



**HEMP SENSE INC.**  
Box 9  
Gilbert Plains, MB R0L 0X0

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October 9, 2015

Director  
Environmental Approvals Branch  
Manitoba Conservation and Water Stewardship  
Suite 160, 123 Main Street  
Winnipeg, Manitoba  
R3C 1A5

Re: Environmental Act Application – Class 1


Enclosed, please the above noted application for review and approval.  
If you require additional information, please contact the writer.

Regards,

Canda Chafe  
Office Manager  
Hemp Sense Inc.

# Environment Act Proposal Form



Name of the development: Hemp Sense Inc.	
Type of development per Classes of Development Regulation (Manitoba Regulation 164/88): Class 1	
Legal name of the applicant: Hemp Sense Inc.	
Mailing address of the applicant: Box 9	
Contact Person: Lyall Bates	
City: Gilbert Plains	Province: MB
Phone Number: 204-648-6098	Fax: 204-629-4367
	Postal Code: ROL OXO
	email: levijb@yahoo.com
Location of the development:	
Contact Person: Lyall Bates	
Street Address: Box 9	
Legal Description: NW 9-25-22	
City/Town: Gilbert Plains	Province: MB
Phone Number: 204-648-6098	Fax: 204-629-4367
	Postal Code: ROL OXO
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Name of proponent contact person for purposes of the environmental assessment: Canda Chafe	
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Webpage address: www.hempsense.net	
Date: October 9/15	Signature of proponent, or corporate principal of corporate proponent: 
	Printed name: CANDY CHAFE

## **Hemp Sense Inc. (2015)**

**Box 9**

**Gilbert Plains, MB ROL OXO**

### **Executive Summary**

There is a surplus of unused industrial low THC (<0.03%) hemp fibre in Canada that is burned on farmers' fields every year after harvest for industrial hemp grain production. In addition, burning this fibre releases harmful particulate into the air, and can cause hazardous driving conditions on rural highways. Producers want to sell their hemp fibre but to date have no marketing options.

Hemp Sense Inc. has a fibre processing technology to allow hemp producers to take advantage of this renewable resource by processing the hemp straw into a variety of value added products.

Hemp Sense Inc. was formed in 2015 pursuant to the laws of the Province of Manitoba for the purpose of establishing a commercial facility that will manufacture and market products made from industrial hemp straw that is left after the combine harvest of the grain. The focus of this business is to capture the value from the versatile qualities of hemp fibre.

The processing facility will be established just west of Gilbert Plains, Mb. on highway #5 in a former Seed Cleaning facility that was owned by Brett Young Seeds. The plant has been vacant for 3 years. The plant is composed of 3 steel clad buildings. A 30 day surge capacity of hemp bales will be stored on the property outside the plant. There will be 8 to 10 employees at full capacity. Hemp Sense Inc will operate one 10 hour shift, Monday to Friday for the first 6 months to a year. This is a commissioning and market development phase. Within a year it is targeted to run 24 hours a day, Monday to Friday.

The site is zoned AG – Agricultural General Zone. Farmland and other AG – Agricultural General Zone businesses are to the south and west of the site. Gilbert Plains Golf Course is to the north. The Town of Gilbert Plains and nearest residence is located approximately 2/3 of a mile to the East of the plant.

From a marketing assessment, the main products are products for the absorbency markets with products like pellets or crumbles for Kitty litter, other small animal bedding and absorbent products for oil and other liquids. The hemp straw is a natural green product that will be made into a pellet or a crumble to form the Kitty Litter and other products. It absorbs up to 5 times its own weight of liquid. It is a natural and organic Bio product that can be mixed into soil and naturally decomposes.

#### **Hemp Sense Inc. Overview**

- Location at Gilbert Plains Manitoba
- Processing Plant to be built in renovated grain cleaning plant
- Raw product to be processed is Hemp Straw
- Natural product baled from fields after grain harvest
- mechanical grinding used for processing
- No use of water
- No additives or chemicals utilized in the processing or product
- Zero waste facility. Dust is reintroduced to the processing line.

- No emissions
- Powered by environmentally friendly hydroelectric power

Hemp Sense has a mechanical, zero waste processing facility. No liquids or additives are introduced to the product lines. All processing is done inside the building. Dust from the mechanical process is captured and reintroduced into the processing line. Rural water is used for the office and bathroom needs. Waste goes into a holding tank. There are no emissions from the processing facility and no threat to the environment.

### **Introduction and Background**

Hemp Sense's intention is to build a processing facility in Gilbert Plains, Manitoba capable of processing up to 12,000 metric tonnes of hemp straw at full capacity annually into value added products. The processing plant will make use of fibre processing equipment sourced from North America. The Hemp Sense processing plant is expected to achieve 50% (6,000 metric tonnes) processing capacity in the first year of operation, increasing to full capacity at 100% (12,000 metric tonnes) in year two.

Industrial hemp fibre has potential to be a part of a growing trend towards developing "renewable" sources for industrial products that have traditionally been sourced primarily from "non-renewable" sources. Biofibre products effectively sequester carbon, which would give Hemp Sense an advantage as momentum grows toward a carbon credit system to thwart industry carbon emissions. Presently the raw product is burned in the farmers' fields. The potential for growth in hemp fibre production and processing is significant as currently, there is no commercial hemp fibre processing facility in North America to supply and develop these markets.

Hemp Sense production system is a mechanical, dry, zero waste facility. Hemp Sense does not utilize any water or manufacturing additives other than the raw straw product. The natural lignin and cellulose hold the pellets and crumbles together. The product after use is a natural product that could be composted.

The process is environmentally friendly and utilizing a valuable resource. This process and market will greatly reduce or eliminate the burning of hemp straw to remove it from the farmer's field. The straw has to be removed from the field. There is no other alternative for the farmer to date except to burn the straw to prepare for the next year's crop.

Hemp Sense will buy from the farmer the residual straw/fibre that is left after the hemp grain has been harvested. To date there is no commercial operation that is processing this resource. The fibre is very tough and has to be removed from the field by the farmer so they can cultivate for the next years crop. To date as there has been no alternative and market. The only alternative has been for the farmer to burn it.

### **Description of proposed development**

Hemp Sense Inc. has purchased the vacant Brett Young Seed Plant located in Gilbert Plains, Mb. An agreement of sale with Brett Young Seeds (WPG) has been entered into. Full title will be Transferred to Hemp Sense Inc. within 6 months. See attached signed Offer of Purchase The title is clear of previous environmental hazards (eg. Buried fuel tanks)

Hemp Sense Inc. will be located in an existing building 1/4 mile west of Gilbert Plains, MB on highway #5 on the very SW corner of Section NW 9-25-22W. Lot 2 Plan 40823 WLTO. Location highlighted in circle of map below. The site was active in grain seed cleaning established in about 1975 and operated continuously until it was shut down 3 years ago.

The facility was built starting in 1975 in 3 connected sections. All are steel frame covered with tin with cement floors. The office was built in 1986. All are in good condition. There is approximately 32,160 square feet of floor space available. The facility also has outside 6 large (23,000 bus) round storage steel bins. These are connected to and can be filled with an existing leg. In the back of the plant is another smaller leg connected to bins that can be used to supply a bagging line.

All changes to the facility will be internal by the addition of processing equipment to utilize some existing infrastructure in the building.

**The site**

The plant is located adjacent to Highway number 5 east of Gilbert Plains. To the south side of the land and east side of the building, a limited amount of raw product in the form of round bales will be stored to give a surge processing stock pile to keep the plant running for about 30 days. Approximately 2 acres on the east side will be rented from the Gilbert Plains Golf course as a part of this capacity. In the future, a temporary covered storage might be erected to keep raw product dry. The existing building has an installed scale, bins and legs that will be utilized as well.



Under the RM of Gilbert Plains District, the subject site is held under the AG – Agricultural General Zone. The AG zone provides for a wide range of agricultural activities on large parcels of land in a fairly unrestricted manner.

In a week, there will on average be a truck every day bringing bales to the plant to be processed. In a week, 4 trucks will leave with finished product. It is not possible to load trucks to capacity with the bales. The finished product will be up to truck load limits. Trucks will be active in the fall after harvest to move a surge supply of bales to the site.

Traffic flow will less than the site has experienced the last 30 years since it was built. The former use of the building was to clean grain for seed and processing markets. More trucks were needed to move product in and out of the plant as considerable more tonnes per year were processed.

The property to the west of the facility is active farmland. North and East is zoned recreational and owned by the Gilbert Plains Golf Course. South of the facility and south of #5 highway, is zoned AG – Agricultural General Zone where Parkland Industrial Hemp Processing (PIHP) a hemp processing plant under construction is located directly south and Gilbert Plains Coop bulk Petroleum and fertilizer storage is located east of PIHP. CN railway runs parallel to #5 highway immediately south of the plant.

Noise will be generated from the operation of the electric motors and hammer mills. The shredding equipment runs slow and does not generate noise above the electric motor. The hammer mills will have some noise. They are located near the back of the building away from the main product flow and general work area. The equipment is all inside the building which contains it from the outside. Bagging is carried out in a separate insulated room in a different building. This protects the workers from the continual noise. Workers will be required to wear ear protection.

The building will contain most of the noise from affecting neighbours. The facility is located in the Gilbert Plains Industrial area considerable distance from residents. A similar hemp processing facility is 400 meters directly south, The closest residential neighbour is 200 meters away up wind to the west. The town is isolated by trees. The closest housing is 570 Meters to the east.

3 phase electrical service will be upgraded by Manitoba Hydro. All existing overhead wires will be buried. Underground service will enter the building on the west side.

## **The Process**

Hemp Sense Inc. (2015) is a start-up venture that is going to process raw industrial hemp fibre from farmer's fields after the grain harvest. The fibre is brought into the plant facility in the form of round bales for processing into a number of value added products. A mechanical, zero waste processing is used. Hemp Sense Inc. is a pilot plant and start-up of a new industry in Canada and North America. The technology and equipment is available in North America.

The entire process is a dry (no water or liquids used) mechanical grinding process. No water or additives are used in process and finishing materials. Typical bale moisture is 14-17 % which is considered dry for processing and storage. It is a dry mechanical process. Only water needed is for staff personal needs.

Material enters the plant in the form of a large round bale. Bales are 5 by 6 feet in size and approx. 1400 pounds. Capacity of the plant is estimated at 2 tonnes per hour. In a typical 10 hour shift about 32 bales will be processed which is a about one truck load per shift.

The bales first go into a large shredder that breaks down the bale into 2 to 6 inch long pieces. The shredder is enclosed to contain dust. The machine shreds slowly so very little dust is made. Suction in the enclosure contains and removes the dust.

The shredded material is then moved an enclosed surge bin. It will hold up to 3 bales at a time. No dust is created on the conveyor. The surge bin is covered and has air suction to capture any possible dust.

From the surge bin it is fed to a hammer mill to reduce the fibre length to 1 to 2 mm in length. This fibre goes to a pellet mill to create the end product. Air suction is used to control any dust exit. The system has air drawn through the hammer mill to aid product feeding and flow as well as to control dust.

The pellets go to a cooling bin to remove the heat generated from the pressing and manufacture of the pellet. Air from within the plant is drawn through the pellets to cool them. There is no dust created at this step. The hot air is exhausted to the outside as it may also be a higher humidity. Pellets for some markets will be squeezed to make a crumble attached to the cooling bin. The crumble is then screened to remove the fines which are about 15% of the original pellet weight. From the screening it goes to a storage bin for bagging. This is all a closed system with dust contained.

For some markets, the screenings above or the crumble will go through another hammer mill to reduce the product to fine flour. Air is used because it is a fine material to help move the end product through the hammer mill. This is also a part of the dust control equipment.

Material is moved from one machine to another either by a conveyor that will be closed at sources that may have dust or by air. Air velocity will be low but high enough to capture dust from introduction points. The air will suction the dust off of all machinery and processes that generate dust. The air will lose velocity in a cyclone inside of the building. The dust fines will drop into the surge bin and be reintroduced into the processing line. The air released by the cyclone will be filtered through a bag house filter if required. Dust lost is a loss of end product and efficiency for the plant. This dust collection system is similar but enhanced of which existed in the building for the grain seed cleaning plant.

Below is a description of the equipment used for air cleaning and filtering Equipment:

1. Steelcraft pulse jet dust collector, J model 8-128-1265. Unit has 128 filter bags, 8' in length providing 1265 sq ft of cloth. It is ideal for the application at 8500 CFM to 12,000 CFM. Price with new filter bags, (2) explosion vents 18 x 35, and (2) 8" airlocks



2. Used Dynamic fan model BI size 270 with a 30 HP motor. Capable of 8500-12000 CFM at 12" SP.

3. (2) New 4' diameter cyclones to vent the (2) hammer mills. The cyclones are complete with 10" rotary airlocks/motors, legs providing 5' clear under the cyclone discharge.. Total (2) needed

4. (2) New paddlewheel fans with 15 HP motors to handle the airflow off each hammermill.

5. Cyclone to handle moist air exhaust from the cooler. New 5' diameter unit with 10" rotary airlock. Leg structure to provide 5' clear under discharge from the cyclone with airlock.

6. New paddlewheel fan with 15 HP motor to handle the exhaust from the cooler.

7. New Flamex fire protection single zone system with panel, infrared eyes, spray assembly, abort gate for air return, and back blast damper.

The site is connected to the rural water. The only water use and waste created will be from the personal needs of the work force from the washroom requirements. Sewage from the office is contained in a holding tank to be pumped out by a local sewage contractor. There is no requirement for water or sewage for the processing.

The building will be equipped with a full sprinkler system. Water source (up to code) for the sprinklers will be available from a nearby existing upgraded dugout.

The timeline is short as the desire is to be processing as soon as possible. Access to the property has been received as of August 31<sup>st</sup>, 2015. Equipment has been well researched and is being ordered. Some equipment is used and will be delivered fairly quickly (one to 2 months) Commissioning and occupancy permits are targeted for 4 to 6 months. All building permits, electrical, fire commissioner etc. will be applied for and meet code requirements.

Financing for the project is from private investment. Within 6 months the business is to be a public traded company listed on the New York and Toronto stock exchange.

No government grants or loan funding have been applied for except for \$100,000 Growing Value Commercialization Grant has been applied for. No approval received to date.

#### **Description of area and environment in project area**

Hemp Sense Inc. will be located in an existing building 1/4 mile west of Gilbert Plains, MB on highway #5 on the very SW corner of Section NW 9-25-22W. Lot 2 Plan 40823 WLTO.

Topography of the site is fairly level with natural existing slope to the east of the property that drains the existing excess rainfall and spring melt events.

The closest Environment Canada weather monitoring site is Dauphin airport approximately 30 km east. Latitude: 51°06'03.000" N, Longitude: 100°03'09.000" W. Prevailing winds are from the North West. Annual rainfall (1981 to 2010 Environment Canada) is approximately 384 mm of rainfall. No additional water will be added to the natural amount.

The Valley River winds through the golf course about ½ Km north east of the processing facility. Surface water that presently exits from the site will continue to drain to the east of the property. The natural path will not be altered. Any runoff is filtered through grass and tree vegetation.

Hemp Sense processing utilizes no water, other liquids, chemicals or other additives in the processing. No liquid or material except end product will exit the building. The site and surrounding area is covered with grass and some trees.

No rare, threatened or endangered species or sensitive species or habitats have been identified.

This facility has been a part of the existing land or industrial use around the site. This new business is similar to the previous operation.



### **Additional Environmental Benefit**

Hemp Sense Inc. processing facility will process about 12,000 tonnes of hemp straw at full production that presently is being burned in the farmers field. Straw yield typically is one to 1 ½ tonnes per acre. The following benefit is accrued to the farmer and society when Hemp Sense has purchased and processed the raw product.

We can assume that during field burning one kg of hemp straw will release 1515 grams of CO<sub>2</sub>, 2.7 grams of CH<sub>4</sub> and 0.07 grams of N<sub>2</sub>O (Andreae and Merlet 2001). The same document also suggested that about 80% of the biomass in the field would be burned (20% would remain unburned). The global warming potentials of each of the three greenhouse gases are CO<sub>2</sub> = 1, CH<sub>4</sub> = 25, N<sub>2</sub>O = 298. Total greenhouse gas emissions, in units of kg of carbon dioxide equivalents, from field burning of one tonne of hemp straw could be calculated as: 1 tonne of hemp straw in the field \* 80% biomass combustion \* (1515 kg CO<sub>2</sub> \* 1 + 2.7 kg CH<sub>4</sub> \* 25 + 0.07 kg N<sub>2</sub>O \* 298) = 1603 kg CO<sub>2</sub> equivalent. 12,000 tonnes of hemp straw would produce about 19,236 tonnes of CO<sub>2</sub> equivalent that would not be introduced into the air by burning of the straw in the fields.

This is a huge environmental impact and solution for an existing problem.

Hemp Sense is able to provide the processing that eliminates the burning of the straw.

### **Description of human health effects**

Dust control equipment will be installed in the plant to capture dust created by the mechanical process. The dust collected will be reintroduced into the processing line. There is not a need for any material to be composted or disposed of in landfills. Capture and reintroduction into the processing line is more cost effective for the plant but also provides a clean, healthy working environment for the employees. This also means no dust will go into the air or to neighbour properties.

Equipment is run entirely by electric motors. Noise will be low and will be mostly contained within the building.

Mechanical processing is utilized with zero waste. There are no emissions, effluents and solid wastes released to affect the environment. Lubricants in limited quantities for operation and maintenance of the machines are the only petroleum products on site. No other petroleum products are stored on site.

No impact on the environment is expected.

### **Mitigation, Monitoring and reporting**

No pollutants will be released from the facility. Equipment design and dust control equipment designed for use within the process will mitigate and prevent dust from exiting the facility. No corrosive or hazardous materials are stored on the site or are used in the process.

Quality Management System (QMS) and method for monitoring equipment efficiency, employee safety, accidents, and possible environmental impacts will be developed and implemented. This will identify and determine mitigation steps that might be necessary if a malfunction does occur. Documentation of equipment operation and efficiency will be in place as required and reported to management.

List of reporting agency's will be assembled and be made available throughout the plant. If a problem does exist, it will be promptly reported to the appropriate authority.

No risk to the environment is anticipated.

### **Conclusions**

Hemp Sense Inc. will process dry hemp straw in a renovated agricultural facility with a history of cleaning and processing grain. The raw product is a natural, green, bio product. The process is a mechanical grinding of the straw to produce a pellet, crumble or flour as an end product. Equipment is designed to capture and reintroduce the dust (only possible pollutant) back into the processing line so none is released into the working environment or the outside air.

No water, chemicals or other additives are utilized in the processing so nothing will be introduced into the environment from the processing.

This industry is assisting the agriculture industry environment stewardship by giving the farmers a chance to harvest the hemp straw and have it processed rather than burning it and introducing pollutants into the air.

This facility and process is not an environmental risk.

JAN. 10. 2015

JIM BUIR  
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GLADSTONE, MD.

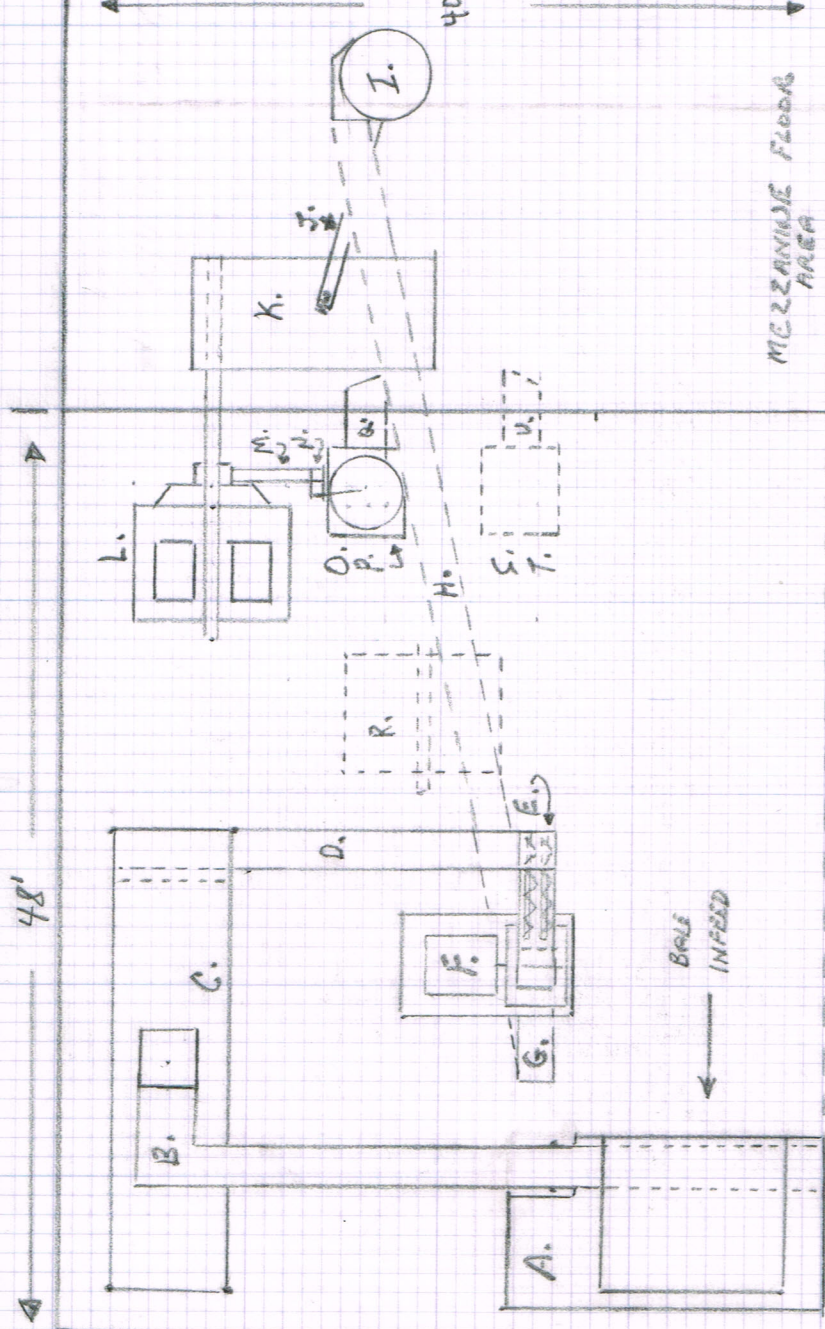
PLAN VIEW SKETCH OF "HEMP SENSE"  
2 TPH PELLETING LINE IN EXISTING  
SEED PLANT BUILDING.

- A. LINONER BALE SHREDDER
- B. 40° INCLINE CONVEYOR TO METER BIN
- C. 24' SURGE / METER BIN
- D. 40° INCLINE CONVEYOR TO HM FEEDER
- E. TWIN SCREW HAMMERMILL FEEDER
- F. HAMMERMILL
- G. PNEUMATIC ADAPTER + VERTICAL PIPE TO MOVE MILLED PRODUCT.

- H. HORIZONTAL MILLED PRODUCT LINE.
- I. MILLED PRODUCT CYCLONE, FAN, AIRLOCK - MOUNTED ON EXISTING OVERHEAD STRUCTURE.
- J. U-TROUGH AUGER CONVEYOR TO MILED PRODUCT METERING BIN.

- K. 500 CU. FT. MILLED PRODUCT METERING BIN - LOCATED ON MEZZANINE FLOOR.
- L. PELLET MILL WITH EXTENDED FEEDER FROM METERING BIN.
- M. PELLET CONVEYOR
- N. PELLET ELEVATOR TO COOLER.
- O. PELLET COOLER ON EXTENDED SUPPORT STAND.
- P. PELLET CRUMBLER MOUNTED UNDER COOLER DISCHARGE.
- Q. PELLET / CRUMBLE SIFTER SCREENED MOUNTED UNDER CRUMBLER DISCHARGE FINISHED PELLETS / CRUMBLES INTO ELEVATOR TO BAGGING LINE. (BAGGING LINE NOT SHOWN)
- Q-1. FINES ELEVATOR ELEVATES FINES FROM SIFTER TO METERING BIN (NOT SHOWN)

- R. } FUTURE PELLET MILL, COOLER + RELATED SYSTEMS TO DOUBLE PLANT CAPACITY.
- S. }
- T. }
- U. }



MEZZANINE FLOOR AREA

Bale  
INFEED

N.