



## PLANNING AND DEVELOPMENT SERVICES

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**TO:** Council

**DATE:** July 6, 2021 **DIVISION:** 9

**FILE:** 06818002/8003/8004;  
06913001/3002/3003/4001/4002/5001 **APPLICATION:** PL20200067

**SUBJECT:** Master Site Development Plan – West Cochrane Gravel Pit

NOTE: This application should be considered in conjunction with application PL20200067 (agenda item E-1)

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**APPLICATION:** To approve a Master Site Development Plan in support of a land-use redesignation proposing the Special – Natural Resources District, and to provide a policy framework to guide and evaluate the development of aggregate extraction and processing on the site.

**GENERAL LOCATION:** Located on the south side of Highway 1A, beginning at 0.8 kilometres (0.5 mile) from the intersection of Range Road 53 and Highway 1A to approximately 1.6 kilometres (1.0 mile) east of Range Road 50; with the exception of NW-13-26-05-W05M.

**LAND USE DESIGNATION:** Agricultural – General District (A-GEN) and Special – Natural Resources District (S-NAT)

**EXECUTIVE SUMMARY:** The proposed West Cochrane Gravel Pit operation is located approximately 1.6 kilometres northwest of the Town of Cochrane, south of Highway 1A, across portions of eight quarter-sections totaling approximately 1,117 acres. The lands currently contain an existing permitted gravel extraction, the McDougall Pit (PRDP20175123). The site is approximately 151 acres in size, extracting roughly 125,000 tonnes of material annually. Operations include earthmoving, aggregate crushing, and loading trucks. This operation was permitted in 2012 with the ability to extract up to 500,000 tonnes per year. The pit opened in 2016 after the completion of an intersection upgrade at Range Road 51 required to support the operation.

At present, operations at the existing gravel pit include aggregate crushing, earthmoving, and loading trucks. Washing at the site is expected to commence within the next five (5) years.

The applicant proposes to operate 24 hours per day Monday through Friday, and 7:00 am to 5:00 pm on Saturdays. No operations are proposed on Sundays or Statutory Holidays. Operations during these hours include crushing, washing, and earthworks. Hauling is intended to be restricted from 6:00 am to 7:00 pm Monday through Saturday, with no activities on Sundays or Statutory Holidays.

The proposed hours of operation align with the Subdivision and Development Appeal Board-approved Development Permit (PRDP20175123) for the existing gravel pit.

The application is consistent with the relevant policies of the County Plan and the Land Use Bylaw:

- A redesignation application (PL20200066) was submitted to redesignate the subject lands from Agricultural, General District to Special, Natural Resources District. In accordance with the policies of the County Plan, a Master Site Development Plan (MSDP) has been submitted with the redesignation application.

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### Administration Resources

Oksana Newmen, Planning and Development Services



- The submitted MSDP demonstrates that impacts associated with the proposed aggregate development can be managed to an acceptable level in accordance with existing operating standards established by the County and the provincial government. However, the extensive size of the proposed aggregate extraction exceeds the majority of extraction sites in the County and effectively results in two pits operating simultaneously. Administration suggests Council direct the applicant to work with Administration to amend the MSDP to a smaller area located west of Grand Valley Creek.

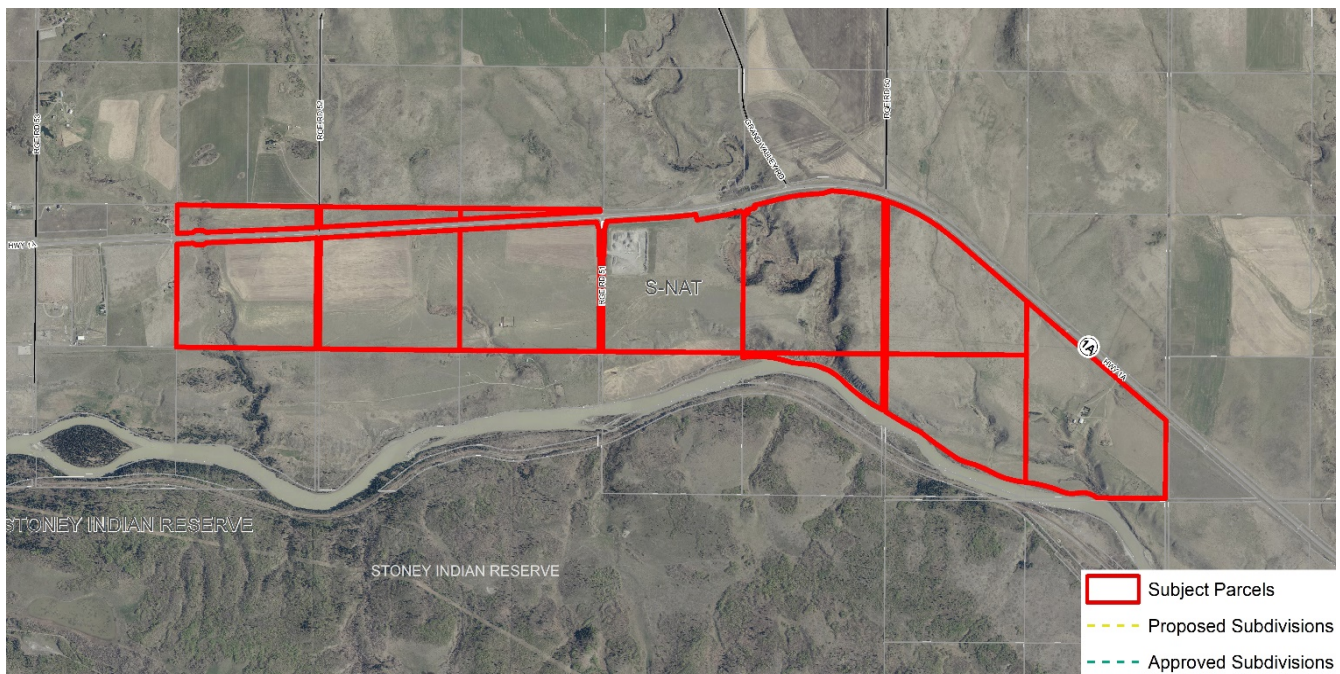
All technical considerations have been adequately addressed at this time.

**ADMINISTRATION RECOMMENDATION:** Administration recommends referring the application to Administration in accordance with Option #2.

### OPTIONS

- Option #1: THAT the West Cochrane Gravel Pit Master Site Development Plan be approved as per Attachment 'C'.
- Option #2: THAT the West Cochrane Gravel Pit Master Site Development Plan be referred to Administration to work with the applicant to reduce the area of the Master Site Development Plan for an area located between Beaupre Creek and Grand Valley Creek, to be no greater than 400 acres, excluding the existing S-NAT parcel.
- Option #3: THAT application PL20200067 be refused.

### AIR PHOTO & DEVELOPMENT CONTEXT:



### APPLICATION EVALUATION:

The application was evaluated based on the technical reports submitted with the application and the applicable policies and regulations.



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| <p><b>APPLICABLE POLICY AND REGULATIONS:</b></p> <ul style="list-style-type: none"> <li>• <i>Municipal Government Act</i>;</li> <li>• Town of Cochrane/Rocky View County Intermunicipal Development Plan;</li> <li>• Municipal Development Plan;</li> <li>• Land Use Bylaw; and</li> <li>• County Servicing Standards.</li> </ul> | <p><b>TECHNICAL REPORTS SUBMITTED:</b></p> <ul style="list-style-type: none"> <li>• Biophysical Impact Assessment prepared by Matrix Solutions Inc. dated September 2019</li> <li>• Historical Resources Impact Assessment prepared by Lifeways of Canada Limited date April 2019</li> <li>• Visual Impact Assessment (VIA) prepared by Matrix Solutions Inc. dated November 2019</li> <li>• Noise Impact Assessment, prepared by ACI Acoustical Consultants Inc. dated June 2019</li> <li>• Air Quality Assessment prepared by Matrix Solutions Inc. dated May 2019</li> <li>• Hydrogeological Assessment Report prepared by Matrix Solutions Inc. dated January 18, 2019</li> <li>• Traffic Impact Assessment (TIA) prepared by Schaffer Andrew Ltd. dated October 2013</li> <li>• Conceptual Stormwater Management Report prepared by Matrix Solutions Inc. dated April 2020</li> </ul> |
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#### **POLICY ANALYSIS:**

This report focuses primarily on the technical aspects of the proposal including all development-related considerations, while the report to consider the associated land use application (PL20200066) focuses on the compatibility with the relevant statutory plans.

#### **MASTER SITE DEVELOPMENT PLAN OVERVIEW:**

As directed by the County Plan, the MSDP provides for a comprehensive overview of the proposed development addressing matters such as noise, air quality, stormwater, groundwater, visual and landscape impacts, reclamation, and traffic impacts.

##### Overview

The proposed West Cochrane Gravel Pit operation is located approximately 1.6 kilometres northwest of the Town of Cochrane, south of Highway 1A, across portions of eight quarter-sections totaling approximately 1,117 acres. The lands currently contain an existing permitted gravel extraction, the McDougall Pit (PRDP20175123). The site is approximately 151 acres, extracting roughly 125,000 tonnes of material annually. Operations include earthmoving, aggregate crushing, and loading trucks. This operation was permitted in 2012 with the ability to extract up to 500,000 tonnes per year. The pit opened in 2016 after the completion of an intersection upgrade at Range Road 51 required to support the operation.

The lands are located in a primarily agricultural area of the County, with the Stoney Nakoda Nation Reserve across the Bow River to the south. Land use in the area is ranching and farming to the north and east, with some lands holding residences.

The proposed MSDP would expand the existing extraction operation, estimated at 15,000,000 tonnes of aggregate, and is expected to operate for 30 to 35 years. The applicant has indicated there will be no change in the annual extraction amounts, though current operations will increase the available gravel reserves. Additionally, a second processing site will be established on the lands to the east of Grand Valley Creek.



The existing aggregate extraction site is already zoned Special, Natural Resources District, as it was converted from the Natural Resources Industrial designation as a result of the new Land Use Bylaw adoption. The pit has an existing Provincial Code of Practice Registration, as well as two water licenses for the diversion of water from the Bow River to supply water for aggregate washing activities, and a *Water Act* approval which allows for excavation or gravel from within the groundwater table in NW-13-25-06-W5M.

### Existing Conditions

The subject site consists of lands across eight quarter-sections of land, though only seeking redesignation and development on those lands to the south of Highway 1A. The lands are generally bounded by Highway 1A to the north and rangeland; rangeland with a farmstead to the east; the Bow River to the south; and a mixture of small farmsteads, rangeland, and the Wildcat Gas Plant to the west.

The topography is undulating, with some steep and terraced areas, with slopes ranging from two (2) to 30%, though the majority of the project area contains gently undulating lands with slopes ranging from 0.5 to 5%.

### Biophysical Impact Assessment

A Biophysical Impact Assessment was prepared, which noted eight vegetative areas within the lands and two seasonal marshes (which are not classified as wetlands). Field surveys did not locate any rare plant species or communities, nor were any federally-listed rare species.

The County's GIS mapping system shows Grand Valley Creek, Beaupre Creek, and an unnamed intermittent stream located within the project site.

Several general and site-specific mitigation measures are recommended and detailed in the MSDP, as well as other mitigation measures based on requirements and guidelines of federal and provincial regulatory agencies, industry standards, and operational experience. Project design, construction techniques, and operational practices were also accounted for as part of the mitigation measures.

The project area passes through three (3) provincially designated wildlife sensitivity zones: sensitive raptor range for the bald eagle, the golden eagle, and the prairie falcon; sharp-tailed grouse survey area; and key wildlife and biodiversity zones associated with the Bow River. Wildlife surveys were conducted, as well as a fish habitat assessment. Details and mitigation measures are included in the MSDP.

### Development Concept

A Development Permit will be required prior to the commencement of new extraction activities. Mining operations will expand in two areas simultaneously; to the west of Grand Valley Creek (Phases B, C, and D) and east of Grand Valley Creek (E, F, G, and H phases). The west and east side phase groupings will use independent highway accesses.

Screening berms for each phase will occur at the commencement of activity within each phase.

Detailed expectations, operations, and details for phase groupings are outlined within the MSDP.

Aggregate from this site will be used to supply local projects in Rocky View County and the Town of Cochrane. Washing capacity at this site will also allow Burnco to supply premium aggregates to its network of asphalt and concrete plants in the Greater Calgary region.

### Groundwater

A Hydrogeological Assessment Report was prepared, indicating that the majority of the site is expected to have little to no groundwater. The report indicated a generally low saturation and a deep water table near the base of the gravel deposit, with limited dewatering expected. Water well records indicate that wells in the vicinity are completed in bedrock aquifers at various depths, and dewatering at the site is not expected to impact users in the area.



The report concluded that potential environmental impacts can be mitigated or minimized with proper controls implemented at the extraction stage and as part of ongoing operations, and potential impacts of future aggregate operations on nearby groundwater and surface water diversions are expected to be minimal with the implementation of best management practices.

The applicant notes that diverting groundwater may require a *Water Act* approval, and would secure any authorizations prior to proceeding with such an activity. The MSDP also provides a groundwater complaint protocol should nearby water well users indicate their water supply has been negatively impacted. The protocol includes the provision that should a resident be without water, a temporary alternate water supply would be provided within 24 hours and an outside consultant would be hired within 14 days to determine the cause of the issue. If the issue is determined to be related to the mining operation, the applicant would then provide a permanent alternate water supply solution. It is to be noted that groundwater and all related aspects including enforcement fall under provincial purview; not the County.

At the Development Permit stage, the applicant would be required to submit up to date groundwater readings, detailed stormwater management plans for each phase, an updated noise impact assessment, noise mitigation plan, erosion and sediment control plan, construction management plan, weed control plan, and any other new information and/or updates to various plans and technical reporting prepared in support of the MSDP.

#### Stormwater Management

The applicant provided a Conceptual Stormwater Management Report, where the concept relies on a series of ditches and dewatering pits that pump water to the recharge pond. Overland flows from upstream sources will be directed around active mining operations using interceptor ditches and/or berms. All flows generated in the upstream catchment areas of Grand Valley Creek and/or Beaupre Creek will continue to pass through the project area. In summary, regional stormwater flows will not be impacted, and any stormwater from active mining areas is to be collected and retained within the site. The site will also be reclaimed to not impact local or regional drainage patterns.

As well, conditions of future Development Permits will require the applicant to provide a detailed stormwater management plan for each of the Phases of the pit area, which will follow the stormwater management concepts outlined in the Conceptual Stormwater Management Report.

The applicant is proposing gravel washing but has indicated they will obtain provincial permits for this activity. Sedimentation and erosion control plans will be prepared at the Development Permit stage.

#### Access

As the site is divided into two operational areas, two separate access points are required. The western phases will continue to use Range Road 51 to Highway 1A, and the eastern phases will use Range Road 45 to Highway 1A. Range Road 51 was upgraded to a paved standard as part of the current mining operation.

A Traffic Impact Assessment was completed in 2013 for the assessment of the existing operation of NW 13-26-5-W5M that required an upgrade of the intersection of Range Road 51 and Highway 1A.

In support of this application, a 2021 review of the 2013 TIA was completed. The technical memo concludes that background traffic growth on Highway 1A has been slower than what was assumed in 2013. In addition, Burnco has confirmed that the forecasted number of trips generated by the pit development is still valid. For these reasons, the recommendations from the 2013 TIA are still valid.

Over time, sales are expected to reach 500,000 tonnes per year, which is approved for the existing pit but increases the available extraction area by roughly four (4) times the volumes currently being extracted from the site. This annual amount will utilize the existing access, or, will be split between the existing access and the future access at Range Road 45.

As the development progresses, construction of an intersection will be required at the east side of the property at Range Road 45 to Highway 1A. It is anticipated that this access will be required in a 10 to 15-time horizon. At that time, a TIA will be undertaken to determine the appropriate upgrades.

### Reclamation

The applicant will be implementing a progressive reclamation plan throughout the Project. The size of open areas being used for operations or un-reclaimed would be limited to 51 acres on the east side, and 70 acres on the west side at any single time for a total maximum disturbed area of 121 acres. Currently, the County generally permits aggregate operations to excavate a maximum of 40 acres.

The site will be predominantly reclaimed back to agricultural uses as shown in the reclamation drawings. Screening berms built adjacent to Highway 1A will be left as a permanent reclamation feature. These screening berms will have been constructed with an overburden core and should have mature landscaping at the time of final reclamation.

All topsoil and subsoil on site will be salvaged and used in the final reclamation. Once topsoil has been evenly placed, the reclaimed areas will be re-vegetated to hayland. Once seeding is complete, a program of cutting and fertilizing will take place as necessary to ensure the hayland becomes established.

During periods of inactivity of over six months, pit faces will be sloped no steeper than 2:1. Stockpiles will be vegetated, and the weeds will be sprayed and mowed. The site will be monitored to ensure soil reclamation material is stable, weeds are controlled, and the site is secure. Once complete, the site will be monitored monthly to ensure soil reclamation material is stable, weeds are controlled, and the site is secure.

Weed management during and post reclamation would be in accordance with Land Use Bylaw and the *Weed Control Act*.

### Offsite Impacts

At present, operations at the existing gravel pit include aggregate crushing, earthmoving necessary to expose aggregate and reclaim disturbed areas, and loading trucks with finished construction aggregates. Washing at the site is expected to commence within the next five (5) years.

The applicant proposes to operate 24 hours per day Monday through Friday, and 7:00 am to 5:00 pm on Saturdays. No operations are proposed on Sundays or Statutory Holidays. Operations during these hours include crushing, washing, and earthworks. Hauling is intended to be restricted from 6:00 am to 7:00 pm Monday through Saturday, with no activities on Sundays or Statutory Holidays.

The proposed hours of operation align with the Subdivision and Development Appeal Board-approved Development Permit (PRDP20175123) for the existing gravel pit.

### Air Quality

An Air Quality Assessment was completed as part of the application.

The assessment modeled the anticipated worst-case subsection of proposed mining areas as well as the worst-case subsection of operation which placed crushing operations at the eastern and westernmost extents of the project area. These locations were chosen as they placed operations in the closest proximity to existing residents, the Air Assessment Boundary, and the Town of Cochrane. The proposed mitigations were then incorporated into the model, including crusher enclosures, water spray bars, dust control on haul roads and at the plant, progressive reclamation, berms, and separation of operations from receptors.

The air assessment identified that emissions of NO<sub>2</sub>, PM<sub>2.5</sub>, TSP, and CO will be emitted from the Project site. While the results predict exceedances of PM<sub>2.5</sub> in the Application and Baseline Cases, the maximum values are 8.7 kilometres away from the Air Assessment Boundary and are also

attributed to existing emission sources; not necessarily the Project. The operations, therefore, are not expected to compromise the far-field air quality in the area.

While the air quality assessment does indicate the possibility of exceeding the Alberta ambient air quality objectives (AAQO's) for TPM, it is also important to note that this exceedance is predicted to extend no more than 100 meters beyond the property line. Additionally, the predicted concentrations are calculated using worst-case and highest intensity site operational conditions and are anticipated to only be encountered infrequently. BURNCO is also committed to monitoring the site as necessary to ensure air quality is not adversely affected. As required to meet Alberta ambient air quality objectives, BURNCO will utilize enhanced mitigation measures such as additional dust control (sprinklers, more frequent water truck use, and dust suppressants), reducing site activities during periods of poor air quality, paving of the access road up to and including the scale facility, additional vegetation planting around receptors.

BURNCO has implemented the following measures to reduce dust generated from the operations:

- A 30km/hour speed limit is enforced in the stockpile area;
- A water truck will be available to water the extraction and processing areas as a means of reducing dust;
- During overburden stripping operations, the dust will be controlled by watering the work area as needed;
- All soil stockpiles will be seeded as soon as possible following construction;
- The disturbance associated with the excavation area will be kept to a minimum by progressively reclaiming mined areas thereby reducing the amount of wind-borne dust generated from exposed areas; and
- Each separate major component of the crusher (i.e., the cone, jaw, and screen deck) will be enclosed by a sound and dust retarder blanket system.

At the Development Permit stage, the Applicant would be required to provide an updated Air Quality Assessment, taking into consideration any active new development (neighboring gravel operations) in the vicinity of the site. Given the size and phased nature of the operation, full-time monitoring for dust will occur when gravel pit operations are within 400m of an occupied residence.

### Noise

The applicant provided an Environmental Noise Impact Assessment which indicates that the noise climate of the area is dominated by traffic-related noise sources (primarily Highway 1A to the north). There are 15 residences within a 2 km radius of the site.

The report did not provide a clear conclusion if the project complies with the Alberta Energy Regulator's 'Directive 038'. 'Directive 038', provides guidelines for new facilities and states that sound levels shall not exceed 40 dBA Leq (night-time) at a distance of 1.5 kilometres from the facility. The assessment indicated a reading of 51.5 dBA within 2.0 kilometres of the west area of the site. The County will require confirmation that the proposed operations can comply with the Alberta Energy Regulator's 'Directive 038', through the mitigation measures provided by the MSDP.

BURNCO intends to minimize the noise of the operation through the following measures:

- The loader backup alarm systems will be maintained at the minimum dBA levels allowable under Alberta Occupational Health and Safety guidelines. When the equipment is operating during darkness, the noise alarm system is turned off and a strobe light warning system is turned on as an alternative to the warning sounds,
- Access roads will be graded and regularly maintained to reduce traffic noise,



- Each separate component of the crusher (i.e. the cone, jaw, and screen deck) will be enclosed with a sound and dust retarder blanket system. Testing has shown that the sound levels drop significantly by 10-15 dBA with the installation of these blankets,
- Any electrical generating sets will have sound-absorbing baffles installed,
- Where feasible, electrical power will be utilized instead of generators for powering the conveyors, crushers, and wash-plant,
- Rubber liners will be used at all conveyor transfer points to reduce the impact noise,
- Where feasible, the use of poly screen decks vs. traditional steel screen decks on the wash-plant to reduce the sound level,
- All equipment associated with the crusher will be regularly maintained to ensure that it is working properly and that no noise other than normal operating noise is emanating from the equipment,
- Use of engine retarder brakes will not be allowed when trucks are in the stockpile area,
- Strategically place product piles to shield the neighboring areas from the operating equipment,
- Construction of screening berms in strategic locations as detailed in the MSDP.

Currently, there are no standardized methods for conducting aggregate operation noise measurements in the County. The County regulates noise through the Noise Control Bylaw No. C-8067-2020. The Bylaw states that no person shall “make, continue, cause, or allow to be made or continued any excessive, unnecessary, or unusual noise of any type” and that noise must be “minimized as much as practicable.” This Bylaw does not provide prescribe quantitative limits for noise emissions.

The existing gravel pit is greater than one kilometer from the nearest occupied residence, though as the proposed operation expands, additional residents will exist closer to active areas. The applicant has not proposed permanent monitoring stations for noise, dust, or other emissions at this time.

BURNCO does intend to deploy full-time noise monitoring for gravel pit operations that occur at night-time and are within 400m of an occupied residence.

### Conclusion

The proposed Master Site Development Plan has been evaluated and determined to meet minimum requirements for operation. Technical studies have been reviewed and found sufficient at this time. Future development permit applications will be required for operations, and additional requirements and studies may be required at that time.

Respectfully submitted,

Concurrence,

“Brock Beach”

“Kent Robinson”

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Acting Executive Director  
Community Development Services

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Acting Chief Administrative Officer

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**ATTACHMENTS**

ATTACHMENT 'A': Application Information  
ATTACHMENT 'B': Application Referrals  
ATTACHMENT 'C': Master Site Development Plan  
ATTACHMENT 'D': Map Set  
ATTACHMENT 'E': Public Submissions