



Compton Petroleum Corporation

Application for a Well Licence
Crossfield Field

June 21, 2005

ALBERTA ENERGY AND UTILITIES BOARD

Decision 2005-062: Compton Petroleum Corporation, Application for a Well Licence, Crossfield Field

June 21, 2005

Published by

Alberta Energy and Utilities Board
640 – 5 Avenue SW
Calgary, Alberta
T2P 3G4

Telephone: (403) 297-8311
E-mail: eub.info_services@eub.gov.ab.ca
Fax: (403) 297-7040
Web site: www.eub.gov.ab.ca

CONTENTS

1	Decision	1
2	Introduction.....	1
2.1	Application	1
2.2	Intervention.....	1
2.3	Hearing	1
3	Issues.....	2
3.1	Views of the Applicant.....	2
3.2	Views of the Interveners.....	4
3.3	Views of the City of Calgary’s Corporate Properties Group	6
3.4	Views of the Board.....	7
	Appendix 1 Hearing Participants	9
	Appendix 2 Summary of Conditions	10
	Area Map	11

ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

COMPTON PETROLEUM CORPORATION APPLICATION FOR A WELL LICENCE CROSSFIELD FIELD

Decision 2005-062
Application No. 1346815

1 DECISION

Having carefully considered all of the evidence, the Alberta Energy and Utilities Board (EUB/Board) hereby approves Application No. 1346815, as amended at the hearing, for a surface location in the northeast corner of Legal Subdivision (LSD) 15, Section 6, Township 23, Range 28, West of the 4th Meridian (location 3) subject to the conditions stated in [Appendix 2](#).

2 INTRODUCTION

2.1 Application

Compton Petroleum Corporation (Compton) applied to the EUB pursuant to Section 2.020 of the *Oil and Gas Conservation Regulations* for a licence to drill a vertical well from a surface location in LSD 10-6-23-28W4M (location 2) to a projected bottomhole at the same location. The proposed well would not contain hydrogen sulphide. The purpose of the well would be to obtain gas production from the Belly River Formation. The proposed well location is about 1.1 kilometres (km) east of Calgary. Compton amended its application by adding two other potential surface locations both located in LSD 15-6-23-28W4M, referred to on the attached map as locations 1 and 3.

2.2 Intervention

H. M. Thomson and G. McConkey (the interveners) each own an undivided half interest of the northeast quarter of Section 6-23-28W4M, the land on which the proposed well would be located (see attached map). The interveners raised concerns about the location of the well, future development potential and land use, compensation, and the devaluation of their land.

2.3 Hearing

The Board initially scheduled a public hearing to be held in Calgary, Alberta, on December 1, 2004. On November 8, 2004, the Board received a request for a rescheduling of the hearing and granted the request, with the rescheduled hearing to commence on March 3, 2005. On January 28, 2005, the Board received another request for rescheduling and granted the request, with the rescheduled hearing to commence on April 19, 2005.

The Board requested that G. Nieuwenhuis, a land development engineer of the City of Calgary's Corporate Properties Group (the City's Corporate Properties Group), attend the hearing to assist the Board and interested parties in understanding the proposed Shepard Wetlands Project (Wetlands Project) that is to border the northeast quarter of Section 6-23-28W4M (NE 6) to the

north and west. The views of the City's Corporate Properties Group are neither for nor against the applicant or intervener and only reflect those of the specified business group.

The EUB held a public hearing in Calgary, Alberta, on April 19, 2005, before Board Members J. R. Nichol, P.Eng. (Presiding Member) and T. M. McGee and Acting Board Member W. G. Remmer, P.Eng. There were no undertakings and, as such, the final evidence date is deemed April 19, 2005. Those who appeared at the hearing are listed in [Appendix 1](#). The Board considers the record for this hearing to be closed on April 19, 2005.

3 ISSUES

The Board considers the issues respecting the application to be

- need for and location of the proposed well, and
- impacts on land use and future development.

3.1 Views of the Applicant

Compton stated that its primary target was low-pressure gas in the Belly River Formation, with a secondary gas target in the Foremost interval of the Belly River group and a potential coalbed methane target in the Edmonton group. Compton confirmed that it had acquired the mineral rights for Section 6-23-28W4M in 2003. It pointed to well logs of the abandoned well located at 14-6-23-28W4M (14-6 well) and to a stratigraphic cross-section from the 14-6 well to a well in 11-29-22-28W4M that indicated the presence of gas pay in the targeted formations. It indicated that the Belly River sandstones were deposited in an approximate west-to-east orientation, as determined by geological mapping. Compton emphasized that although the patterns were irregular and difficult to predict, it had been successful in recognizing gas-bearing zones based on the analysis of seismic data. It expected that 4 to 5 billion cubic feet (bcf) and 3 to 5 bcf of sweet natural gas reserves were present in the Belly River Formation and Edmonton sands respectively. Compton confirmed that if the well were successful, up to three more wells could potentially be drilled from a pad site south of Section 6. It estimated that production could last up to 30 years to effectively drain the reserves present.

Compton stated that its goal was to attain a bottomhole location as close as possible to the wellbore of the abandoned 14-6 well to minimize the risk of missing its target formations. Compton noted that re-entering the 14-6 well was not feasible, as production casing was never run. Compton also explained that although it would have preferred drilling immediately south of the 14-6 well, this was not feasible, as the City's Corporate Properties Group already had development plans to create the Wetlands Project on the majority of the northwest quarter of Section 6. The City's Corporate Properties Group had objected to a well in this location and Compton felt that it would object to any proposed surface location in the northwest quarter of Section 6. Compton therefore believed the only other alternative was to drill from a surface location in the northeast quarter of Section 6 (NE 6).

Compton provided three alternative surface locations within the NE 6 that it considered throughout its consultation process with the landowners. Compton explained that the NE 6 was a cultivated field, zoned agricultural, with some low wetland areas. It identified surface locations at LSD 15-6-23-28W4M (location 1), LSD 10-6-23-28W4M (location 2), and a revised LSD 15-

6-23-28W4M (location 3). Compton stated at the hearing that it would be prepared to drill from location 3 if the Board was prepared to grant the licence for that surface location, even though it had filed an application for a well to be sited at location 2. Compton confirmed that it was amending its application to have the Board consider granting a well licence for any one of the aforementioned locations, all within the NE 6.

Compton described location 1 as being situated slightly west of the centre of LSD 15-6-23-28W4M. Compton stated that it initially chose this location as it was close to the 14-6 location and it could directionally drill to its preferred downhole target if the vertical well was not successful. It felt the location would minimize impacts on the land by using an operational trail as opposed to a built-up access through a low wetland area. Compton also believed that the City's Corporate Properties Group would not object to this surface location due to sufficient separation between the proposed well site and the Wetlands Project in the NW6. However, Compton explained that location 1 was not desirable, as the landowners objected on the basis of farming impacts. As a result, Compton stated that this was the least viable option for the proposed well location.

Compton explained that location 2 was situated along the east edge of LSD 10-6-23-28W4M, just south of the centre of the NE 6. Compton stated that this surface location was chosen to minimize the length of the access road. Compton described location 2 as situated on high ground, avoiding low areas in the field. It pointed out that the lease size would be reduced from the size proposed at location 1 of 120 metres (m) by 120 m to dimensions of 100 m by 90 m. Compton noted that the City's Corporate Properties Group withdrew its objection to the proposed well based on location 2, as that would not interfere with the Wetlands Project. Compton acknowledged that although location 2 was the applied-for site, this was not its preferred location as it was too far away to directionally drill over to the 14-6 location if the vertical well were unsuccessful. However, Compton added that it was prepared to take this risk, as it believed that a surface lease could be obtained at this location. Compton acknowledged that a well in the centre of the quarter section would have impacts on farming operations and future land use development but argued that sweet low-pressure gas development can coexist with an urban environment.

Compton explained that the final location, location 3, was situated in the extreme northwest corner of LSD 15-6-23-28W4M against the north and west quarter section lines of the NE 6. It noted that it was only 330 m from the abandoned 14-6 well, which would enable it to directionally drill toward the target if a vertical drill were not successful. Compton believed that the City's Corporate Properties Group would not object to location 3 as long as it was not necessary to move or modify the planned dikes of the Wetlands Project as a result of the normal 100 m setback from water bodies that may be applied to this location. Compton submitted that location 3 would have the least impact on the future land development of the NE 6, as it is situated in the far northwest corner.

In response to the interveners' suggestion that a location on the high ground in the southwest corner of the NW 6 be considered, Compton argued that this location was too far away from the preferred target and would not meet the geological objectives of the well. Compton also noted that from its conversations with the City's Corporate Properties Group, it understood that the entire NW 6 would be covered by water. As such, no surface locations were available for the proposed well on the NW 6.

In response to the interveners' concerns regarding setbacks, Compton argued that a 300 m nuisance setback imposed by the City of Calgary¹ only occurred once for a specific sour gas well and that no precedent had been set for such a setback to be imposed on a sweet gas well. It further argued that any nuisance factors associated with the proposed well would be no greater than the impacts associated with the collector road planned immediately southeast of the proposed location 3. Compton further stated that the well was benign in nature. It emphasized that the proposed well was expected to produce sweet low-pressure gas and was comparable to the risk associated with gas lines coming into city houses. Compton reiterated that sweet low-pressure gas development can coexist with an urban environment. It pointed to examples in Medicine Hat and Brooks, Alberta, and Dallas and Fort Worth, Texas, where facilities of this type exist within 25 m and 50 m of urban development.

If the well were successful, Compton submitted that the equipment on site would include a 3 m by 3 m by 2 m tall building encasing a gas meter and building heater. Compton further submitted that separation would not be required at this site, as the volume of water expected would be very low. It committed to incinerate the gas during well testing. Compton also discussed potential pipeline routes and stated that it was confident that a pipeline route could be agreed upon. Compton stated that it was not ready at this time to submit a pipeline application, as the final pipeline routing and success of the well were still not definite.

Compton explained that it had tried to provide every possible option for a viable surface location without avail. As such, it argued that the interveners' concerns were primarily based on compensation. It pointed to letters from the interveners dated June 2 and November 24, 2004, in which it felt an underlying compensation theme was repeatedly versed. Compton also emphasized that at the hearing the interveners confirmed that the impact on future urban development was one of economics and land value.

3.2 Views of the Intervenors

R. Wrigley, of Brown & Associates Planning Group, a land development expert retained by Mrs. Thomson and Mr. McConkey, presented evidence on the interveners' behalf.

The interveners' expert did not contest the need for the well. Rather, he questioned the proposed locations for the well and stated that the interveners' preference was for the well to not be located on the NE 6 at all. They stated that the NE 6 already had a designated land use for urban development, as the City of Calgary had slated the lands for annexation by the year 2007. The interveners' expert further referenced a document called the Shepard Area Structure Plan, which he said established future residential land use for the NE 6. He estimated that urban development would occur on the NE 6 in eight to ten years. He believed that the highest economic value of the land was for future urban residential or light commercial development. Mr. Wrigley also acknowledged, however, that industrial and commercial uses may, in some circumstances, attain even higher values than residential.

In reviewing the Shepard Area Structure Plan, the interveners' expert identified three future roads that would bound the NE 6 and provide for access to future urban development of the land. He said that the south and east boundaries of the NE 6 were slotted for major standard roads, which he described as having four lanes of traffic, two in each direction. He also stated that a

¹ "City of Calgary" refers to the city as a municipal authority.

collector road was planned to curve around the north and west boundary of the NE 6. This road would typically have one lane in each direction and parking lanes on each side and would be used to directly access future urban development on the NE 6.

The interveners' expert submitted that the development potential would be affected by a well on any portion of the NE 6 because of the 100 m setback imposed by the EUB and a potential 300 m nuisance setback imposed by the City of Calgary. He confirmed that the City of Calgary imposed such a setback on a level-1 sour gas well in the community of Saddle Ridge. Mr. Wrigley argued that a level-1 sour gas well was not different from a sweet gas well in terms of nuisance and there was no reason why the City of Calgary would not impose the same setback in this case. He confirmed, however, that the 300 m nuisance setback had never been imposed on a sweet gas well. With either a 100 m or 300 m setback, he argued that a significant amount of land would be sterilized from urban development, thus decreasing the interveners' potential land value.

The interveners' expert confirmed that proposed location 2 would affect their land the most as the 300 m nuisance setback would almost completely encompass their land. He contested that a loss or sterilization of 3.2 hectares (ha) (8 acres) would result from a 100 m setback and a loss of about 28.3 ha (70 acres) would result from a 300 m setback. Mr. Wrigley also noted that the setback from the central location could present challenges for the design of a future subdivision. He explained that typically the entire area would need to be graded for future development to allow for the installation of sewers and storm water management. He argued that this would become very difficult if there were a portion of the land in the middle of the development that was sterilized. The interveners' expert further commented that the road system would also be negatively impacted by the sterilization. He concluded the location 2 was the least desirable of all the proposed sites.

Mr. Wrigley stated that proposed locations 1 and 3 would have similar impacts on the land with respect to setbacks. He noted that the setback associated with both locations would have less of an impact as a portion of the setback would encompass the City of Calgary's land to the west and north. He also noted that this would reduce the amount of sterilized land on the NE 6.

The interveners' expert confirmed that if the well had to be on the NE 6, the interveners' preference would be location 3. He stated that from a planning perspective, it was the most desirable site, as it would be located in the far northwest corner of the quarter section and would have the least impact on future urban development. Mr. Wrigley emphasized that location 3 would be situated on the outside of the planned collector road. As a result, grading required for the future development would not be impeded. He further stated that urban parkland or green space may be incorporated into the planning and design for the northwest corner of the NE 6 to accommodate potential setbacks the well would impose. The interveners' expert believed that using green space to the fullest extent would allow for compatibility between the extraction of resources and urban development.

Overall, Mr. Wrigley believed that an opportunity to locate the proposed well on the NW 6 had not been explored fully with the City's Corporate Properties Group. He reiterated his clients' initial preference that the well not be located on the NE 6 at all. He argued that there were other alternative locations, such as the southwest corner of the NW 6, that should be considered. Mr. Wrigley noted that the southwest corner of the NW 6 should be acceptable because it would be on high ground, above the high-water mark of the proposed Wetlands Project. He believed that

the well could be incorporated into the design of the Wetlands Project more easily than it could into urban development, and he emphasized that Compton should have pursued this location with the City's Corporate Properties Group to a greater extent. He stated that communications provided between Compton and the City's Corporate Properties Group were vague and did not indicate an adequate attempt to come to a mutually agreeable solution.

In conclusion, the interveners' expert asked that the Board deny the application for all three proposed locations and requested the well be located on the NW 6. He also stated that if the Board determined the well should be located on the NE 6, it be situated at location 3.

3.3 Views of the City of Calgary's Corporate Properties Group

The City's Corporate Properties Group confirmed that the NW 6 was just a portion of a much larger parcel of lands that were slated to be annexed by the City of Calgary in the near future. The City's Corporate Properties Group explained that the intent of the Wetlands Project was to provide a storm water drainage system to drain lands beyond the boundaries of the traditional storm systems, specifically in southeast of the City of Calgary. It summarized the Wetlands Project as an area where storm water would be filtered through vegetation so that natural biological processes and sedimentation could improve the quality of the relatively clean storm water discharged into the Bow River. The City's Corporate Properties Group said that the Wetlands Project would ultimately serve two purposes: to improve the quality of storm water discharged to the Bow River and to act as a catch basin for storm water runoff from a significant portion of the east half of the City of Calgary. It stated that active work on the Wetlands Project commenced in 1999 and confirmed that the Wetlands Project was expected to be able to accept and discharge water by spring 2007.

The City's Corporate Properties Group noted that during normal operations, between 140 and 160 ha of land would be permanently inundated with water. It confirmed that this would include the area of the abandoned 14-6 well, which was the reason for its objection to this initial proposed location. It also confirmed that a small parcel of land in the southwest corner of the NW 6 would not be flooded unless excavation of the area was needed for construction of retention dikes. The City's Corporate Properties Group added that at this time, it did not foresee the need for the excavation of this area, but said that it would not know for sure until the Wetlands Project was completed. When asked if the City's Corporate Properties Group would entertain a proposed well location on this high ground, it replied that it would be willing to discuss it but would not likely entertain the idea due to potential excavation.

The City's Corporate Properties Group described the general structure of the Wetlands Project as it related to the quarter section line between the NW 6 and the NE 6. It explained that there would be a few metres setback from the quarter section line to ensure that the outermost extent of the Wetlands Project would not encroach on the NE 6. From that point west, the City's Corporate Properties Group stated there would be a shallow ditch directing area water runoff collecting outside the dikes north and east, followed potentially by a narrow access. The final piece before the wetland water would be the dikes. It explained that in the lowest location on the NW 6, the dikes, from toe to embankment, would be as wide as 29 m. Construction of the dikes was expected to happen in late fall 2006.

The City's Corporate Properties Group stated that it had originally intended to use the NE 6 for the Wetlands Project as well, but could not come to an agreement with the landowners regarding

a number of items, including compensation. It explained that it chose not pursue negotiations for the NE 6 at that time. When asked if any residential lands were to be developed in the vicinity of the Wetlands Project, the City's Corporate Properties Group clarified that it had no interest in the residential land market. It affirmed that residential development was left to private developers and that the City's Corporate Properties Group simply had jurisdiction over the development.

The City's Corporate Properties Group stated that it did not have any concerns about locations 1 and 2, as they were both 100 m away from anything it was proposing. It indicated that its concern about location 3 was related to the EUB-imposed 100 m setback to a water body. The City's Corporate Properties Group referred to EUB *Guide 56: Energy Development Applications and Schedules* and noted that both the wetland and the ditch to the east of the dike would be considered water bodies. The City's Corporate Properties Group stated that the high-water mark of the wetland would be about 30 m from the quarter section line and the ditch would be even closer. It went on to state that it would not object to location 3 on the NE 6 as long as the water body setback did not alter the construction plans of the retention dikes and a waiver of the setback was issued by the EUB.

3.4 Views of the Board

The Board notes that Compton has acquired the appropriate petroleum and natural gas rights to drill a proposed well in Section 6 and is satisfied there is a need for a well. The Board acknowledges that the interveners' expert did not contest the need for the well.

The Board notes and accepts Compton's amendment to the application to add locations 1 and 3 as options for consideration. The Board agrees with the City's Corporate Properties Group that a well in the NW 6 is not a viable option, as the site would be within the planned Wetlands Project.

The Board acknowledges and agrees that the different well locations and setback requirements would place various degrees of restrictions on the urban development that will occur on these lands. The Board agrees with Compton that gas development of this nature, being very low-pressure sweet gas, can in certain situations exist in an urban setting with proper planning by all the stakeholders involved. The Board also agrees that reduced setbacks (i.e., less than 100 m) associated with these wells could be considered, as the substance is very similar to residential gas distribution systems. The Board believes these well sites could be incorporated into green space and parkland areas or located in commercial or light industrial areas with minimal impact on surrounding urban development. However, a minimal amount of buffer will likely be needed for the occasional servicing of the well. The Board acknowledges that the City of Calgary imposed a 300 m nuisance setback to a sour well in the Saddle Ridge community due to its unique circumstances. The Board feels those circumstances do not apply here. Given the evidence presented by all parties, the Board believes the City of Calgary should consider some relaxation of development setbacks at this location in the future. The Board further believes that gas development of this nature can coexist with an urban environment if it is appropriately incorporated into the development process, involving the mineral rights holder, the developer, and the City of Calgary.

In considering locations 1 and 2, the Board does not deem these as acceptable alternatives in relation to location 3. The Board accepts the applicant's and interveners' expert arguments that these locations are more centrally located in the quarter section and as such would cause unnecessary impacts on farming and future development. The Board agrees with the interveners'

expert that location 3 would have the least impact on the future development of their land. Based on the information provided, the Board believes that siting the well at location 3 would provide a buffer from any proposed urban development, as it would be situated outside of the planned collector road. The Board also notes that location 3 is the site most preferred by Compton, providing no objections are received from the City of Calgary. Therefore, the Board believes the full range of urban development options could be available to the interveners, even with the presence of the proposed well.

The Board notes that the City's Corporate Properties Group stated it would not object to the proposed well at location 3 if a setback does not place any restrictions on the Wetlands Project. The Board believes that a relaxation of the normal 100 m water body setback is appropriate in this case, provided that the well site is bermed during the drilling phase and through the production life of the well.

Having considered all of the evidence, the Board is satisfied that Location 3 will have an acceptable level of impact on present and future operations and developments in the NE 6 and is therefore prepared to approve a well licence for this location subject to the conditions listed in Appendix 2. The Board encourages Compton to continue dialogue with the landowners, future developers, and the City of Calgary to ensure that potential impacts associated with development in the NE 6 are kept to a minimum.

Dated in Calgary, Alberta, on June 21, 2005.

ALBERTA ENERGY AND UTILITIES BOARD

<original signed by>

J. R. Nichol, P.Eng.
Presiding Member

<original signed by>

T. M. McGee
Board Member

<original signed by>

W. G. Remmer, P.Eng.
Acting Board Member

APPENDIX 1 HEARING PARTICIPANTS

**Principals and Representatives
(Abbreviations used in report)****Witnesses**

Compton Petroleum Corporation (Compton)
K. F. Miller

P. Weiler
M. Stodalka, P.Eng.
B. McCloskey, P.Geol.

H. M. Thomson
G. McConkey (the interveners)
D. A. Thurmeier

R. Wrigley, MCIP, MEDES (the interveners'
expert)

The City of Calgary
Corporate Properties Group (the City's
Corporate Properties Group)

G. Nieuwenhuis, P.Eng.

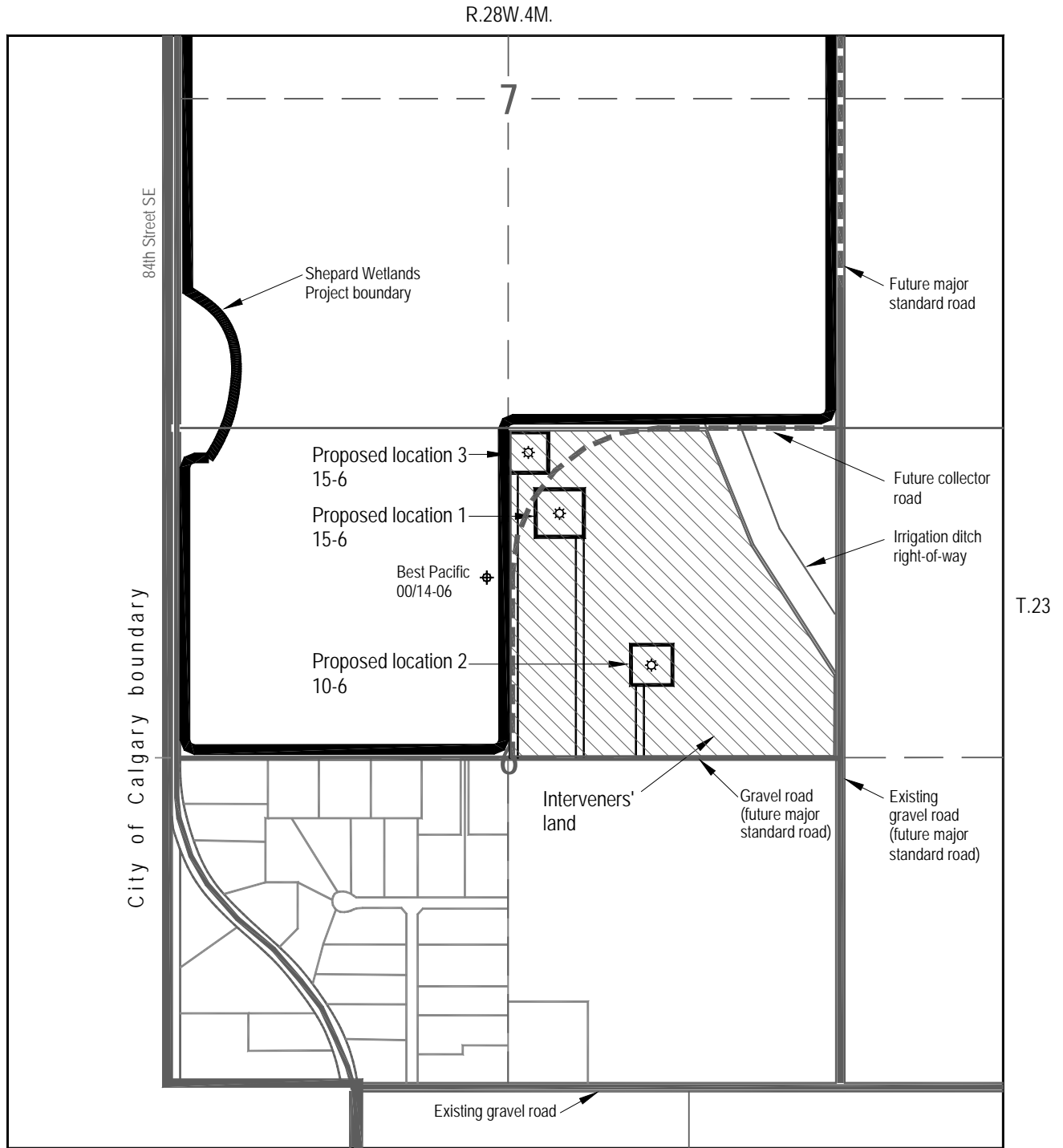
Alberta Energy and Utilities Board staff
T. Bews, Board Counsel
J. Smith
P. Didow
K. Mather
T. Molik

APPENDIX 2 SUMMARY OF CONDITIONS

The conditions imposed in the licence are summarized below. Conditions generally are requirements in addition to or otherwise expanding upon existing regulations and guidelines. An applicant must comply with the conditions or it is in breach of its approval and subject to enforcement action by the EUB. Enforcement of an approval includes enforcement of the conditions attached to that licence. Sanctions imposed for breach of such conditions may include the suspension of the approval, resulting in the shut-in of a facility.

CONDITIONS

- The approval of Application 1346815 is subject to the necessary documentation being provided to amend the application to surface location 3.
- The proposed well site must be permanently bermed before the drilling and during the production life of the well.



- Legend
- ⊕ Abandoned well
 - ⊛ Proposed well

Area map