Industrial
RF Ranch and Farm
RVC Rocky View County
SMP Stormwater Management Plan
TIA Transportation Impact Assessment
1 Introduction and Status

1189677 Alberta Ltd, operating as Big Hill Springs Gravel Pit (BHSGP), operates a Gravel Extraction and Processing Operation (GEPO) on the quarter section identified as NW 36-26-04-W5M, bordering Highway 567. See Figures 1 and 2. The site has been continuously active for many years and activity has grown from a modest operation, not requiring at the time specific licencing, to a functional gravel extraction enterprise. For many years the pit was grandfathered, however this status has expired due to the current level of operations. This process is intended to bring the pit into conformance with current policies and regulations through providing a Master Site Development Plan (MSDP) which will provide the framework to support the redesignation of the lands to the Natural Resource Industrial District (NRI) and future development permitting processes.

This MSDP cuts the quarter section into two parts: the East Lands (±100 acres) and the Buffer Area (±60 acres). See Figure 3. The East Lands comprise the active area, where gravel extraction is underway in the north. The GEPO in the East Lands is expected to take several decades to complete. During this time there is no proposed change to the activity (pasture) on the Buffer Area (Ranch and Farm). Any proposed change in activity on the Buffer Area will require a future amendment to this MSDP.

The East Lands constitute the area of proposed Land Use Amendment from Ranch and Farm District (RF) to Natural Resource Industrial District (NRI). The overall plan is shown in See Figures 5 and 6.

1.1 Policy: The East Lands constitute the area of the proposed GEPO activity and the Land Use Amendment from Ranch and Farm to Natural Resource Industrial.

1.2 Policy: The Development of the Buffer Area (westerly ±60 ac) will be subject to an amendment to this MSDP, a separate Land Use Amendment and phased Development Permits.

The plan is to continue with gravel extraction from the quarter section advancing in an orderly manner to provide an efficient and environmentally sound operation that does not vary significantly in volume from the current operation.

<table>
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<tbody>
<tr>
<td>Description</td>
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<tr>
<td>Total MSDP Area</td>
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<tr>
<td>Land Use Amendment Area (“East Lands”)</td>
</tr>
<tr>
<td>Buffer Area (remainder)</td>
</tr>
<tr>
<td>Development Permit Area (Phase One)</td>
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</table>
The Alberta Environment Registration (15240-01-1) remains in place; the required five-year report has been accepted by AESRD together with the associated security. The extension to the licence is valid to 2017.

2 Purpose of this MSDP
This non-statutory plan, once adopted by RVC Council will set out the vision, goals, operational guidelines and methodology to guide extraction activities and future development permitting within the Plan Area. This document will assist users to make informed decisions regarding applications for Redesignation and Development Permits. The quarter section currently has a Ranch and Farm District (RF) land use designation and the owners are in the process of applying for a redesignation to Natural Resource Industrial District and a Development Permit (DP) for a portion of the lands. The first proposed DP land will cover the current disturbed land and is termed Phase One in this document.

3 Objectives of this MSDP
The following are the main objectives of this document:
1. Summarize the existing conditions of the subject quarter section and the surrounding area.
2. Provide a high level plan for the development and management of the proposed GEPO activity on the quarter section.
3. Document policies and development strategies for implementation for Phase One and future permitting stages.
4. Describe the rationale for further gravel extraction from the site.
5. Support a Land Use Amendment from Ranch and Farm to Natural Resource Industrial of the East Lands.
6. Provide background to setting the parameters and policies for the proposed Development Permit Application.
7. Confirm the expectations of the various jurisdictions and the owners.
8. Identify the various studies and reports that will be required to address the policies set out in this document and others that may be identified.

4 Community Relations
4.1 Open House
The land owners held an Open House 22 March 2012 covering the proposed Land Use Amendment. This provided valuable input from neighbours and other interested parties. Plans were on display showing current and proposed use of the quarter section. There were numerous questions that brought on open discussion on activity to date and the proposed
activity as presented by the land owners. Discussion was mainly centered on the east-west berm along Highway 567 and the entrance to the pit. We did not receive any feedback after the meeting. **SEE FIGURES 9, 10 and 11 and Appendix 1**

The Operations Manager (currently: Dale Collins, phone 403.932.7784) continues to expand his contact with the community and respond to comments and suggestions. Site improvements include shaping and seeding the berm along Highway 567 and the east berm. Access to the pit has been improved by moving the gate further into the property to allow trucks to stop off the highway.

### 4.2 Community Mitigation Measures

#### 4.2.1 Neighbours

The Operations Manager is available to receive communications from our neighbours and others during all business hours and off hours when available. This is through cell phone, email, fax and visiting the Gravel Pit. Once we have understood concerns we proceed to address them as far as is feasible and practical.

**Policy 4.1:** The contact information for the Operations Manager will be available to the general public and all concerns received will be recorded within the Monthly and Annual Reports

#### 4.2.2 Noise

Noise is generated mostly by the crushing equipment and the trucks once they are outside the pit, i.e. on the access road having left the scale or moving towards it. The crushing equipment is almost entirely set up on the floor of the pit (and will stay there), thus the walls of the pit provide extensive sound attenuation. Mitigation measures include:

a. Strict enforcement of banning trucks without suitable mufflers, etc;
b. Ensuring that the crushing equipment only works during the permitted hours, unless a relaxation of this condition is obtained beforehand.
c. Enforcing speed limits on site.

**Policy 4.2:** The Operator will utilize sound attenuation measures for all on-site activities in accordance with industry best practices in order to mitigate noise impacts upon adjacent lands

#### 4.2.3 Dust

Haul route watering is an ongoing and an as required activity. The water truck is on site during periods of anticipated dusty conditions. This water is sourced from runoff collected on the floor of the pit or purchased from a commercial facility. At no time will groundwater be used for dust abatement efforts. Weeds will be cleared from long-term stockpiles and berms, and these areas
will be seeded to grass and planted with trees thus reducing dust from these passive areas. Low speed limits on site are posted and enforced.

**Policy 4.3:** The Operator will utilize dust abatement measures for all on-site activities in accordance with industry best practices in order to mitigate dust complaints from adjacent lands.

### 4.2.4 Visual Impact Mitigation

The 30m buffer (setback) currently in place to the north and east of the quarter section will be maintained. In time a further 30m buffer will be created on the south boundary, if required (mining may not proceed this far south). The buffer, required by the AESRD Activities Plan, will be used to store topsoil and overburden until it is required for reclamation. These berms will be graded, seeded to grass and maintained, contributing to the pit’s aesthetics. The berms also have the important function of restricting visibility to pit operations by passing motorists on Highway 567.

For the next 30 to 40 years the Buffer Area (westerly ±60 ac) is not anticipated to be disturbed, providing a significant buffer to the west for an extended period of time. Current uses available on these lands will be in accordance with the applicable existing land use designation, which predominantly allows for agricultural activities and associated residences. Any potential owners of proposed new dwellings located on these lands would be aware of the existing land use located directly adjacent to a future residence, and the potential issues with being located in such close proximity.

**Policy 4.4:** The berms shall be placed on the north and east setbacks of the quarter section, adjacent to Highway 567 and shall be sufficiently high to restrict visibility to pit operations by passing motorists on Highway 567 and to provide a visual and acoustic barrier for the operation.

**Policy 4.5:** The berms, overburden stockpiles and similar earthworks shall be seeded and maintained using erosion control measures.

### 4.2.5 Site Safety

Safety is of prime importance to the operators of the Gravel Pit and part of their Annual Reporting efforts. To date the operators have had a “no reportable incident” record.

### 5 Area Context

The subject lands are located ±30 km west of Airdrie on Provincial Highway 567. The town of Cochrane is ±10 km south on Provincial Highway 22 and the Hamlet of Cochrane Lakes lies 2 km southwest of the pit without intervisibility. Highway 567 and Highway 22 are considered tourist routes; hence there is a need for heightened sensitivity to visibility and aesthetics along this highway corridor.

The surrounding Land Use is predominantly Ranch and Farm District, with the main use being grazing. The area has a rolling landscape covered mainly by natural grasses with some hayland.  

SEE FIGURES 7 and 8.
The neighbouring quarter sections have: a single family dwelling and/or an agricultural operation. With reference to Google Maps™ there are five residences within one kilometre of the boundary of the East Lands and a total of seventeen residences within two kilometres of the boundary of the East Lands, the majority of which are located south of Highway 567. The northern extremity of Mount Vista Estates is two kilometres south west from the East Lands. The junction of Highway 567 and Highway 22 is two kilometres from the East Lands which takes in the trailer sales and parking and gas station. There are two agricultural (cattle) operations one kilometer west of the east lands north of Highway 567.

6 Development Details
This section collects together the various plans and designs that will be prepared to facilitate orderly GEPO.

6.1 Phasing
The East Lands, shown in FIGURE 5, will be divided into phases, each phase not exceeding 40 acres. As one phase approaches completion, and reclamation is substantially under way, the next phase will be opened, subject to development permitting and approval.

The Development Permit for Phase One is expected in part to:
1. Cover the current disturbed land, ±40 acres including setbacks
2. To require that at least 25% of Phase One, i.e. ±10 acres, has been reclaimed (excluding the time for grasses, trees, etc. to be fully grown) prior to a Phase Two Development Permit being issued. SEE FIGURE 12.
3. Compliance with all other Policies and conditions contained elsewhere within this MSDP.

The Development Permit for Phase Two is expected to permit in part:
1. GEPO on Phase Two lands once at least 25% of Phase One has been reclaimed
2. No more than 25% of Phase Two will be disturbed; resulting in no more than 40 acres of active GEPO at any one time.
3. Compliance with all other Policies and conditions contained elsewhere within this MSDP.
This will allow continuity of GEPO. SEE FIGURE 12.

Completed reclamation areas will be separated from active areas such that there will be no impact on the reclaimed areas.

In accordance with good practice and the requirements of the Alberta Environment Registration, no more than 40 ac (±16 ha) will be open at any one time. This 40 acres will at times be located in two phases: a partially reclaimed phase and the next phase.

Policy 6.1: BHSGP shall complete a detailed Reclamation Plan for each Phase before reclamation activities commence.
Policy 6.2: the Reclamation Plan will be endorsed by AESRD and RVC prior to implementation.

Policy 6.3: Reclamation shall proceed behind extraction activities such that no more than 40 acres shall be open at any time.

Policy 6.4: 25% of the area of any phase shall be reclaimed (excluding the time for grasses, trees, etc. to be fully grown) before the next phase is permitted to be opened.

Policy 6.5: Gravel Extraction shall proceed south from the existing operation until the East Lands are totally reclaimed.

Policy 6.6: BHSGP’s operations shall conform to the AESRD Registration #15240-01-00 Activities Plan.

6.2 Transportation
Access to the site is from Highway 567 and is located approximately 560m from the eastern quarter section boundary. This current point of access also represents the west extent of the GEPO area. SEE FIGURE 4.

Highway 567 is a provincial highway; therefore, primary responsibility for managing access along it belongs to Alberta Transportation. This is an important highway corridor both regionally for commuter and tourist traffic as well as locally for area residents; therefore, sound access management principles are required to manage the safe and efficient movement of traffic along this highway.

6.2.1 Current Site Access Description and Mitigation
The pit operations include dust management on the access road and within the pit. With the recent relocation of the entrance gate further south into the property there is now room for several trucks to stop off Highway 567 when the gate is closed. This mitigates the parking of early arriving trucks on the highway shoulder, enhancing safety for the drivers and the traveling public.

Records of movement in and out of the pit are maintained and are available to RVC, when requested.

The current traffic generated by the existing Big Hill Springs Gravel Pit is not expected to increase for the life of Phase One of the Pit.

Bunt and Associates completed a TIA focused on the existing access. The findings include:
1. There are no Sight Distance concerns.
2. Their analysis yields a Level of Service (LOS) of A (highest).
3. An Illumination Warrant was not completed as there are no night time pit operations.

The current access to the quarter section is functional for the duration of Phase One.

6.2.2 Long Term Access Management Strategy
Preliminary information indicates that the appropriate place to relocate the access is to the east boundary of the site. This would also serve the adjacent lands and be within Alberta
Transportation’s policies. We endorse this location with the appropriate planning. A formal study is required and this can be completed as activity in Phase One progresses. **SEE FIGURE 4.**

We do not have access to all the plans and potential plans of adjacent lands and until we have that information a study of how best to plan for transportation issues cannot be initiated. We have had fruitful discussions with two potential resource extraction land owners (Lafarge and Buckley) and we confirm our commitment to work with them and others in the area to arrive at a functional Area Transportation Plan. We envisage this plan being funded by a group of Developers.

The Area Transportation Plan should have the following characteristics:

1. The Terms of Reference will be confirmed by Alberta Transportation, Rocky View County, Big Hill Springs Gravel Pit owners, owners of land adjacent to the existing operation, others as specified by those listed here.
2. There shall be a Transportation Impact Analysis component to the Plan.
3. There shall be a phased approach to the construction of an improved intersection with Highway 567.
4. The study shall include provisions for future service road requirements necessary to gain access to adjacent quarter sections, if required.
5. The study shall be funded by private entities with the cooperation of RVC to recognise the cost sharing nature of the study.
6. The study shall be complete and accepted by AT and RVC prior to Big Hill Springs receiving a Development Permit for Phase Two.

**Policy 6.7:** BHSGP shall collaborate with RVC, AT and area land owners to arrive at a functional Area Transportation Plan.

**Policy 6.8:** Prior to issuance of a Development Permit for Phase Two, the Area Transportation Plan shall be complete and approved by Alberta Transportation and Rocky View County. The Study shall provide details for the establishment of a new intersection on Highway 567.

**Policy 6.9:** Prior to issuance of a Development Permit for Phase Two, the recommendations of the Area Transportation Plan shall be implemented as they relate to GEPO in the area at the time of submittal of a Phase Two Development Permit Application.

### 6.3 Stormwater

Westhoff Engineering Resources Inc. completed a Stormwater Management Plan (SMP) for the quarter section with the primary goals of:

1. Proving suitability of the land use with respect to Stormwater
2. Identifying aspects for further consideration.

The quarter section generally slopes from north to south with groundwater at depths between 20m and 44m. The East Lands receives little if any flow from north of Highway 567. **SEE FIGURE 14.**

The study was conducted over the whole quarter section, however, only the East Lands (±100 ac) is covered by this document. The wetlands are wholly contained in the Buffer Area of the ¾
section, which also has the most flow into and out of the quarter section. As a result, several of the recommendations are not applicable or will need redefining when a detailed analysis is conducted on the east portion on a phase by phase basis.

Westhoff’s conclusion is that the land is serviceable for the proposed land use from a stormwater perspective.

The Operations Plan accommodates flow from high intensity events from the Highway 567 ditch into the active area (Phase One) before the level in the ditch reaches unacceptable levels. All precipitation in the pit rapidly percolates into the floor of the active pit area, including spring melt. See Appendix 6

A detailed SMP will be prepared for the East Lands as a component of our Development Permit Application.

**Policy 6.10:** BHSGP shall complete a Stormwater Management Plan for the East Lands as part of the Phase Two Development Permit.

**Policy 6.11:** Recommendations of the stormwater plan shall be implemented through the development permitting process.

**Policy 6.12:** The SMP will be updated for each Phase as part of each Development Permit Application.

### 6.4 Erosion and Sediment Control

This plan is under development. It will be completed as a component of our Phase Two DP Application. Current onsite activity includes:

1. Weed destruction, sloping and shaping stockpiles of overburden, topsoil and berms and seeding them.
2. Installation of silt fences at the toe of berms and around culverts.
3. Grading in anticipation of high intensity rainfall and runoff events.

We consider Weed Management as an integral component of erosion and sediment control, with the added benefit of mitigating the generation of dust from passive areas. On steeper slopes runoff attenuation barriers (purpose made e.g. straw bales) will be used.

**Policy 6.13:** BHSGP will complete an Erosion and Sediment Control Plan for the East Lands in accordance with RVC’s policies and procedures and to the satisfaction of AESRD for the East Lands as part of the Phase Two Development Permit.
6.5 Biophysical Considerations

Westhoff Engineering Resources Inc. completed a Biophysical Overview for the quarter section with the primary goal of assessing where further biophysical assessment is needed. See Appendix 7

Subsequent to the preparation of this Biophysical Overview:

1. The mining plan has been changed to concentrate on the East Lands (±100 ac).
2. The Land Use Amendment is only for the east 100 ac, thus excluding the wetlands described in the report.

The report provides an overview of existing biophysical conditions based on available desk-top information and reconnaissance-level field surveys to identify features of interest within the quarter section that include native grasslands and wetlands. No unusual facets were found.

As part of the Development Permit process we will engage suitably qualified consultants as required to expand this overview into a Biophysical Impact Assessment as described in RVC’s Servicing Standards. The Scope of Work will include working with AESRD staff.

**Policy 6.14:** BHSGP will complete a Biophysical Impact Assessment in accordance with RVC’s policies and procedures and to the satisfaction of AESRD for the East Lands as part of the Phase Two Development Permit.

6.6 Geotechnical

A Geotechnical Investigation is complete for the quarter section. The process included drilling, logging, sampling (aggregate and groundwater) and testing. The assignment was supervised by a suitably qualified Professional Engineer.

All seven of the drill holes are used as piezometers with ground water levels measured and recorded in accordance with a practical schedule.

Field observations over the years have confirmed that the groundwater table fluctuates over any one year period. Operations will take the water table into account when establishing how far down to extract gravel without impacting the groundwater.

**Policy 6.15:** BHSGP will prepare and activate a schedule for monitoring the installed piezometers as part of the Phase One Development Permit.

**Policy 6.16:** GEPO will cease at least 2 m above the water table.

6.7 Landscaping

A landscape concept plan has been completed for the first phases of the quarter section development, identifying considerations focusing on the potential impact for neighbours, dust control and environmental stewardship. It has an initial focus on the perimeter fronting Secondary Highway #567, providing not only a visual buffer but a safe access and egress for the ongoing truck traffic into and out of the gravel pit. We have taken into consideration the natural overland drainage patterns and impact on ongoing gravel mining.
The original berm along Highway 567 has been surveyed and redesigned. This new design has been implemented, resulting in an improved visual impact for the travelling public and enhanced slope stability. A full catch of the seeded slope is expected in 2013 and there has been no berm deterioration during 2012 despite several intense rain events. The current as constructed berm shields GEPO from the travelling public except where priority has been given to safe site distances for traffic in and out of the Gravel Pit. This is at the current site access and will include any relocated site access. **SEE FIGURES 15-a AND 15-b**

Further landscaping will include natural clusters of native vegetation located on and around the berm, taking advantage of natural and man-made draws, taking into account the end land use. The reclamation seed mix will include: awned wheatgrass, streambank wheatgrass, slender wheatgrass, rough fescue, purple prairie clover and junegrass, all as endorsed by RVC staff.

Phase by Phase landscape planning shall respond to actual site conditions and accommodate storm water management issues. Future access alternatives are identified and will be part of the ongoing Phased Landscape Plan consideration. Future land use considerations will shape the character of the ongoing detailed landscape plans; likely focusing on restoring a future agricultural land use of pasture or possibly grain crops.

**Policy 6.17:** BHSGP shall complete a detailed landscape plan for each Phase before landscaping activities commence.

**Policy 6.18:** BHSGP shall complete a comprehensive landscape plan for the East Lands as part of the Phase Two Development Permit.

**Policy 6.19:** Recommendations of the Landscape Plan shall be implemented through the Development Permitting Process.

**Policy 6.20:** Recommendations shall include, but are not limited to including Erosion and Sediment Control and Stormwater Management.

7 Corporate Social Responsibility

The process and business plan has been developed and implemented using the following guiding principles and commitments:

1. Adherence to the Spirit and Intent of the Alberta Environment and Water Registration #15240-01-00 (a valid and current Registration held by 1189677 Alberta Ltd., operating as Big Hill Springs Gravel Pit) **See Appendix 2**

2. Adherence to the Spirit and Intent of any Rocky View County Land Use Amendment, Development Permit or similar.


4. Environmentally sound practices, including
   a. Erosion and sediment control
   b. Identification of distinct material types and responsible management of these soils and aggregates
   c. Adopting processes that lead to a successful reclamation
5. Respect for our neighbours.
6. Mitigation of impacts on neighbours.
7. Timely response to complaints and requests for information.
8. Timely and frequent communications with surrounding residences and businesses.
9. Orderly and complete documentation of Site Activities.
10. Continuous monitoring, documentation and reporting of activity.

8 Development Rationale
The lands hold large quantities of marketable gravel with relatively low overburden. The GEPO can be achieved with minimal negative impact on the environment and neighbours. Market analysis indicates that there is a viable, continuing demand for processed gravel originating in this part of the County.

The GEPO can be achieved with minimal or zero negative impact on the environment and neighbours.

The reclamation will leave the land in an equal or superior state compared to the original conditions.

The following benefits will accrue to RVC as a result of the GEPO on the subject quarter section:
1. Increased taxes
2. Receipt of Transportation Levies
3. Royalties stemming from gravel sales (this is already in place, and is up to date)
4. Availability of gravel for the County’s use in this sector of the County
5. Improved access management along this section of highway 567.

Unusable material. Frequent sampling, the analysis of the results and anticipated demand will optimise the best use of the natural gravel. Uses for marginal material have been identified and buyers are being made aware of its availability. This includes the finer fractions that, with no or some extra processing, can be used in the construction industry.

9 Outline of Methodology
This section describes the procedure to undertake a responsible and effective GEPO.

The GEPO is established in the north east of the quarter section, termed Phase One. In time the pit will be advanced to the south for the full width of Phase One all the way to the south of the quarter section. Each phase will be 35-40 gross acres in size. Mining of the Buffer Area will be subject to a Land Use Amendment and phased Development Permits. The limit of extraction will be affected by the viability of marketable material. This is a clockwise route of advancement. Note; the Millennium Report (See Appendix 3) envisages an anti-clockwise direction which is no longer valid. SEE FIGURE 5.
The following will be carried out in phases; as one phase approaches completion the next phase will be opened in stages so as not to exceed the permitted disturbed area (±40 ac) as stipulated in the Alberta Environment Registration. SEE FIGURE 12. These operations are already taking place in Phase One and are in conformance with the descriptions as follows:

9.1 **Topsoil stripping, stockpiling and seeding**
Suitably qualified persons will determine the depth of topsoil in any area scheduled for mining activity. This topsoil will be stripped and stockpiled in isolation from all other stockpiles to minimise contamination. After shaping to self-supporting slopes (±3:1) the stockpile will be seeded to grass and maintained until required for reclamation activities.

9.2 **Overburden stripping and stockpiling**
The overburden will be removed and stockpiled, exposing the marketable gravels. The overburden will be stockpiled, shaped and maintained until required for reclamation activities.

9.3 **Gravel extraction, crushing, stockpiling and loading offsite**
The gravel will be harvested, processed and loaded off site. The equipment for this will be located, almost exclusively, on the floor of the pit, i.e. below the ground elevation. A weigh scale measures all gravels leaving the site.

  **Policy 9.1:** Management and handling of topsoil, overburden and gravel will be in accordance with the spirit and intent of the Alberta Environment Licence and the policies and procedures of Rocky View County.

9.4 **Reclamation of areas depleted of gravel**
Once a sufficiently large area has been depleted of marketable gravel, reclamation activities will commence. This will entail moving overburden back into the pit and compacting it in predefined layers to create a stable surface. The planned use for the land will define slopes of deposited overburden. The area will then be covered with topsoil, scarified and seeded. There may be some intermediate use for the initial areas that are reclaimed. No future industrial use of the lands will occur without an amendment to this MSDP. Uses may include: farming, grazing and ponds as agriculture is the only permitted use under Natural Resource Industrial Land Use. These and other considerations will be resolved closer to the time of reclamation. The proposed Land Use is Ranch and Farm Two District.

Reclamation, shown in FIGURES 15-a and 15-b will be based on the plan in the Millennium report, Section 4.0 RECLAMATION PLAN. See Appendix 4.

  **Policy 9.2:** BHSGP will complete a detailed Reclamation Plan for each Phase as part of the DP Application for that phase.

9.5 **Maintenance and monitoring of reclaimed land**
The reclaimed areas will be inspected for conformance with specifications. These specifications will be contained in the Development Permit and will include such items as: confirmation of stable gradients, full catch of seeded areas and stormwater flows.
9.6 Withdrawal from the land of all equipment.
This will require the signoff from AESRD and RVC among others, and involves several site inspections and acceptance of the condition of the reclaimed areas. The signoff will include documenting the intended use of the reclaimed land. The interim use of the early reclaimed land will be agricultural, unless other use(s) are identified and accepted by all parties.

Phasing of the GEPO will be constrained by an initial partial redesignation and a phased DP process. As Phase One will encompass the current Total Disturbed Area, an amended DP will be required before opening new (undisturbed) areas.

**Policy 9.3:** The Development of the Buffer Area (westerly ±60ac) will be subject to an amendment to this MSDP, a separate Land Use Amendment and phased Development Permits.

10 Day to Day Operations
This section describes the day to day workings of the pit. These items will remain substantially unchanged unless authorised by the relevant authority.

1. Operating hours:
   a. May to October
      i. Monday to Friday: 7:00am to 5:30pm
      ii. Saturday: 7:00am to 3:30pm
   b. November:
      i. Monday to Friday: 8:00am to 5:00pm
   c. December to April
      i. Monday to Friday: 8:00am to 5:00pm

2. All trucks are owned and operated by others and no trucks remain on site overnight.

3. The existing access onto Highway 567 will be used as an interim access, recognising two factors:
   a. The access will be inadequate once truck activity increases significantly, i.e. an upgrade will be required.
   b. This access is not suitably located for the long term, i.e. an access that includes the needs of others in the area will be required.

4. Major maintenance on equipment is done at the owner’s facility in Balzac.

5. The onsite fuel tank is double walled and meets all environmental regulations, e.g. spill containment and spill kits.

6. Dust control is achieved by using purpose made watering equipment.

7. Gravel crushing is intermittent dependant on demand. Quantities of various materials are stockpiled based on anticipated demand.
8. No dewatering is necessary as operations will cease at a level above the ground water elevation. This elevation will be defined by a Hydrogeological Assessment Study for each Phase.

9. All truck activity related to gravel moving off site is run over the scale installed on site which is staffed during all gravel hauling hours.

10. Potable water is trucked in and portable sanitary facilities are on site.

11. Use of a dwelling at the south of the property occupied by the owners’ Operations Manager.

12. All contractors and the owners’ forces are supervised by the Operations Manager.

13. The Gravel Pit maintains an up to date and comprehensive Safety Manual. Bound Separately

The current active area is 17.3 ac (6.9ha) and the initial maximum active area (for the next ± five years) is 31.1 ac (12.6 ha). The active area excludes the 30m setback on the north and east boundaries of the property. The total disturbed area (maximum active area + setback area) is 40 ac. This total disturbed area is the area proposed for the Development Permit area and is termed Phase One of the overall plan for the quarter section. SEE FIGURE 5.

At a frequency of no more than monthly, the pit is measured for volume by material type. These values will be summarised in the Annual Operations Report of the Gravel Pit.

The Annual Operations Report is prepared by the owners for distribution to relevant authorities. This will include as a minimum:

1. Name and contact information for the Operations Manager; currently: Dale Collins, phone 403.932.7784.
2. Tonnages and gradation of material moved off site. This will be compiled from information gathered by the scale house.
3. Volumes of stockpiled topsoil and overburden.
4. Deviation from the stated hours of operation for e.g. consent for a rush order.
5. Reportable site incidents as defined by WCB
6. Site incidents, if any, of an environmental nature.
7. Update of the Operations Plan, clearly identifying any changes and proposed changes in procedure.
8. Summary of all complaints and comments received by the owners’ staff with respect to the pit’s operations. This will include any action taken as a result of these communications.
9. Photographs, drawings and sketches documenting activities and results.
10. Other information as requested by regulatory authorities.
Policy 10.1: BHSGP will complete a monthly measure of materials in the pit. These volumes will be summarised in the Annual Operations Report for BHSGP which will be distributed to the relevant authorities.

Policy 10.2: The Annual Operations Report to RVC will include a summary of all complaints and comments received by the owners’ staff with respect to the pit’s operations. This will include any action taken as a result of these communications.

Policy 10.3: The Annual Operations Report will include the results of all Hydrogeological Assessments completed to date and will form part of all Development Permit Applications.

11 Millennium Report
The major document prepared to date for this quarter section is the Activities Plan prepared by Millennium EMS Solutions Ltd in 2009 for the EPEA Code of Practice. Where appropriate, reference is made throughout this document to the “Millennium Report”; however, there have been changes to the current and proposed operations plan subsequent to completion of the report. These include:
1. The direction of advancing the pit has changed from counter clockwise to clockwise, starting at the existing operation in the north east.
2. The area subject to Land Use Redesignation is confined to the East Lands (±100 acres).

See Appendix 3

Policy 11.1: All GEPO will be in full compliance with the AESRD Licence.

12 Cumulative Effects Assessment
This section covers the impact of BHSGP’s on the environment when other similar, or dissimilar, activities are carried out in the vicinity of the gravel pit. It only addresses additive effects, i.e. no synergistic effects.

The Canadian Environmental Assessment Agency (CEAA) offers the following definition:

*Cumulative effects are changes to the environment that are caused by an action in combination with other past, present, and future human actions.*

A cumulative effects assessment is not easy to conduct at this time as there are no other existing gravel extraction operations in the area, although it is recognized that the County is experiencing interest for this type of development in the area. This section will therefore include a cumulative assessment on:
1. Outlining the possible affects the continuing / expansion of extraction development on this quarter section will have
2. Possible Cumulative affects with continued development of this industry in the area.
12.1 Cumulative Assessment on the Continuing Expansion of Gravel Extraction on the Subject Lands:

While it is not possible to predict all future activities around the BHSGP, the following are likely to occur in the lifespan of GEPO:

1. GEPO by others
2. Grazing
3. Cultivated crops
4. Dwellings
5. Industrial activity.

12.2 Possible Cumulative affects with continued development of this industry in the area.

These operations will probably be separated by ±500 m or more. By their nature they will both be active below (most of the time) the surrounding ground level and governed by Development Permits and Provincial constraints such that:

1. Cumulative Noise will not be significant along a line running through the two operations. At a point of measurement along a line at right angles to the two operations, noise could be cumulative and may need to be addressed.
2. Dust from each operation will be marginally cumulative and significantly mitigated by measures taken by the respective operators.
3. There is limited surface water in and around the BHSGP quarter section. The operational plans of each GEPO will deal with the existing water bodies independently. In BHSGP’s case the surface water is contained within the Buffer Area and will be replicated or replaced during reclamation with any interdependency resolved at the reclamation phase. Should other operations take similar action there will be no cumulative effect.
4. There is no aquatic life on the BHSGP lands and surrounding area.
5. Topsoil is preserved and replaced as part of responsible reclamation. As a result, within ± five years of restoration, all land will be restored to its former level of productivity. An exception could be the peripheral slopes of any completed reclamation, which may not be suitable for cultivation but will support grazing or building construction.
6. Wildlife will be displaced by GEPO and is expected to return after reclamation. As there will only be areas of ±40 acres each, neither total nor permanent displacement is expected.
7. Increased truck traffic entering and leaving Highway 567 is a definite additive effect. This will be mitigated by the timely construction of the required intersection upgrades and relocation.

Grazing

The cumulative effect of expanding GEPO in the BHSGP’s area will have no impact on the grazing activities in the area.

Cultivated Crops

It is likely that cultivated crops will be more feasible after reclamation is complete in the various anticipated GEPO areas.
Dwellings
By careful and responsible management of GEPO the cumulative effect will be zero or negligible.

Industrial Activity
The cumulative effect of GEPO on industrial activity will be felt in the increase in trucking on Highway 567.

More information will come from the various studies that will be undertaken as part of the development process.

13 Summary of Policies
Policy 1.1: The East Lands constitute the area of the proposed GEPO activity and the Land Use Amendment from Ranch and Farm to Natural Resource Industrial.
Policy 1.2: The Development of the Buffer Area (westerly ±60ac) will be subject to an amendment to this MSDP, a separate Land Use Amendment and phased Development Permits.
Policy 4.1: The contact information for the Operations Manager will be available to the general public and all concerns received will be recorded within the Monthly and Annual Reports
Policy 4.2: The Operator will utilize sound attenuation measures for all on-site activities in accordance with industry best practices in order to mitigate noise impacts upon adjacent lands
Policy 4.3: The Operator will utilize dust abatement measures for all on-site activities in accordance with industry best practices in order to mitigate dust complaints from adjacent lands
Policy 4.4: The berms shall be placed on the north and east setbacks of the quarter section, adjacent to Highway 567 and shall be sufficiently high to restrict visibility to pit operations by passing motorists on Highway567 and to provide a visual and acoustic barrier for the operation.
Policy 4.5: The berms, overburden stockpiles and similar earthworks shall be seeded and maintained using erosion control measures.
Policy 6.1: BHSGP shall complete a detailed Reclamation Plan for each Phase before reclamation activities commence.
Policy 6.2: the Reclamation Plan will be endorsed by AESRD and RVC prior to implementation.
Policy 6.3: Reclamation shall proceed behind extraction activities such that no more than 40 acres shall be open at any time.
Policy 6.4: 25% of the area of any phase shall be reclaimed before the next phase is permitted to be opened.
Policy 6.5: Gravel Extraction shall proceed south from the existing operation until the East Lands are totally reclaimed.
Policy 6.6: BHSGP’s operations shall conform to the AESRD Registration #15240-01-00 Activities Plan.
Policy 6.7: BHSGP shall collaborate with RVC, AT and area land owners to arrive at a functional Area Transportation Plan.
Policy 6.8: prior to issuance of a Development Permit for Phase Two, the Area Transportation Plan shall be complete and approved by Alberta Transportation and Rocky View County. The Study shall provide details for the establishment of a new intersection on Highway 567.

Policy 6.9: prior to issuance of a Development Permit for Phase Two, the recommendations of the Area Transportation Plan shall be implemented as they relate to GEPO in the area at the time of submittal of a Phase Two Development Permit Application.

Policy 6.10: BHSGP shall complete a Stormwater Management Plan for the East Lands as part of the Phase Two Development Permit.

Policy 6.11: Recommendations of the stormwater plan shall be implemented through the development permitting process.

Policy 6.12: The SMP will be updated for each Phase as part of each Development Permit Application.

Policy 6.13: BHSGP will complete an Erosion and Sediment Control Plan for the East Lands in accordance with RVC’s policies and procedures and to the satisfaction of AESRD for the East Lands as part of the Phase Two Development Permit.

Policy 6.14: BHSGP will complete a Biophysical Impact Assessment in accordance with RVC’s policies and procedures and to the satisfaction of AESRD for the East Lands as part of the Phase Two Development Permit.

Policy 6.15: BHSGP will prepare and activate a schedule for monitoring the installed piezometers as part of the Phase One Development Permit.

Policy 6.16: GEPO will cease at least 2 m above the water table.

Policy 6.17: BHSGP shall complete a detailed landscape plan for each Phase before landscaping activities commence.

Policy 6.18: BHSGP shall complete a comprehensive landscape plan for the East Lands as part of the Phase Two Development Permit.

Policy 6.19: Recommendations of the Landscape Plan shall be implemented through the Development Permitting Process.

Policy 6.20: Recommendations shall include, but are not limited to including Erosion and Sediment Control and Stormwater Management.

Policy 9.1: Management and handling of topsoil, overburden and gravel will be in accordance with the spirit and intent of the Alberta Environment Licence and the policies and procedures of Rocky View County.

Policy 9.2: BHSGP will complete a detailed Reclamation Plan for each Phase as part of the DP Application for that phase.

Policy 9.3: The Development of the Buffer Area (westerly ±60ac) will be subject to an amendment to this MSDP, a separate Land Use Amendment and phased Development Permits.

Policy 10.1: BHSGP will complete a monthly measure of materials in the pit. These volumes will be summarised in the Annual Operations Report for BHSGP which will be distributed to the relevant authorities.

Policy 10.2: The Annual Operations Report to RVC will include a summary of all complaints and comments received by the owners’ staff with respect to the pit’s operations. This will include any action taken as a result of these communications.
Policy 10.3: The Annual Operations Report will include the results of all Hydrogeological Assessments completed to date and will form part of all Development Permit Applications.

Policy 11.1: All GEPO will be in full compliance with the AESRD Licence.

14 Summary of Development Permit Expectations

14.1 Phase One
The Phase One Development Permit will bring the pit into conforming status with respect to RVC’s policies and procedures. Site activities will continue in the manner that they are now.

14.2 Phase Two and future Phases
Prior to receiving a DP for Phase Two, there are several reports/studies to be completed and endorsed as set out in this MSDP. Some of these will require periodic updates for phases beyond Phase Two. No expansion of GEPO will take place beyond Phase One until the Phase Two DP has been issued. The work required is contained within the Policies identified in this MSDP.

To enable continuity of GEPO, a Phase Two DP will need to be completed prior the completion of activity in Phase One SEE FIGURE 12

Relocation and subsequent upgrading of the site access will be a phased activity triggered by traffic volumes in the area and as measured by one or more Traffic Impact Assessments.

14.3 Buffer Lands
There will be no DP on this land until there is an appropriate amendment to this MSDP.

15 Closure
This document is intended solely for use by 1189677 Alberta Ltd, Rocky View County and others as authorised by 1189677 Alberta Ltd. All other parties require the express permission of 1189677 Alberta Ltd and/or the authors of reports in the Appendices attached hereto.

This is an active Gravel Pit and thus ground conditions are constantly changing.
Figures
Figure 11 Open House Advertisement - Rocky View Weekly

Big Hill Springs Gravel Pit
is hosting an Open House covering the Proposed
Redesignation of NW38-26-04 W5
from Ranch and Farm to Natural Resource Industrial

The Applicant invites Residents and Business Owners to an Open House:
at Weedsam Pioneer Hall
on
THURSDAY 22 March 2012 from 5:00 pm to 8:00 pm
PLEASE NOTE CORRECTION OF DAY

This Open House is open to the public, and representatives of the Owner will be in attendance to receive comments and questions.

Please contact Rob Kelham, P.Eng for all questions, comments, etc. at rkelham@kelham.ca or 403.563.4856.
Figure 12. Movement of Active Area through Phase One to Phase Two

This sketch if for illustrative purposes only and is not to scale. It shows the Active Area (shaded, max 40 acres) moving from north to south. The north section of Phase One (blue, unshaded, 25%) represents the reclaimed area. The shaded area (Active Area) moves from north to south and enters Phase Two (Green). This implies that a DP for Phase Two will be required late in the life of Phase One so that the Active Area can maintain continuity and is never > 40 acres.

Overlapping of Active Area when Transitioning from Phase One to Phase Two
Figure 13-a Plan of North Berm Cross Sections
Figure 13-b Cross Sections of North Berm
Figure 14 Stormwater Overview
Figure 15-a Landscaping Concept
Figure 15-b Landscaping Concept