Appendix No. 2 Synopsis of Proposed Changes in the Amendment

This amendment to the Brintnell Neighbourhood Structure Plan (Bylaw 12492) proposes the following changes to the Plan:

1. The 0.7-hectare area marked X on air photo no. 1 (Appendix 1), a seepage spring and wetland lying in a trough approximately 3 metres lower than the surrounding area, be recognized as an environmentally sensitive area (herein referred to as the saline wetland) and preserved as a landscape feature of interest, with hydrologic, aesthetic, educational, and interpretive benefits to the community.
2. A buffer against surrounding development be provided surrounding the wetland consisting of a strip of land at "top of the bank" of not less than 7 metres width (for an approximate area of 0.4 ha), and including the wooded area at the east end of the trough (area 0.5 ha). (The total area proposed for preservation is 1.6 ha.)
3. The area of medium density housing shown in the unamended Brintnell Neighbourhood Structure Plan (Figure 4: Development Concept) be relocated to an area of equivalent size to the south (see Figure: Neighbourhood Structure Plan – Amended) and zoned DC2 to allow for design of housing to permit maximum recharge area for the wetland.
4. The north-south collector road shown in the NSP (Brintnell NSP, Figure 4) directly east of the wetland X be realigned as shown in Figure: Neighbourhood Structure Plan – Amended to enhance protection and the aesthetic qualities of the wetland.
5. Drainage design and work to ensure re-watering of the surrounding area be undertaken to maintain the flow of the springs. Rewatering will also maintain the quantity and quality of flow to the protected natural area NE 8096, known as Vriend Lake (V on air photo no. 1, Appendix 1).
6. Wetland development and management will consist of the following: a fence will be erected to minimize direct or routine access to the site. A short boardwalk (with fenced sides) will lead to a viewing node or platform and be connected to the multi-use trail along the Transalta right-of-way. The wetland will thus act as a focus or destination point for the multi-use trails. Routine maintenance of the site would be provided by Community Services, Parkland Services but community groups could assist with stewardship, e.g., funding for interpretive signage, naturalization planting of the right-of-way to enhance the natural history interpretive experience and reduce invasion by weeds, etc.

2. Rationale for the Amendment

- Although small in area, the springs and saline wetland and the trough in which they lie represent an environmentally sensitive area that is also a topographic and geomorphological feature of unusual occurrence in the Edmonton area. They support an equally unusual, possibly unique, vegetation community of halophytic (salt-tolerant) plants. (See Appendices 3(A) and 3(i), 3(ii), 3(iii) and 3(iv) for a detailed description of this feature.) Hence this feature has significant heritage and educational value for the general public and school and scientific communities. University of Alberta natural scientists have attested to the significance of these features (see Appendix 5). As well, Mr. Alex McNaught, formerly with the Neighbourhood Social and Recreation Services Branch of Community Services, had discussions in 2001 with school personnel who indicated interest in the educational

opportunities presented by the feature (see Appendix 5A, e-mail dated September 24, 2001 from Mr. McNaught to Mr. Bob Priebe).

- Preservation of groundwater sources to the saline wetland would also ensure maintenance of the quantity and quality of water in natural area NE 8096, Vriend Lake. This is as required by Alberta Environment under the provincial Water Act (see Appendices 5 and 5A, letter dated July 17, 2000 from Alberta Environmental Protection to City of Edmonton Planning Department).
- Allthough the Alberta Government declined to claim ownership of the springs and saline wetland, their policy on wetlands management for the province does in fact support municipal action to preserve the wetland. This policy (set forth in *Wetland Management in the Settled Areas of Alberta: An Interim Policy.* Alberta Water Resources Commission, 1993) explicitly encourages retention of and management for conservation of wetlands *by private landowners and municipalities*. The policy states (page 1) that the goal of the government of Alberta is "to sustain the social, economic and environmental benefits that functioning wetlands provide, now and in the future." The springs and saline wetland, X, qualify under the provincial definition of "slough/marsh wetlands" as "shallow, depressional areas that are permanently or periodically covered by standing or slowly moving water…" The policy goes on to state that the intent of the policy with respect to slough/marsh wetlands …is..
  "a) to conserve slough/marsh wetlands in a natural state
  b) to mitigate degradation or loss of slough/marsh wetlands benefits as near to the site of disturbance as possible
  c) to enhance, restore or create slough/marsh wetlands in areas where wetlands have been depleted or degraded."
  The policy puts the onus on the municipality (or private landowner) to initiate such conservation measures. On page 6 it states: "Municipal governments and regional planning commissions will be encouraged to use statutory plans and development controls to implement the wetlands policy and regional management objectives." On page 7 the policy further notes: "Wetland margins are a valuable part of wetlands and should be conserved…. Considerations of the possible effects on wetlands will be encouraged when decisions on surrounding land use are made." In this amendment, use of municipal reserve is proposed as the mechanism for setting aside the saline wetland and top-of-bank buffer.
- Preservation of the saline wetland in Brintnell neighbourhood and of groundwater recharge to Vriend Lake would also be in keeping with the City's policy C-467, which calls for the City to be proactive in conserving natural sites within the boundaries of Edmonton. (The volume of water in Vriend Lake is such that it is likely maintained mainly by groundwater, not by surficial runoff.)
- Because there is uncertainty as to whether the springs can be adequately de-watered, and because of the non-cohesive, slumping nature of the substrate in area X (see Appendix 3C and 3D for further details), there is a significant risk attached to building thereon.

Preserving the wetland and taking appropriate steps to ensure water flow to the springs will preserve a priceless natural asset for the wider community, as well as maintain an attractive landscape feature for the benefit of local residents and the landowners. It will obviate liability and legal problems for the City due to unsafe and damaged housing in the future. Maintenance

of groundwater recharge will contribute to the viability of natural area NE 8096, Vriend Lake, which is proposed for preservation.

- Lack of Environmental Assessment prior to passing of the Brintnell NSP. It is suggested that at the time of the presentation of the Brintnell NSP to City Council in February 2001 the geological/ecological significance of the springs and wetland was inadequately understood and appreciated by authorities of both the City of Edmonton and the provincial government. This was due to several reasons

- the initial natural site assessment in 1996 was inadequate and done without "ground truthing" with the result that the wetland was missed (see Appendix 4). (An NSA carried out by Spencer Environmental in 1998 was confined to the area designated as Little Mountain Natural Area, NE 8093, and did not include the wetland. It should be noted that the saline wetland (like NE 8093) was not included in the original inventory because it did not meet the tablelands criteria for the inventory (being interior to the tablelands); however, it should have been properly assessed prior to the development of the Brintnell NSP, which would have allowed the administration to present a stronger case for preservation
- confusion in correspondence between municipal and provincial governments during the summer of 2000 over the location and nature of the springs and wetland, which precluded adequate evaluation. The evidence supporting this contention is described in detail in Appendices 5 and 5A.

Hence this amendment provides an opportunity to correct past errors and omissions and formulate a better Plan that will have greater overall benefit to Edmontonians.

3. Background to the (unamended) Brintnell NSP

The Brintnell Neighbourhood in northeast Edmonton is bounded by 153 Avenue to the south, the future alignment of 167 Avenue to the north, the future alignment of 50 Street to the west, and Manning Freeway to the east. It is part of the Pilot Sound Area Structure Plan which was originally approved in 1981 (Bylaw 6288) but never adopted as such, and which was amended on March 6, 2001 (as Bylaw 12493). Pilot Sound ASP includes the Brintnell Neighbourhood Structure Plan (Bylaw 12492), also approved on March 6, 2001.

As a result of recommendations made by citizens Patsy Cotterill and Charles Richmond to Greg Barker of the Planning & Development Department in late 1999 and early 2000 for preservation of the wetland City administration requested evaluation of the wetland/creek as a provincially claimed wetland by the province (Departments of Public Lands and Alberta Environment), with a negative response. Staff of Community Services later offered to use 1.5 hectares of municipal reserve to protect the "soap hole" but the developer was not interested. (Information from Mr. Bob Caldwell of the Planning Department in a letter to Ms. Cotterill dated March 6, 2001, see Appendix 5A). Efforts to preserve the wetland then ceased and the Planning Dept supported the Brintnell NSP as proposed by the developer.

Two public hearing meetings were held at City Hall, on February 6 and February 15, 2001, at which the Brintnell NSP was presented to City Council. Public objection to the NSP centred on the fact that the Plan proposed to drain, in-fill and build residential housing on area X, the springs and saline wetland. University of Alberta hydrogeologists, speaking on behalf of the environmental/conservation community, warned of the danger of building on spring-fed terrain that produces soapholes, and attested to the high interpretive and educational value this geomorphological feature holds both for citizens at large and the scientific community (see

Appendix 6). After counter arguments by the hydrogeological firm under contract to the landowners/developers, and considerable debate, City Council voted at the second public hearing to approve the NSP as presented.
The latest attempt to preserve the saline wetland is as set out in this amendment (November 2002).

Appendix No. 3. Brintnell Neighbourhood – Saline Wetland and Hydrogeology

A. Characterization of the Springs and Saline Wetland

The seepage springs and the depression in which they lie (referred to here as the saline wetland), both represented by X on air photo 1 (Appendix 1), occupy 0.7 hectares in the north-central portion of the Brintnell neighbourhood, immediately north of where the TransAlta ROW makes its northernmost right-angled bend. The wetland lies in a tear-drop-shaped depression or trough, the origin of which is not entirely clear. The trough is likely both an erosional and periglacial feature, according to geomorphologist John Shaw of the University of Alberta, who visited the site in 2000 at the request of Patsy Cotterill (pers. com.). The springs, discharging groundwater from a recharge area likely extending to the height of land a few kilometres to the west, have eroded and continue to erode away the land surface in a westward direction. However, the large trough may be the result of a meltwater channel formed at the end of the last glaciation circa 10,000 years ago. Air photos taken of the Brintnell area in 1924, 1950 and 1969 show little difference in size and shape of the wetland from its appearance at the present day (1998 photo) (see Appendix 7.) Two similar, but less well-developed, drainage features also exist in the Brintnell neighbourhood, of which the northernmost one (U) drains eastwards by a shallow (formerly wooded) ravine with an intermittent stream.

The wetland X contains small (1 metre-diameter) pools of open water (which constantly shift in location) during the summer months and ice mounds (formed from the spring water freezing in successive layers) and patches of slush in the winter. These pools indicate that the open water is permanent throughout all seasons, even during the driest periods. *It should be noted that in the Brintnell NSP reference is made only to an "intermittent drainage channel." This is a reference presumably to the creek appearing as W on air photo no. 1, as the wetland X is not intermittent.* The easternmost part of the trough is drier than the westernmost where most of the open pools occur; the creek is fed by water emerging to the east of the end of the trough.

B. The Halophytic Vegetation of the Springs

Evidence of the high sulphate content of the water (no values are available as no testing has been done) comes from the vegetation community present in this wetland, which has 19 species of vascular plant that are known for their tolerance to salt (see complete species list, Appendix 3(i)). In general, the vegetation forms patches or bands of a given species, with the most salt-tolerant (halophytic) being found towards the perimeter of the springs where evaporation (and soil salt concentration) is highest. (However, salt deposition can be clearly seen on the lower stems of vegetation surrounding the open pools.) Surrounding the pools are dense circles of aquatic emergents such as great bulrush; radiating out from them are patches of halophytes such as three-square rush, prairie bulrush and Nuttall's salt-meadow grass. Salt grass forms extensive swards towards the outer edges. This is a grass that is virtually unknown from the Edmonton area, being much more common in the east-central and south-central parts of Alberta, along the shores of saline lakes. This particular community may well be unique; saline communities vary in having different compositions and quantities of these same halophytic species. Wetland X, for example, has a very large patch of graceful sedge (*Carex praegracilis*), the extent of which I have not seen elsewhere, despite my 20 years' experience of the Alberta flora. The steep slopes of the wetland

provide habitat for a number of typical grassland species, with those occurring on the strongly eroded south-facing slope differing from those of the gentler, more shrubby north-facing slope. Aspen and balsam poplar woodland occur at top-of-bank on the north-east and south-east perimeters of the wetland, respectively.

C. Hydrogeology of the Brintnell Neighbourhood

Mr. Charles Richmond, in consultation with geological consultant Mr. Richard Stein, provided the following technical information in an e-mail dated August 3, 2000 (a reiteration of an e-mail first sent on July 1, 2000; see Appendix 5A) to Mr. Priebe of Community Services. Their characterization is based on site visits, their professional experience and reference to *McPherson & Kathol, Stratigraphic Sections and Drill Hole Logs, Edmonton Area, Alberta. ARC Report 72-6*. Mr. Richmond notes that his conclusions are tentative because [in February 2001] no drilling beyond the first encounter with bedrock shales nor chemical analysis of the water had been done.

"The wetlands along the E-W transect spanning 160-167 Ave, between 50 St and Manning Fwy are primarily due to groundwater [runoff] rather than surficial runoff. From the airphotos, and from ground confirmation, the wetlands tend to form three parallel bands running approximately N-S. These wetlands are apparently artesian, based on casual inspection of a nearby piezometer water level (+1" above ground surface, after three non-precip months) and the confirmed existence of at least two "soap hole" springs (shaky ground surrounding a centre core of mud with groundwater discharge). As well, the water levels are fairly constant throughout the seasons.

"These groundwater discharge areas most probably occur along lines of bedrock subcrops (where the bedrock shales (or possibly coal seams) intersect the surface, but buried by about 10 ft of till). The evidence for this is:

- the bands of wetlands are coordinate with expected (from that known in locations further north) stratigraphy. Although glacial till is usually more permeable than shales, in the case of LM [Little Mountain], its height subjected this feature to considerable shear forces during glaciation, by some 1.5 km of ice covering the area. Both shales and coal seams would likely be fractured, with higher permeability (pending actual drilling, the precise bedrock stratigraphy is speculative; the groundwater flow could follow the many interspersed coal seams, with impermeable shales beneath, for example)
- the general topology of the area suggests a recharge area to the west of 50 St., which is 25-50 ft higher than the first (westernmost) line of springs, and over 100 ft higher than the eastern[most] wetlands
- the existence of "soap holes," as well as the large slump features under low gradient conditions (football-field-sized rectilinear hole about 10 ft deep with only 1-2 foot slope to outlet [the saline wetland in trough X], suggests high sulphate content water, characteristic of groundwater. Clay under these conditions becomes "quick," or less cohesive

- although streams and creeks appear to connect with some of the springs, actual surface water runoff probably contributes a minor fraction (and this seasonally) of the wetlands water budget ….
- the primary recharge area is the two quarters to the W of Manning Freeway (i.e., to the top of LM, W of the cemetery). If this area were completely urbanized, the supply to the wetlands could be reduced to as little as 20% of current levels (i.e., 80% would flow through the storm sewer system to the N. Sask. River, unless mitigation is engineered into the development (through a stormwater rewatering system)
- the larger springs [X] are unbuildable sites; it's impractical to engineer a dewatering solution to such a large, geologically determined, phenomenon. These sites are indicated in Kathol & McPherson's *Urban Geology of Edmonton, ARC Bulletin 32*, Map # 36, "General Construction Conditions in the Edmonton Area:

  "Glaciolacustrine silt and clay (areas with high groundwater table). Generally high groundwater table; poor drainage; low to medium strength; moderate to high compressibility; susceptibility to frost action; swelling and erosion; poor to moderate compaction characteristics; potentially high sulphate content. "

D. Unsuitability of the Wetland for Building On

There may also be another problem associated with building on saline soils. In *Edmonton beneath our feet: A guide to the geology of the Edmonton region* (1993, Edmonton Geological Society, page 44) the following description of soil conditions in northeast Edmonton is given:

"Solonetz soils can also be seen east of the Namao airport and elsewhere in patches within the basin of Glacial Lake Edmonton, where they develop from glaciolacustrine sediments. However, the sodium responsible for the development of these soils is derived from alkali salts brought to the surface by rising groundwater and concentrated through evaporation. As a result of the poor physical condition of the subsurface soil and the presence of alkali salts these lands are difficult to till and are typically left as pasture. The alkali salts can also be a problem for construction if these lands are used for urban development. *The alkali salts corrode concrete and cause failure in the foundations*" (italics mine).

Plants reported for the Springfed Saline Wetland at the Brintnell Site

submitted by Dr. Graham C. D. Griffiths to the public hearing on February 15, 2001

The plants listed represent a halophytic (salt-loving) flora very unusual in the Edmonton district, and of scientific and educational value.

Grasses		
Deschampsia cespitosa	wavy hair grass	
Distichlis stricta	salt grass	rare in the Edmonton district (found mainly in Southern and Eastern Alberta)
Hordeum jubatum	foxtail barley	
Muhlenbergia richardsonis	Richardson's muhly grass	rare in the Edmonton district (found mainly in Southern Alberta and the Peace River district)
Puccinellia nuttalliana	Nuttall's alkali grass	
Puccinellia sp. (unclarified, possibly undescribed)	alkali grass	of special scientific interest (unknown from other sites)
Other Graminoids		
Carex praegracilis	graceful sedge	
Eleocharis palustris	creeping spikerush	
Scirpus acutus	hard-stemmed bulrush	
Scirpus paludosus	prairie bulrush	
Scirpus pungens	three-square rush	
Triglochin maritima	seaside arrowgrass	
Herbs		
Aster brachyactis	rayless aster	
Aster hesperius	western willow aster	
Chenopodium salinum	oak-leaved goosefoot	
Cicuta maculata	spotted water hemlock	
Grindelia squarrosa	gumweed	
Helianthus nuttallii	common tall sunflower	
Plantago eriopoda	saline plantain	rare in the Edmonton district (mainly in Southern Alberta)
Ranunculus cymbalaria	seaside crowfoot	
Rumex occidentalis	western dock	
Sonchus uliginosus	smooth perennial sowthistle	
Suaeda calceoliformis	western sea-blite	rare in the Edmonton district (mainly in Southern Alberta and the Peace River Country)

Appendix No. 3(i). Species List of Halophytic Plant Community in Wetland X.

Appendix # 3 (ii)

Brintnell Neighbourhood: Springs and Saline Wetland in north-central part, south of 167 Avenue and west of Manning Freeway. (January 2001)
Photo credits: G. McLaren, P. Cotterill


View towards east, looking towards "creek".


View to north across wetland.


View to northwest showing aquatic and halophytic vegetation and ice/sheets of open water where springs flow.


View to west across wetland.


Slushy pool where springs flow, with iron seepage.


Ice mound at spring site, partly covered by snow.

Appendix # 3 (iii)

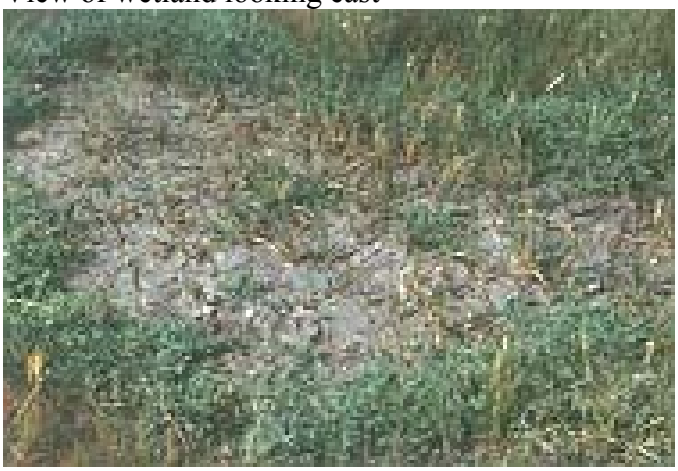
Brintnell Neighbourhood: Springs and Saline Wetland in north-central part, south of 167 Avenue and west of Manning Freeway. (August 2002)
Photo credits: P. Cotterill


View of the saline wetland) looking west-north-west


View of the saline wetland looking northwest


View of wetland looking east


An open pool in the wetland.


Sea-blite (*Suaeda calceoliformis*) growing on salt pan at edge of wetland.

Appendix # 3 (iv)

Brintnell Neighbourhood: The "Creek" in north central portion, south of 167 Avenue and west of Manning Freeway, and **Vriend Lake**, east of Manning Freeway. (Summer, 2000)
Photo credits: City of Edmonton


View of the creek channel.


View of Vriend Lake, NE 8096, into which the creek drains via a culvert under Manning Freeway.


View of creek showing TransAlta right-of-way.


Detail of creek drainage. The creek lies due east of the saline wetland.

Appendix 4. History of Natural Site Assessments in the Brintnell Neighbourhood

In the original Pilot Area Structure Plan approved in 1981, under which the Brintnell NSP is subsumed, no provision was made for the retention of areas of natural vegetation or natural topographic features. By the time the Brintnell NSP was being prepared in early 1996, however, the City had passed the Conservation of Natural Sites in Edmonton's Table Lands (Policy C-467) which requires that natural site assessments (NSAs) be carried out on all lands proposed for subdivision and development that include environmentally sensitive natural areas, significant natural areas or natural areas as identified in the City's *Inventory of Environmentally Sensitive and Significant Natural Areas: City of Edmonton: Technical Report* (Geowest Environmental Consultants Ltd., 1993).

As the Brintnell Neighbourhood contained Significant Natural Area NE 8093 (popularly known as Little Mountain natural area) and other areas of natural vegetation, an NSA was prepared for Cochrane Engineering on behalf of the developers by BOVAR Environmental (see report available in City of Edmonton Planning Department files). The scope of this NSA included a description of "the natural areas and surrounding area."

Members of the Edmonton Natural History Club and provincial government biologists criticized this NSA (a 10-page document), as being inadequate and incomplete, based on their specific knowledge of NE 8093 and their general knowledge of the natural history and ecology of the Edmonton area. It was clear that it had been prepared using air photos and a small number of references and lacked "ground truthing" by site visits. For example, it referred only to aspen forests, not to the extensive balsam poplar forest that existed on the south side of NE 8093. The *Inventory* (Geowest, 1993) was quoted extensively, sometimes perpetuating errors, e.g., "The isolated nature of this site probably prohibits the use of the site for ungulate habitat." In fact NE 8093 and adjacent cultivated fields were prime habitat for white-tailed deer, of which there was ample visual evidence. The assessment report made no reference to the diverse nature of the prairie grassland remnant within NE 8093, nor did it appreciate the solonetzic (saline, compacted) soils present in the Brintnell neighbourhood, which most likely allowed the grassland to persist in the middle of rich deciduous woods and were detectable as patches of sparsely vegetated ground in the surrounding fields. Of most relevance to this amendment, the consultant did not describe (presumably because he did not see) the springs and wetland at X, which he characterized merely as "herbaceous grass." Indeed no reference was made to any of the drainage channels present in the Brintnell neighbourhood. It is probably significant that the NSA was published in April 1996, suggesting that the assessment was likely commissioned in the winter months of 1995-1996, thereby precluding an adequate field survey of the vegetation. (In a letter to P. Cotterill dated March 6, 2001 Mr. Caldwell stated that the reason the saline springs were "missed in part" was that the City's inventory of natural areas does not include "unique geological features." In fact, with a competent NSA, the springs would have been recognized as significant on considerations of vegetation alone.)

In early 1998, when a campaign led by the local environmental/conservation community was under way to preserve the majority of site NE 8093, the environmental consulting firm Spencer Environmental was commissioned to prepare an NSA of NE 8093. This was completed in May 1998 and went to two stages of assessment, preliminary and detailed. However, it should be noted that this assessment was entirely confined to NE 8093 under its terms of reference, and hence no attempt was made to assess the wetland and drainage channel at X and W (air photo no. 1, Appendix 1), nor the central springs and ravine draining NE 8093 (Z, U) or the wetland to the southeast (Y), or the north-central woodland abutting 167 Avenue (T). In November 1999 negotiations between the City of Edmonton and the landowners to acquire and preserve NE 8093 broke down and in December 1999 the site was logged and cleared.

Appendix 5. History of Efforts to Preserve the Springs and Wetland
(See Appendix 5A for copies of relevant correspondence)

The chronology of attempts to preserve the springs and saline wetland is as follows.

- 28 September, 1999. Patsy Cotterill wrote Wayne Holland, the Land Resource Manager of Alberta Agriculture, Food & Rural Development, enclosing a map and asking him to carry out an assessment of the springs and saline wetland (X). Although not explicitly stated in the letter, the intent was to determine whether the Province would declare ownership of the bed and shore of the wetland and thus enable it to be preserved as environmental reserve.
  Mr. Holland subsequently indicated by phone that he was doubtful whether the Province would claim ownership. In fact the Province did decline to declare ownership (see letter of June 8 by Ms. Tracy Knight of Alberta Environment.)
- Mid-January, 2000. Mr. Richmond and Ms. Cotterill met with Mr. Greg Barker , Principal Planner for northeast Edmonton, to discuss possible options for preservation of the springs and the wetland.
- 17 January, 2000. Ms. Cotterill wrote to Mr. Barker giving a detailed description of the wetland and its salt-tolerant vegetation community, and referring to the possible significance of this drainage for natural areas outside the NSP, particularly NE 8096 (Vriend Lake). The letter requested an EIA of all remaining natural vegetation within the Brintnell NSP and suggested that wetland be taken as reserve.
- 27 January, 2000. Phil Arendt of the City's Planning Department wrote Mr. Larry Kuchmak of Surface Water Compliance & Approvals, Natural Resources Service, Alberta Environmental Protection, requesting the spring X, the water course W, and the wetland V (Appendix 1, air photo no. 1) be evaluated to "confirm the function and importance of these features," with the possible object of protecting them as ER under the MGA. (Mr. Arendt also referred to the spring Y and the water course U, which he erroneously stated as flowing "towards the former Little Mountain natural area Z"; in fact both water courses flow downhill to the east.)
- 15 May, 2000. Ms. Cotterill sent an e-mail to Mr. Barker indicating that the springs were permanent and naturally occurring and querying the significance of this with respect to the Public Lands Act, the MGA, and the Water Act.
- 1 June, 2000. Tracy Knight of Alberta Environment (formerly Alberta Environmental Protection) wrote to Mr. Barker (in response to his or his department's telephone enquiries) referring predominantly to the wetland NE 8096 east of Manning Freeway (i.e., outside the Brintnell NSP), which was under assessment as a Crown-owned water body. The letter "recommends retaining this wetland [NE 8096] in its natural state and also that "*Mitigation is also required for the other minor wetlands in this area*" [italics mine]. It points out the need for review approval under the Water Act for disturbance to any water body as well as a possible requirement for approval under the Environmental Protection and Enhancement Act. The letter contains no named reference to the springs and saline wetland X or the creek W.
- 8 June, 2000. Jeanne de Valois, Planning & Recreation Specialist with Public Lands Division of Alberta Agriculture, Food & Rural Development, confirms in a letter to Mr.

Barker that the Brintnell NSP does not contain a Crown-owned bed and shore under the meaning of Sec. 3 of the Public Lands Act.

- 13 June, 2000. Mr. Barker wrote Ms. Knight asking for more specific information and clarification of her letter of June 1. *In his letter Mr. Barker referred only to assessment of the "natural drainage course… W" as a permanent water body, not the saline wetland X.*
- 1 July, 2000. Mr. Richmond sent a memo to Mr. Priebe of Community Services, characterizing the hydrogeology of the springs and drainage courses in the Brintnell neighbourhood. (This is quoted extensively in Appendix 3C but is not included in Appendix 5A as one page of the original has been lost.)
- 17 July, 2000. Ms. Tracy Knight of Alberta Environment wrote Mr. Barker stating that "the natural drainage course identified as "W" …is…not a permanent water body (and therefore not Crown land) according to Public Lands." *Again there was no reference to the springs and wetland X.* The letter further stated that "the **water** draining into Vriend Lake is essential to the viability of this wetland, whether the water is from urban runoff or from a drainage course" although "the drainage course itself may not be essential." (*Note that there is no recognition in this letter that the water of Vriend Lake may come from groundwater sources, nor is concern expressed for the quality of water entering this natural wetland.*)
- July ? 2000. A site visit was made to the area in question by City staff. Photographs were taken on that day (see Appendix 3(iv)). As they depict only the creek W and not the springs and wetland X it is not clear whether the saline wetland was properly assessed. Apparently, no expert (hydrogeologist, geomorphologist, ecologist) accompanied City staff to interpret the feature.
- 3 August, 2000. Mr. Richmond sent Mr. Priebe an e-mail containing a characterization of the hydrology of the Brintnell area and its significance as he understood it. (This information was a reiteration of an e-mail originally sent to Mr. Priebe on 1 July 2000.)
- The Planning Department subsequently decided to discontinue its efforts to pursue preservation of the wetland X.
- 19 January, 2001. A public hearing for the Brintnell NSP is advertised in the *Edmonton Journal*. At this time the environmental community became aware of the Planning Department's decision not to proceed with attempts to preserve the saline wetland. (The notice of a public meeting in connection with the Brintnell NSP was not seen by the conservation community.)
- 23 January, 2001. Mr. Barker informed Ms. Cotterill in reply to her e-mail of January 19 that efforts to preserve "the saline wetland and natural drainage course" [the creek] would not be pursued, giving reasons. Reason no. 1 was that Alberta Environment determined that the saline wetland and natural drainage course was not a permanent water body. (*However, the correspondence above indicates that Alberta Environment did not evaluate the wetland as a water body, only the natural drainage course (creek).*) Reason no. 2 was that Alberta Agriculture (Public Lands) would not declare Crown interest "in the drainage course". Reason no. 3 had to do with the alignment in the NSP of the collector road which "would have to cross through the drainage course" (i.e., the creek, not the wetland). Reason no. 4 was that the wetland and drainage course were not identified as natural areas in the City's Inventory (Geowest, 1993).

- 6 February, 2001. At the first public hearing, hydrogeologists Richard Stein, and Dr. Ben Rostron, Assistant Professor in the Department of Earth and Atmospheric Sciences at the University of Alberta, argued that the springs and the wetland constituted unstable ground that was unsuitable for building on (Appendix No. 6). They were of the opinion that in the absence of appropriate hydrogeological studies the location and extent of the recharge area could not be known, and hence the argument that local residential development would significantly reduce the flow of the springs could not be made with certainty.
- 15 February, 2001. At this second public hearing the hydrogeological firm (Omni-McCann) under contract to the landowners/developers conceded that the springs existed but argued that their study indicated the groundwater source was proximal (i.e., tens of metres rather than hundreds or thousands of metres) and, moreover, that drainage would constrain any remaining seepage. The geological/hydogeological community at large did not have access to this study and had no further opportunity for rebuttal.
  It should be noted that the Drainage Branch of Asset Management and Public Works (City of Edmonton) did not comment on the wetland (soaphole) in its review of the Brintnell NSP prior to presentation at the public hearings (letter to P. Cotterill from B. Caldwell, March 6, 2001). It is possible that Drainage Branch was not aware of the springs and wetland.
  - 19 February, 2001. Ms. Cotterill wrote Mark Garrett, Director, Community Planning, requesting information and clarification on a number of points to do with the failure to preserve the springs and wetland. Ms. Cotterill asked among other things why the wetland and creek did not qualify as ER under the MGA, sect. 664.
  - 6 March, 2001. Bob Caldwell, Manager in the Planning Department, replied in point form to Ms. Cotterill's letter to Mr. Garrett of 19 (20) February. To the question re entitlement to take ER, Mr. Caldwell quoted sect. 664(1) of the MGA and then stated, without further explanation, that "This legislation does not allow City Council to "take" the saline springs and drainage course through the Neighbourhood Structure Plan."
- 27 July, 2001. Ms. Cotterill e-mailed Mr. Barker asking whether it would be possible to re-open attempts to preserve the springs and wetland. The stimulus for this request was correspondence with Alex McNaught, C.S. Recreation Coordinator, who felt the site had value for education and as a "unique community feature," as well as Ms. Cotterill's declared intention to contest the landowner's application for a water licence to divert the springs.
- 31 July, 2001. Mr. Barker responded by e-mail that an option for further pursuit of preservation of the springs was to negotiate with the landowner directly and seek "non-City funding for conservation in advance of an application for subdivision and development."
- 24 September, 2001. Mr. McNaught wrote Mr. Priebe of Community Services, describing a scenario that might allow for preservation of the wetland (as municipal reserve), and requesting that the Planning and Development Department talk to developers/landowners re the saline wetlands as a "promotional/selling point."

APPENDIX 5a

Brintnell appendix 5a2.doc

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Appendix No. 8 - References.doc