

Klarvatten Neighbourhood Structure Plan

Office Consolidation June 2010

Prepared by:

*Planning and Policy Services Branch
Planning and Development Department
City of Edmonton*

Bylaw 6368 (as amended) was adopted by Council on February 23, 1982. In June 2010, this document was consolidated by virtue of the incorporation of the following bylaws, which were amendments to the original Bylaw 6368. This Plan is an amendment to the Edmonton North Area Structure Plan, Bylaw 5739, as approved by Council in August 1979.

Bylaw 6368	Approved February 23, 1982 (to incorporate Klarvatten NSP into Edmonton North ASP)
Bylaw 7531	Approved June 19, 1984 (to update maps, tables, and land use)
Bylaw 10782	Approved July 18, 1994 (to move stormwater facility; incorporate re-zoning; modify road way patterns)
Bylaw 11495	Approved June 16, 1997 (incorporate RDA, and former Town Centre lands into NSP)
Bylaw 12125	Approved August 24, 1999 (to emphasize retention of wetlands; rezone former Town Centre lands)
Bylaw 14149	Approved December 5, 2005 (to adjust the east NSP boundary and reconfigure associated land uses; add two park sites to the northern portion of the plan area)
Bylaw 14493	Approved February 26, 2007 (to realign the collector road; reconfigure the areas designated for parks; and reconfigured the area designated for a stormwater management facility)
Bylaw 15426	Approved April 26, 2010 (to update the NSP map and statistics, as part of the amendment to redesignate a subject site in the northeastern portion of the neighbourhood from MDR to LDR)

Editor's Note:

This is an office consolidation edition for the Klarvatten NSP, as approved by City Council on February 23, 1982. This Plan is an amendment to the Edmonton North Area Structure Plan, Bylaw 5739 as approved by City Council on August 15, 1979. This edition contains all amendments and additions to Bylaw 6368. For the sake of clarity, new maps and a standardized format were utilized in this Plan. All names of City departments have been standardized to reflect their present titles. Private owner's names have been removed in accordance with the Freedom of Information and Protection of Privacy Act. Furthermore, all reasonable attempts were made to accurately reflect the original Bylaws. All text changes are noted in the right margin and are italicized where applicable.

This office consolidation is intended for convenience only. In case of uncertainty, the reader is advised to consult the original Bylaws, available at the office of the City Clerk.

City of Edmonton
Planning and Development Department

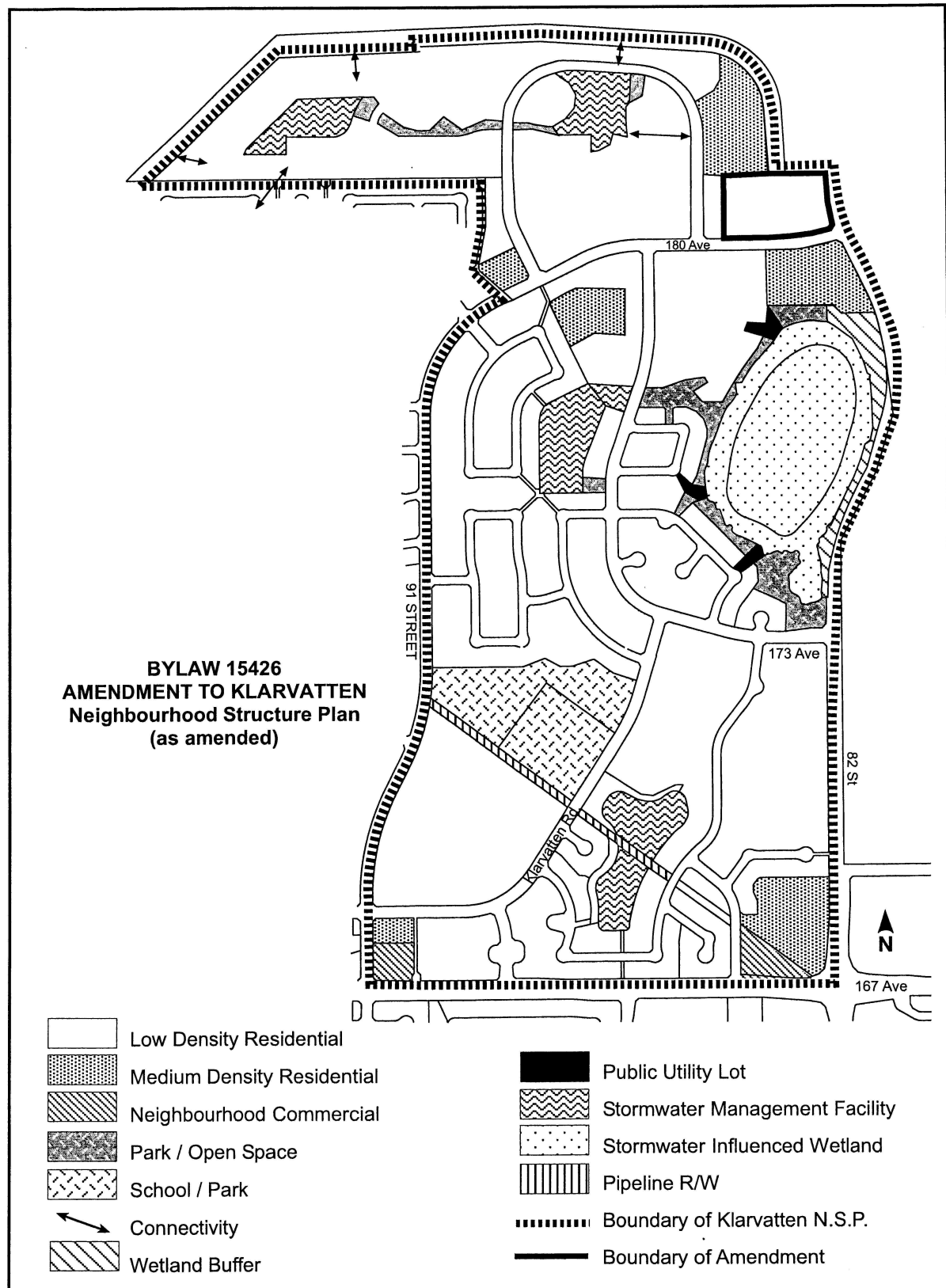
LAKE DISTRICT

Neighbourhood 2 Structure Plan

KLARVATTEN

Schedule A: Klarvatten Neighbourhood Structure Plan

(Approved by Bylaw 15426, April 26, 2010)



CHAPTER 1: Introduction

1.1 History and Conformance with the Lake District Area Structure Plan

*Bylaw 7531
June 19, 1984*

The Klarvatten Neighbourhood Structure Plan was supported by the Municipal Planning Commission on 1981 01 15 and was approved by City Council on 1982 02 23 as Bylaw No. 6368.

The Structure Plan as hereby amended is at variance with the Area Structure Plan by reason of the additional CNC site, exclusion of the road connector to the town centre loop road and the expanded boundary. These amendments however, are acceptable to the City Departments to which the plan was circulated and are reasonable given the constraints of the site and the design and planning of the southeast portion of the neighbourhood town centre interface.

1.2 Statement of Objectives

The object of the Neighbourhood 2 (Klarvatten) NSP is to provide a framework for an orderly and economic development, follow the objectives of the Edmonton North Area Structure Plan Bylaw and remain in conformance with all guidelines and requirements of Provincial and Municipal Regulations. It Shall:

Amended by Editor

- 1) Add to the inventory of serviced residential land.
- 2) Provide a range of residential land uses assuming an opportunity for housing to a socio-economic cross-section of people.
- 3) Provide a self-sufficient neighbourhood, in that all the immediate needs are accessible to the residents that dwell there (i.e. schools, transportation systems, convenience service outlets and recreation facilities).
- 4) Provide a range of residential density types distributed throughout the neighbourhood.
- 5) Provide a linked open space system for the recreational use of the residents utilizing the lakes of the Stormwater Management System.
- 6) Provide an urban development sensitive to the natural environment. The

Stormwater Management System follows as closely as possible the natural drainage system. All vegetation where possible should be preserved.

- 7) Provide a degree of flexibility to accommodate the demands of the hauling market and to encourage innovative and cost effective residential design.
- 8) Provide an energy efficient residential design.

Amended by Editor

1.3 Location

The area is bounded on the west by 91 Street; the east by 82 Street; the north by the *Transportation and Utility Corridor (TUC)*; and the south by 167 Avenue. The plan area is contiguous with Lake District Neighbourhood 1 (*Lago Lindo*), and the entire Neighbourhood 2 (*Klarvatten*) lies within the City Limits. (See Figure 1).

Amended by Editor

1.4 Present Zoning

The City of Edmonton's Zoning Bylaw indicates the land is currently zoned – AGU (Urban Reserve), AJ (Alternative Jurisdiction), AP (Public Parks) CNC (Neighbourhood Convenience Commercial), PU (Public Utilities), RF1 (Single Detached Residential), RF4 (Semi-Detached), RF5 (Row Housing), RF6 (Medium Density Multiple Family), RA7 (Low Rise Apartment), RPL (Planned Lot Residential), and RSL (Residential Small Lot).

*Amended by Editor to
reflect existing zoning
February 2006*

1.5 Existing Land Use

The existing land use for the study area was generally agricultural and under active crop production when the initial *Klarvatten NSP* was approved by City Council. A pipeline transverses the area within a 15.2 metre (50 foot) right-of-way and contains sweet natural gas. Similar pipelines are common within the City and is not considered to be a constraint to development.

Amended by Editor

1.6 Owners

The area was owned by a private corporation at the time the *Klarvatten NSP* was originally approved by City Council.

Amended by Editor

1.7 Site Characteristics

The Neighbourhood 2 study area lies within a portion of the West Central Drainage Basin upon which the overall Lake District Stormwater Management Concept is based. The southern portion of the study area is generally flat while the northern portion has a knoll central to the plan. To the east and west of the knoll are natural depressions to which the immediate area drains, while to the south there is another natural depression capturing the drainage of that immediate area. Generally the entire area drains from north to south. There are three significant stands of vegetation in which efforts should be made to retain as many trees as possible. (See Figure 2).

Figure 1: Context Plan (*Bylaw 12125, August 24, 1999*)

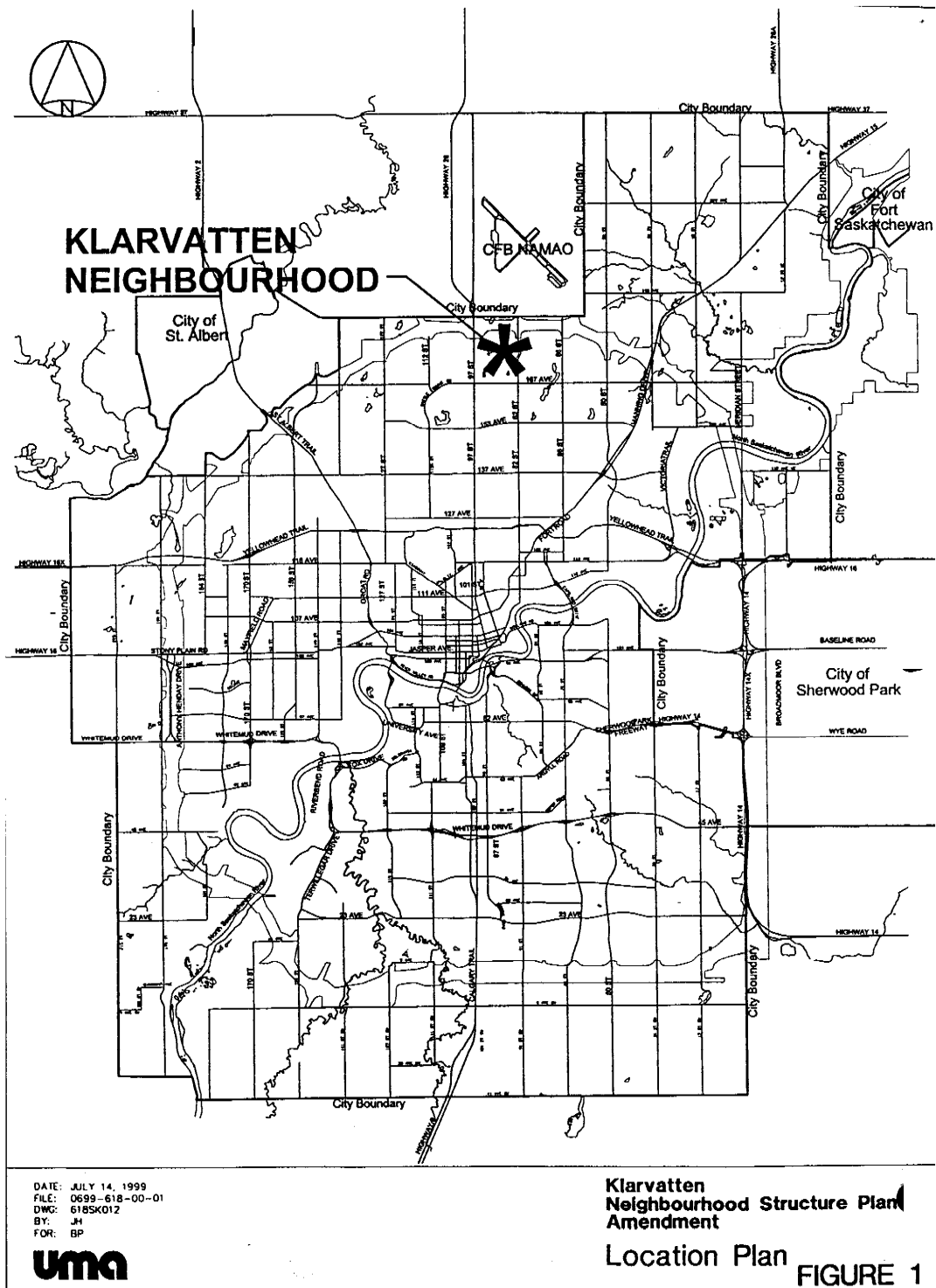
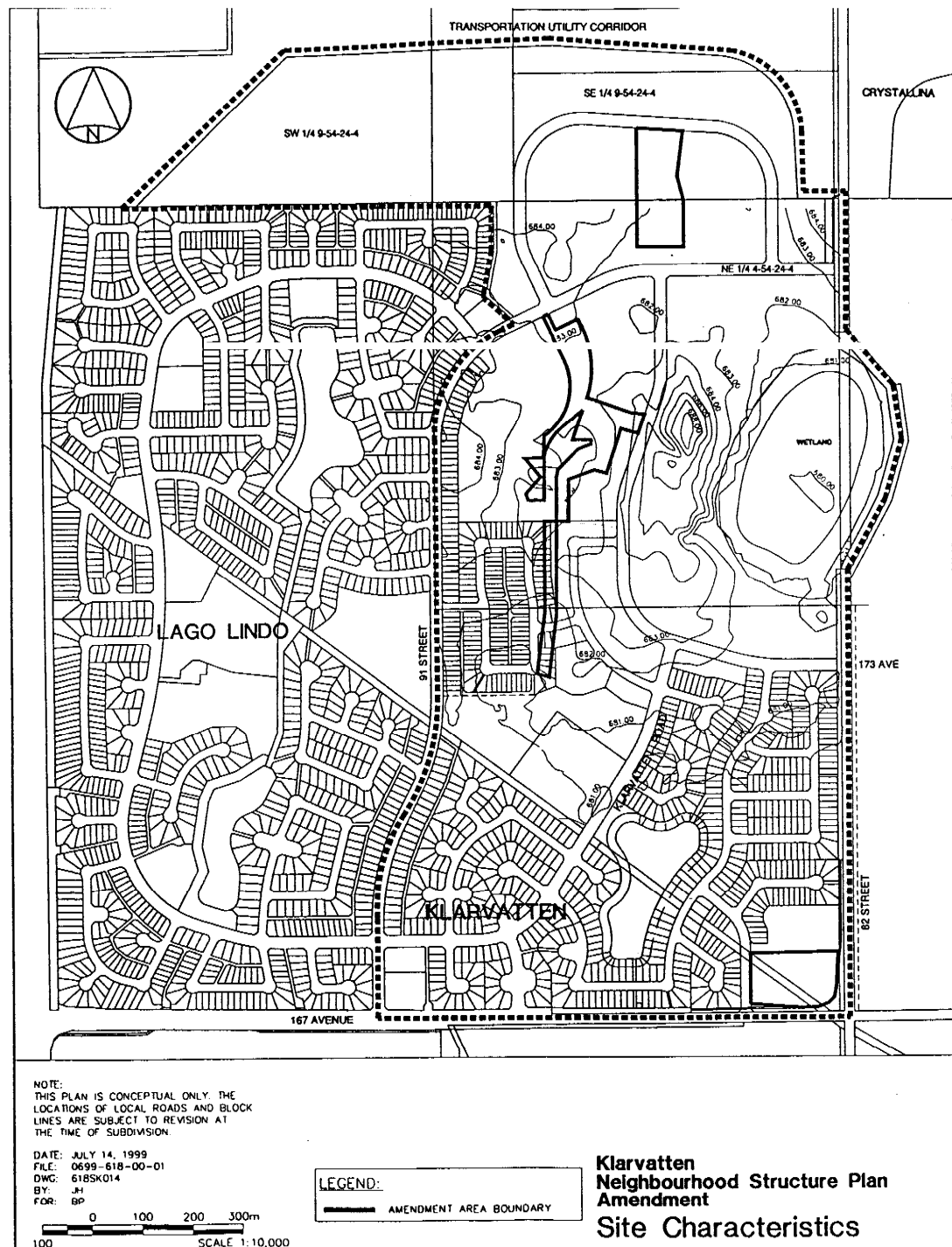


Figure 2: Site Characteristics (*Bylaw 7531 June 19, 1984*)



CHAPTER 2: Plan Summary

The land uses for Klarvatten is primarily residential with a density of 54.91 persons per gross hectare. The gross area of the neighbourhood is approximately 166.64 hectares, housing about 7,943 people.

*Bylaw 14493
February 26, 2007*

The neighborhood is adequately served by 91 Street on the west; 167 Avenue on the south; and 82 Street on the east, allowing Neighbourhood 2 (*Klarvatten*) to be served by major roads on three sides. An internal collector road fed by local streets completes the hierarchy. The transportation network offers efficient and continuous service for all residential land uses and is especially practical for the public transit system.

Amended by Editor

Utilities are available to service the area. *The City's Water Transmission System has been constructed to the southwest corner of the neighbourhood at 167 Avenue and 91 Street.* To provide sanitary service, the northeast interceptor currently complete through Clareview will be extended to Lake District. Storm runoff from the area is controlled by the use of stormwater lakes which regulate flows to a level which can be accepted by the existing storm system in Dickinsfield. Gas, power and telephone service is available by extension of the existing adjacent systems.

*Bylaw 7531
June 19, 1984*

A range of residential land uses and densities will be distributed through the neighbourhood to serve a socio-economic cross-section of people. The north Edmonton area (Castle Dawns and Clareview) has been geared to the demands of generally younger families. Neighbourhood 2 (*Klarvatten*) will continue to meet this demand by creating affordable housing, primarily single family, while providing a range of densities up to and including acceptable and attractive multiple family dwellings for sale or rental purposes.

Amended by Editor

The school and neighbourhood park site is central to the neighbourhood. It is accessible to the overall neighbourhood via a pedestrian system using the Stormwater Management System of lake accesses, walkways, utility lots and residential cells.

CHAPTER 3: Transportation

3.1 External Transportation System

The neighbourhood is served by three major transportation routes:

- a) 91 Street or the major collector flanks the western boundary of the neighbourhood and acts as the division between Neighbourhood 1 (*Lago Lindo*) and 2 (*Klarvatten*). (See Figure 3).
- b) 167 Avenue provides direct access to 97 Street (Highway #28), to Castle Downs, to the Lake District Town Centre and to the area east of 66 Street.
- c) 82 Street flanks the eastern boundary of Neighbourhood 2 and will connect to the future Outer Ring Road proposed within the Restricted Development Area, as well as the City core.

Amended by Editor

82 Street and Cross-Section

*Bylaw 14149
December 5, 2005*

The existing eastern boundary of the Klarvatten NSP is defined by the western edge of the 82 Street Government Road Allowance (see Figure 3). This road does not meet current City of Edmonton arterial design standards for either alignment or right-of-way requirements, and would require upgrades to accommodate the anticipated development in the northern portion of the Klarvatten neighbourhood.

The existing 82 Street, a cold-mix road, also separates Poplar Lake from an existing tree stand in the future Crystallina neighbourhood, immediately east of north Klarvatten. The Klarvatten Neighbourhood Natural Area Assessment (NAA) completed in 1996 provided some information on the Crystallina tree stand and Poplar Lake and acknowledges that both areas are of a sufficient size and health to have self sustaining properties, if proper mitigating measures are implemented with the integration of these features with future urban development. In the case of Poplar Lake, the Klarvatten NSP and Wetland Management Plan have addressed the integration and preservation of Poplar Lake. However, the NAA also recognized ecological connectivity between Poplar Lake and the Crystallina tree stand, and states the following on the integration of Poplar Lake and the Crystallina tree stand:

“82 Street likely serves as a minor deterrent to move terrestrial animals between sites. Upgrading of 82 Street would increase the likelihood of creating an insuperable barrier for most terrestrial species. If the two sites are

to continue to benefit from their proximity, upgrading (widening) of 82 Street should be kept to the minimum extent possible.”

To address the requirements for upgrades to 82 Street for future development in the Council-approved Klarvatten NSP and the ecological connectivity between Poplar Lake and Crystallina tree stand, the landowners and UMA worked with the City of Edmonton Planning and Development Department, Transportation and Streets Department and Community Services Department to conduct a review of possible alternatives to the construction of 82 Street to a full arterial standard. The review was initiated to explore the impacts of removing or realigning 82 Street between Poplar Lake and the existing tree stand east of 82 Street. The alternatives explored included:

*Bylaw 14149
December 5, 2005*

- eliminate the existing 82 Street alignment north of 173 Avenue and replace it with a complete realignment of the future 82 Street around the east side of the tree stand through the future, undeveloped Crystallina neighbourhood; and,*
- retain 82 Street in its existing general location, but modify its alignment to meet the City of Edmonton arterial geometric requirements (minimum curve radius) and potentially deviate from the arterial roadway design standards by reducing the arterial right-of-way requirement (width).*

In order to assess these alternatives, a review of existing traffic volumes, available access/egress points, and future volumes was undertaken. The assessment established that the elimination and/or complete realignment of 82 Street would impact the volume of traffic on 91 Street to a greater extent, north of 167 Avenue. As the existing volume on this roadway is already approaching the upper threshold of typical volumes for a major collector roadway, this impact was deemed to be significant.

In review of the first option, the staging of development in the north part of Klarvatten and Crystallina would be impacted by the re-routing of 82 Street around the Crystallina woodlot. Furthermore, 82 Street already exists and currently bisects the Poplar Lake natural area and the Crystallina tree stand, and is shown with this alignment in the existing Council-approved Edmonton North Area Structure Plan and the Klarvatten Neighbourhood Structure Plans in effect.

Ultimately, it was agreed that 82 Street provided an important transportation link and should be retained generally in its current location.

In order to minimize the potential of upgrades to 82 Street acting as a barrier to wildlife movements between Poplar Lake and the Crystallina tree stand, a modified road

standard and a unique cross-section were developed for the roadway where it bisects the natural area and the Crystallina tree stand. Reducing the width of the arterial cross-section will result in fewer disturbances to the existing natural areas and still accommodate traffic management and associated lighting, sidewalk multi-use trail, and utilities. The cross-section of 82 Street will vary from 173 Avenue to 180 Avenue. North of 173 Avenue, the cross-section will include the standard 37 m right-of-way to north of the new proposed access into Crystallina. North of the Crystallina access, the roadway right-of-way will taper to a modified 26 m right-of-way until past (north of) the Crystallina tree stand where the roadway would then transition back out to a 37 m right-of-way south of the 180 Avenue intersection. In addition, the upgraded roadway will include the provision of a number of small culverts as it passes through the natural area and the Crystallina tree stand to facilitate right-of-way crossings for small animals.

As a compromise to the modified cross-section as opposed to a complete realignment of the future 82 Street around the east side of the tree stand, the land owners committed to providing a future connection in Crystallina between the tree stand, a large City-owned natural area in the Schonsee NSP and to the Transportation Utility Corridor (TUC) to the north. This linkage will be established with consensus between landowners, Community Services Department, School Boards and the Planning and Development Department during the preparation of the Crystallina NSP. An updated NAA will also be required with the submission of the Crystallina NSP.

*Bylaw 14149
December 5, 2005*

The new 82 Street right-of-way alignment east of Poplar Lake and west of the tree stand results in both 82 Street and the NSP boundary moving slightly eastward from the original plan boundary location. The 82 Street right-of-way south of Poplar Lake and 173 Avenue is already defined by the existing development and will not change.

3.2 Internal Transportation System

The major collector 91 Street flanking the western boundary of the neighbourhood eventually links up with 82 Street in the northeast part of the neighbourhood. The major collector will eventually link all nine neighbourhoods within the Lake District. A minor neighbourhood collector loops through the neighbourhood connecting at the north and south with the minor collector of Neighbourhood 1, allowing a logical completion of the northwest Lake District quadrant in terms of a transportation network. Two connector roadways link the collector roadway to 82 Street and 167 Avenue to improve access and egress. The local roads feed into the neighbourhood collector and are designed to serve residential cells with low traffic generation.

*Bylaw 7531
June 19, 1984*

3.3 Neighbourhood Collector and Local Roads

The local road system and the neighbourhood collector to the arterial (82 Street) have been redesigned to accommodate the redistribution of land uses and the incorporation of the town centre periphery into the plan while keeping the hierarchical road concept and the alignment of the main neighbourhood collector road (Klarvatten Road) intact. The collector road to the Lake Centre Loop Road, as required under the amended Area Structure Plan bylaw 6253, has been eliminated, given the existing site constraints and provision of other collector stubs to the adjacent arterials.

*Bylaw 7531
June 19, 1984*

Klarvatten road looping through Neighbourhood 2 is oversized slightly from the 20 metre standard (66 feet) to 21 metres (70 feet) to allow room for a boulevard, separate sidewalk and an 11.5 metre pavement width. The boulevard is to be planted with trees as a means of enhancing the streetscape.

Additional walkways are introduced within the northern portion of the neighbourhood, intending to increase connectivity of the North Klarvatten area as well as to increase transit accessibility. Walkway connections are to be provided between Klarvatten and Lago Lindo, the Transportation and Utility corridor and other areas of the Klarvatten neighbourhood generally as is illustrated on Schedule A.

*Amended by Editor
Bylaw 14493
February 26, 2007*

3.4 Public Transportation

The Public Transit service can be accommodated on the minor neighbourhood collector and major collector roads. Public Transit will ultimately link Neighbourhood 2 with other neighbourhoods within Lake District.

*Bylaw 7531
June 19, 1984*

3.5 Traffic Noise

Noise attenuation along Anthony Henday Drive in the northern portion of the Klarvatten NSP will be provided in accordance with the City of Edmonton's Urban Traffic Noise Policy. The City's Urban Traffic Noise Policy states: "Where a freeway or arterial is proposed to be built or upgraded through or adjacent a residential area, the roadway is to be built to meet a noise level as low as possible below 65dBA with an objective of achieving 60 dBA". The Province of Alberta is committed to providing noise attenuation adjacent to existing developed areas along Anthony Henday Drive to satisfy the 60 dBA (24 hr) objective. Where noise levels are not expected to exceed 60 dBA, or

*Amended by Editor
Bylaw 14493
February 26, 2007
(New Section added)*

where the adjacent area is yet undeveloped, no noise attenuation is required. Should noise attenuation be required at the time of development adjacent to an existing Anthony Henday Drive, noise attenuation will be provided at the developer's expense. Further noise level evaluations will be carried out at the subdivision application stage to verify if these and other locations merit noise reduction measures. If during the course of these further evaluations the locations are confirmed to exceed the 60 dBA objective, noise attenuation will be provided at these locations at the expense of the developer. Should the developer be required to construct noise attenuation adjacent to Anthony Henday Drive, the province has indicated that they will not generally permit noise attenuation berming within the TUC. Should the developer be required to construct berming adjacent to Anthony Henday Drive, the land for the berms must be required within the Klarvatten plan area.

CHAPTER 4: Utilities

4.1 Water Supply

An existing water transmission system is located along the major collector on the western boundary of the neighbourhood (91 Street and 167 Avenue) and will provide water for both Neighbourhood 1, Lago Lindo and Neighbourhood 2 Klarvatten. The transmission main will be extended along the major collector road to 82 Street and will be connected to an existing 300mm diameter water main which supplies C.F.B. Namao from the Londonderry reservoir. The water distribution system will emanate from the transmission system into the neighbourhood. (See Figure 4).

*Bylaw 7531
June 19, 1984*

4.2 Sanitary Sewerage

The neighbourhood is within a large sanitary drainage basin which stretches from the northern parts of Clareview to the western boundary of Lake District. The interceptor is presently in place up to approximately 153 Avenue and 32 Street in Clareview Neighbourhood 6. To provide a sanitary sewage outfall for this neighbourhood it will be necessary to extend this facility approximately 7 km along the Power Transmission Right-of-Way. The design is complete and a construction start is anticipated shortly.

*Bylaw 7531
June 19, 1984
Amended by Editor*

All sanitary sewers will be connecting to the 450 mm sanitary trunk located on 87 Street, north of 176 Avenue. A sanitary pumping station will be required in the area north of Lago Lindo (the north-westerly part of the Klarvatten Neighbourhood) to service the relatively low area. A public utility lot (PUL) of 5m by 5m will be required for the sanitary pumping station.

*Bylaw 14149
December 5, 2005*

4.3 Storm

Storm drainage within the neighbourhood will be in accordance with the recommendations of the Lake District Master Drainage Plan. A Stormwater Management System will be employed which will direct runoff from both minor and major storms to stormwater lakes.

*Bylaw 12125
August 24, 1999*

The area directly north and west of Poplar Lake will drain into Poplar Lake. The Stormwater Management Facility west of Poplar Lake has been approved for construction as a constructed wetland and will service the lands north to the quarter section line. The Stormwater Management Facility in the northeast part of the plan

*Bylaw 14149
December 5, 2005*

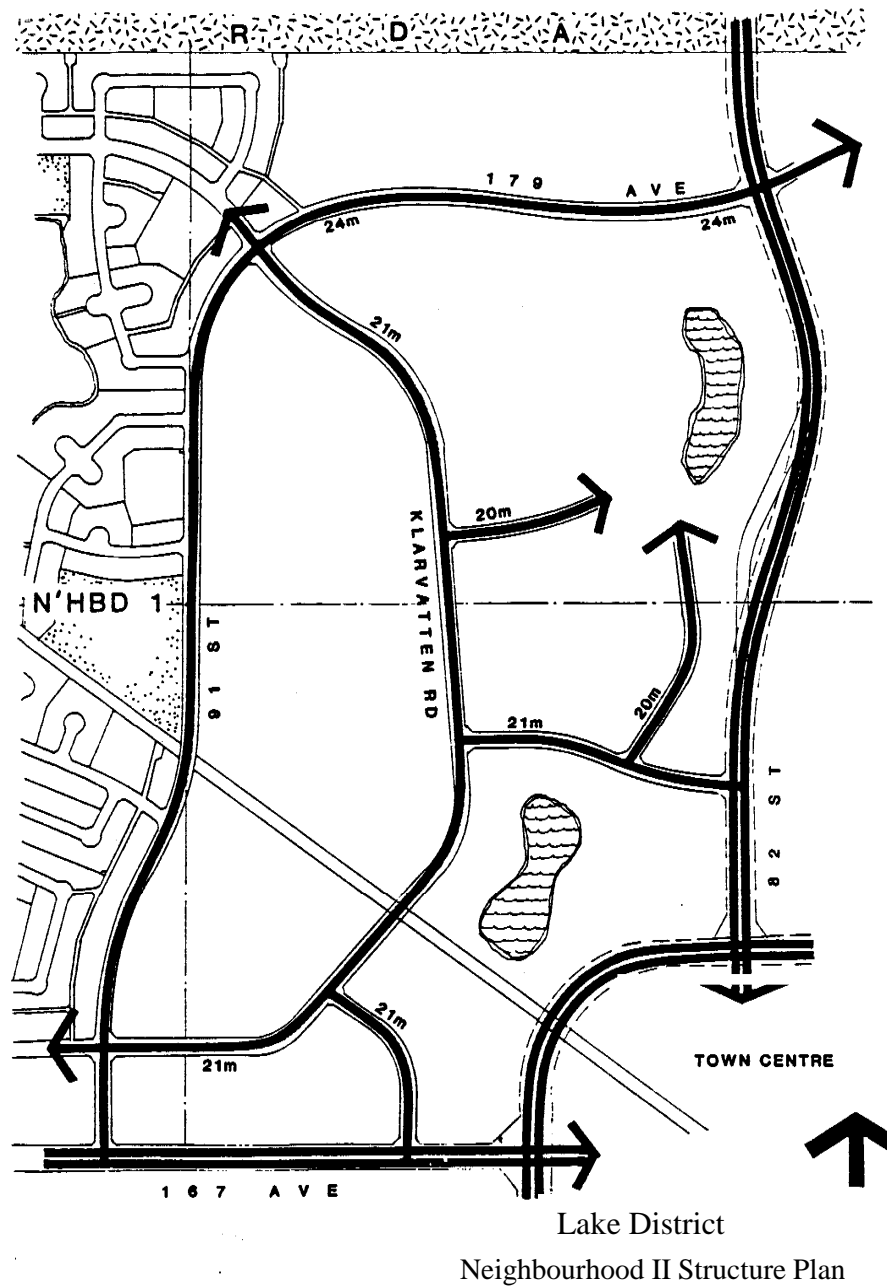
area will be a dry pond servicing the northeast plan area. The PUL area of 1.56 ha will accommodate the required volume of storm runoff storage of 13,000m³. The northwest area of the plan, north of the quarter section line, is proposed to drain to a future facility located in the TUC. The specific location and means of providing an outlet for that facility have not been determined. These outstanding issues will need to be resolved by the owner of that land, and that the development of the area is contingent on further study (See Figures 7a and 7b).

An additional stormwater management facility is introduced in the west portion of the north Klarvatten. This stormwater management facility is to be designed as a “dry pond” to retain stormwater during events less than two years. Previously, it was assumed that stormwater retention for the west portion of north Klarvatten would be provided outside the plan area in the Transportation/Utility Corridor. As this location is unavailable, the facility must be constructed within the Klarvatten neighbourhood. As illustrated in the Schedule A map, this facility will be constructed in the west end of the north part of Klarvatten.

Amended by Editor
Bylaw 14493
February 26, 2007

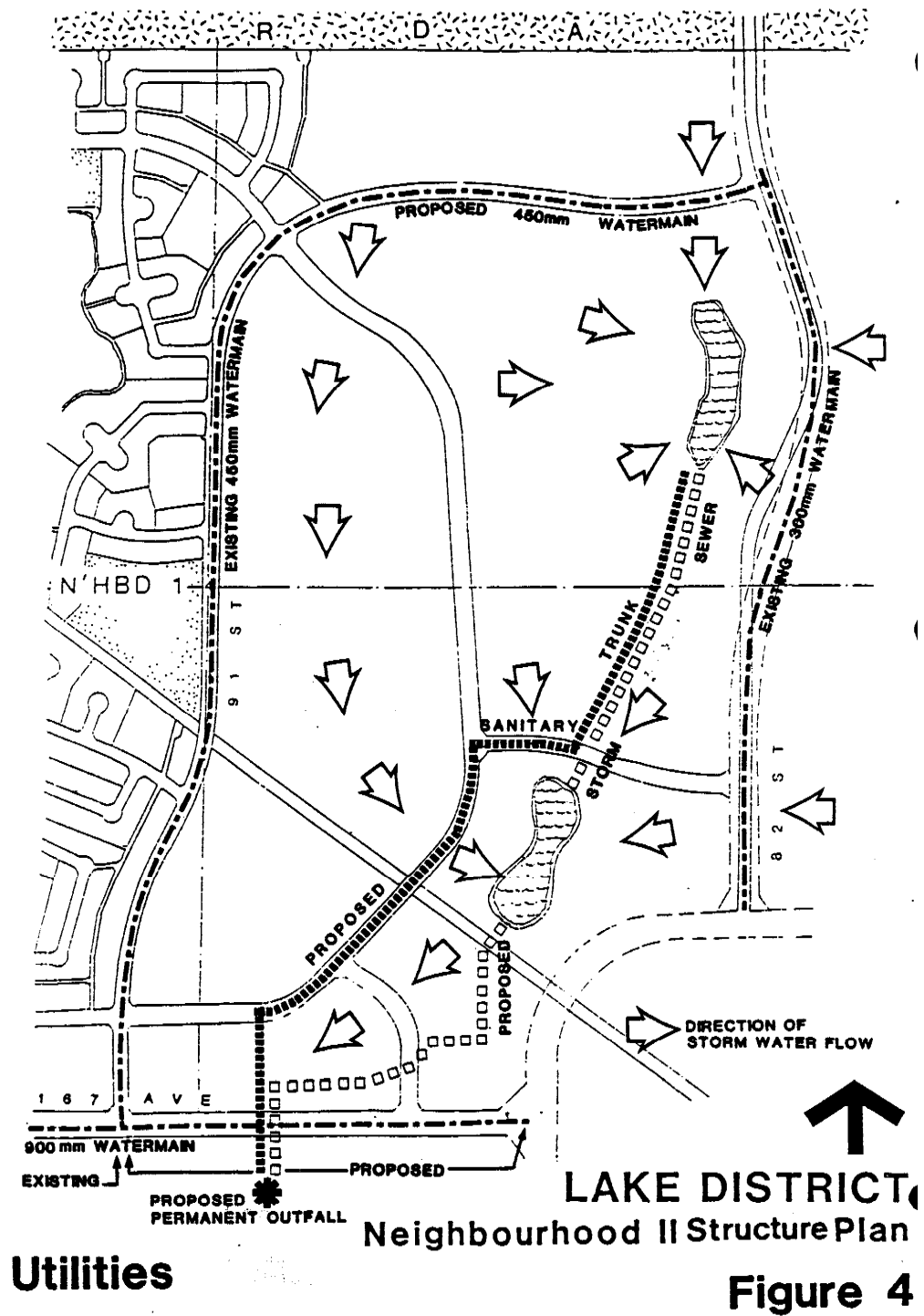
The stormwater management facilities in northern portion of Klarvatten have been reconfigured to ensure that the stormwater management facilities will provide open space opportunities, while still performing their drainage function. Based on more detailed engineering review, this stormwater management facility (1.6 ha in size) would be designed as a dry pond and serve as functional active recreation open space. This east stormwater management facility is designed not to be inundated except in major storm events and could allow for a full-sized soccer pitch to serve the residents. A 0.41 ha of land within this east pond is recognized by the Park's Branch as Municipal Reserve to accommodate open space and recreation functions, and an additional 0.12 ha of land adjacent to this east stormwater management facility is dedicated for the development of a playground to serve the area residents. Refer to Section 5.2 – Parks and Open Space for further information regarding the “dual use” opportunity provided by these stormwater management facilities.

Figure 3: Road Principals (Bylaw 7531 June 19, 1984 and Amended by Editor)



Roads Principles

Figure 4: Utilities (*Bylaw 7531 June 19, 1984*)



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Figure 6: Sanitary System (Bylaw 14493, February 26, 2007)

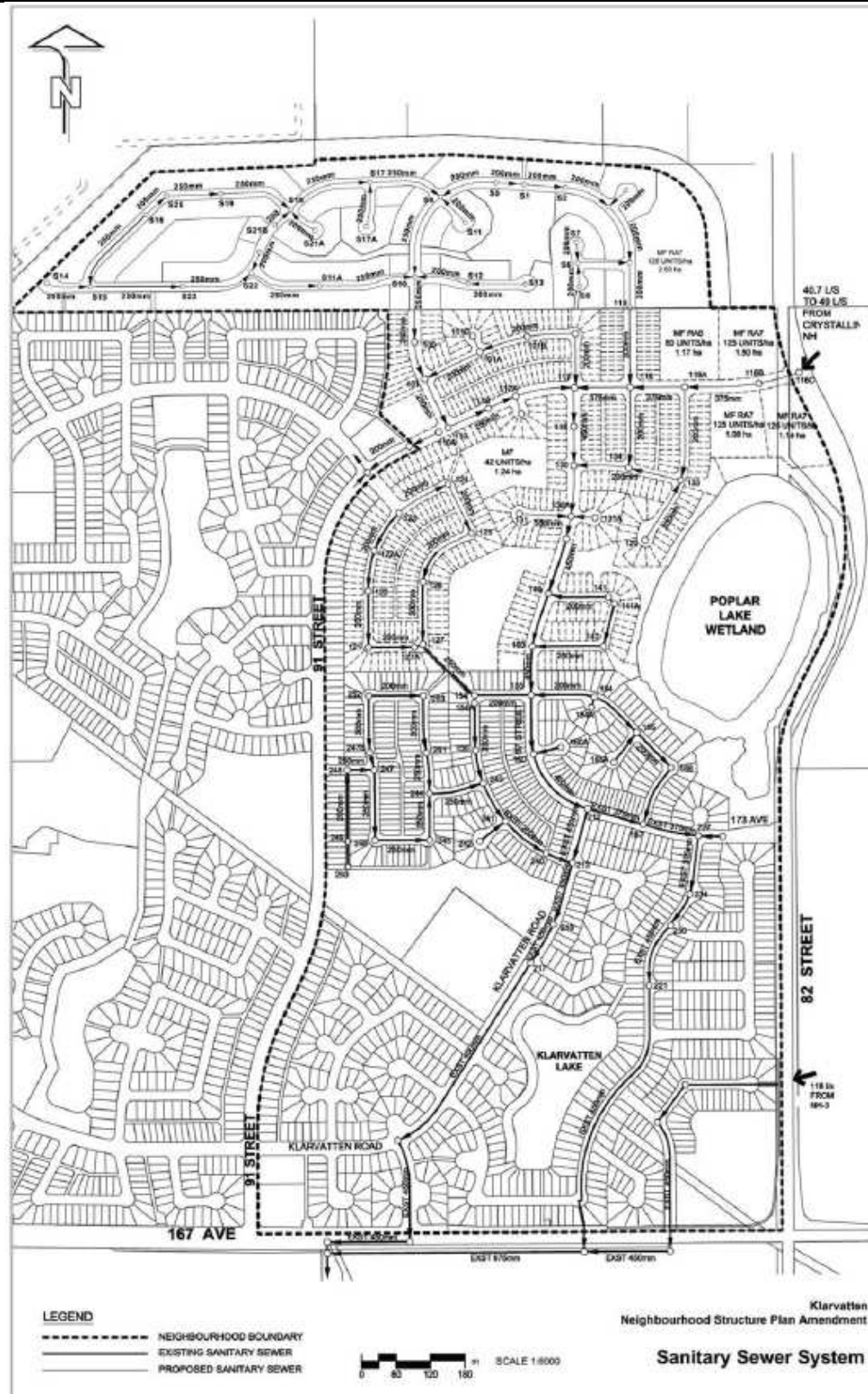


Figure 7a: Stormwater Management (Bylaw 14493, February 26, 2007)

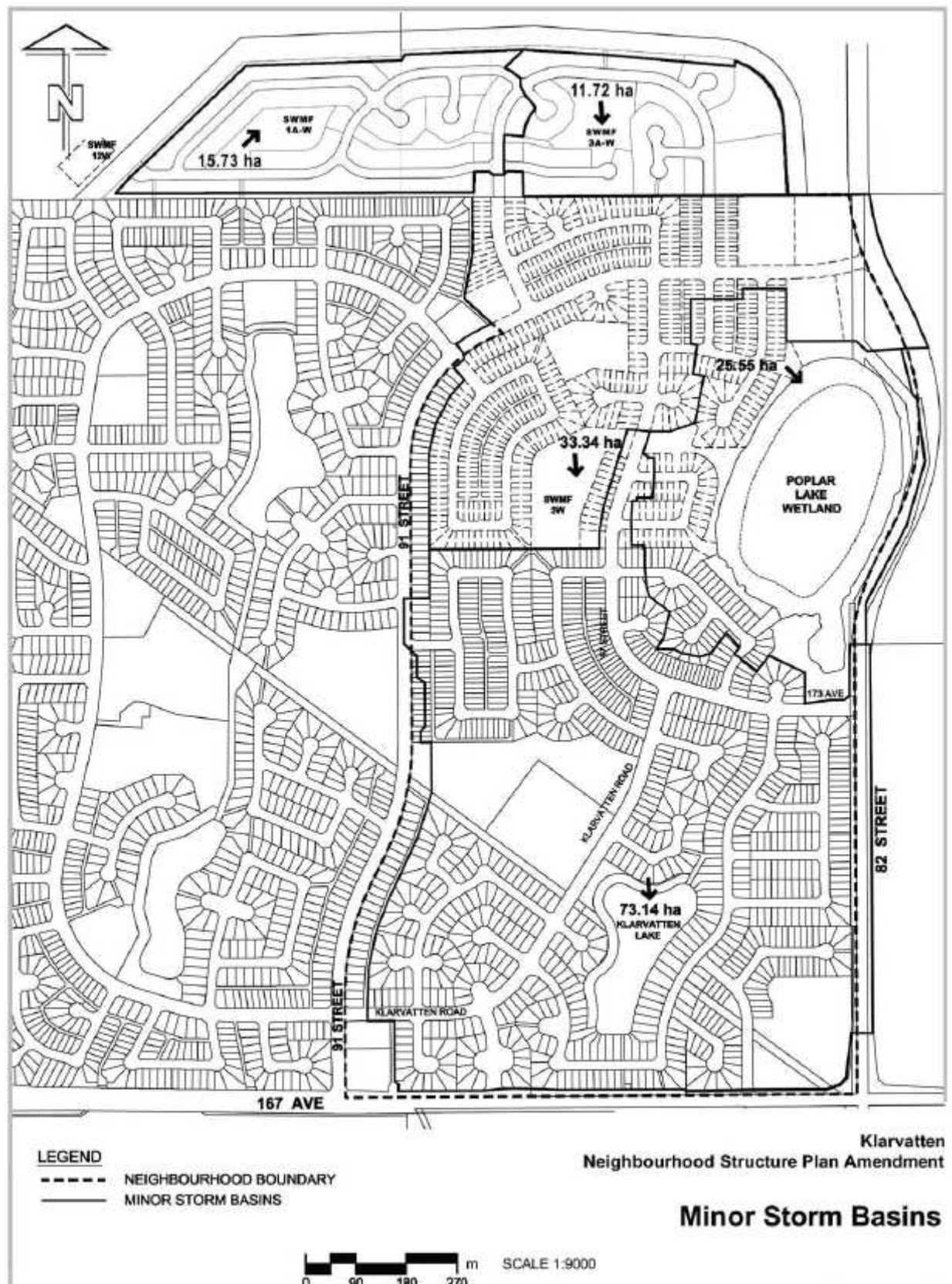
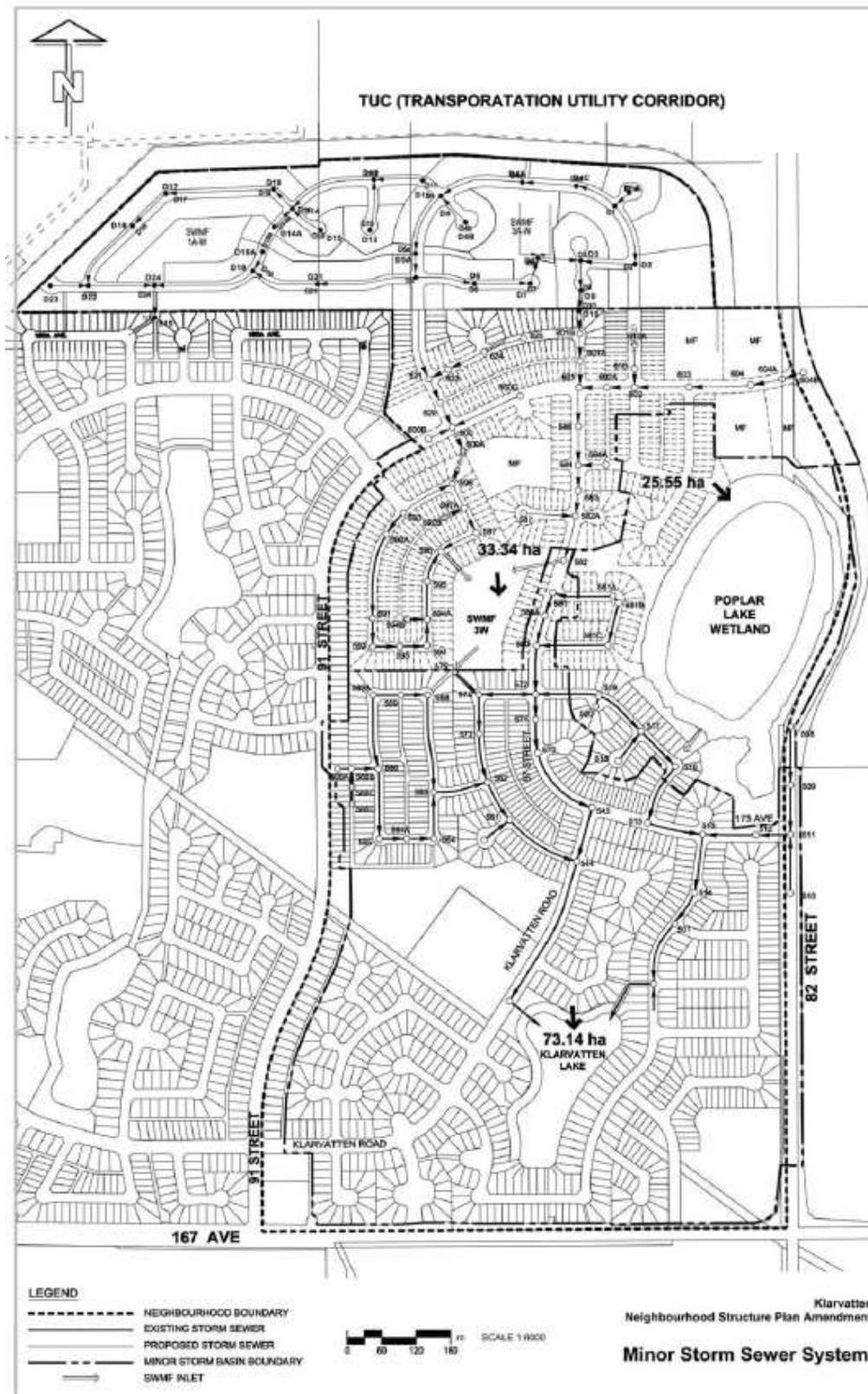


Figure 7b: Stormwater Management (Bylaw 14493, February 26, 2007)



CHAPTER 5: Land Use

5.1 Residential Land Use

Residential Land Use proposed for Neighbourhood 2 (*Klarvatten*) includes single family housing, semi-detached and multiple family dwellings.

Amended by Editor

5.1.1 Single Family

Single Family housing is proposed to be the predominant housing type within the neighbourhood. It varies in size from conventional to small lot.

- a) Conventional Single Family lots range in size from 12 to 17 metres (40 to 55 feet) in width and 30 to 36 metres (98.5 to 120 feet) in depth. The conventional single family lots are located generally in the vicinity of the lakes taking advantage of the amenities offered and are located on quiet crescents, P-loops and cul-de-sac streets.
- b) Small Single Family lots are located in conjunction with the Conventional Single Family lots as a transitional step toward the higher density semi-detached or multiple family. The small single family lots are from 8.5 to 12 metres (28 to 40 feet) in width by 30 to 33.5 metres (98.5 to 110 feet) in depth. The small single family lots will be developed on a bonus sideyard concept under the RPL zoning category.

5.1.2 Semi-detached

Provision for semi-detached housing will be minimized due to the total absence of market demand.

*Bylaw 7531
June 19, 1984*

5.1.3 Medium Density Residential

Medium Density Residential sites are proposed to be dispersed throughout the neighbourhood in keeping with the "Guidelines for the Distribution and Design of Neighbourhood Density" where feasible *Medium Density Residential* sites are designed to take advantage of transportation routes, proximity to schools and services, and amenities, and are to be limited in overall size for maximum aesthetic appeal and social acceptance.

Amended by Editor

5.2 Parks and Open Space

Bylaw 7531
June 19, 1984

A 11.67 hectare (28.84 acres) school and park site has been provided central to the neighbourhood and will include a public Elementary School, a Public Junior High School and a Neighbourhood Park as directed by Community Services. The school and park site in Klarvatten is adjacent to the Lago Lindo School and Park site allowing a linked open space system for the entire northwest quadrant (see Fig. 5).

Bylaw 12125
August 24, 1999
Amended by Editor

In order to provide local active recreation space in north Klarvatten, two park sites in this portion of the neighbourhood have been identified. The land use concept map identifies one park site for active recreation (the larger of the two park sites) adjacent to the stormwater management facility in north Klarvatten and a smaller park site north of the Lago Lindo Neighbourhood.

The active park space is located in the northeast part of the neighbourhood as this location makes the space readily accessible to its clientele. This larger park area is also located toward the proposed medium density development west of 82 Street as it will serve the larger population generated by the more intense land uses. A dispersed park site is also required in the area north of the Lago Lindo boundary. This area is somewhat isolated from the main part of Klarvatten and also has very little access to Lago Lindo. The dispersed park site should be centrally located in the northwest portion of Klarvatten to serve a localized population. In total, the size of the north Klarvatten park sites may be up to 2.7 ha, which represents 10% of the titled area or municipal reserve generation for the lands in this portion of the plan area.

Bylaw 14149
December 5, 2005

The exact shape and configuration of these park sites has not been identified definitely at this time, in order to provide a degree of flexibility in the ultimate design of north Klarvatten. However, the larger park site will accommodate play fields, a playground area, walks and an outer buffer area. The dispersed park will be sized to accommodate a tot lot, an adjacent amenity area and a landscaped buffer. The future design and development of these park sites will follow the following design requirements and criteria:

Site/Design Requirements – Large, Active Park

The larger, active park site will be:

- 1. contiguous with the stormwater facility as the functions can be complimentary and the benefits will be much greater for the residents;*

Bylaw 14149
December 5, 2005

2. *regular (preferably rectangular) in shape and configuration as this will best accommodate the proposed program and be the most efficient use of the available land;*
3. *designed to have sufficient roadway frontage around the park/stormwater unit in order to provide for adequate access and street parking;*
4. *visible, safe and secure for its users and to the satisfaction of the Community Services Department and the Planning and Development Department upon review of future development proposals; and*
5. *situated and configured in order to maximize/optimize linkages and connectivity to surrounding open spaces and walkways;*

Site/Design Requirements - Dispersed Park

The dispersed park site will be:

1. *centrally located, easily accessible to surrounding residents;*
2. *designed to have a regular shape (somewhat rectangular) so that it is functional for its intended purpose;*
3. *designed with sufficient roadway frontage to be readily visible, accessible, safe and secure for users (especially since the primary users will be smaller children); and*
4. *sited and designed so that there are connections to surrounding open spaces, parks and walkways.*

A 0.15 ha park has also been added at the southeast corner of the centrally located stormwater management facility. A park in this location affords additional space for local recreation activities, and allows better visual access into the stormwater management facility, along 87 Street. Improved visibility into the area will contribute to the safety and security of park uses and adjacent residents.

*Bylaw 14149
December 5, 2005*

An area of active open space will be provided in the east portion of north Klarvatten with a passive open space in the west. A linear park of varying width will be constructed to link the two open space areas.

*Amended by Editor
Bylaw 14493
February 26, 2007*

- *Passive open space will be provided in the west in the form of an approximately 1.4 ha "dry pond" stormwater management facility. This facility will be designed and landscaped to City of Edmonton standards and will be provided with the road frontage on two sides, ensuring public access and visibility from two directions. The facility is designed to begin to retain some stormwater in a two year frequency storm event, resulting in a minimal reduction of its value as passive open space.*

- *The stormwater management facility in the east portion of north Klarvatten will be designed to provide the "supplementary, local active recreation space". It too will take the form of a "dry pond", and will be visible and accessible from two road frontages. It will, however, be larger than would be required for it to perform its drainage function alone. This increase in area will allow the placement of a full-sized soccer pitch, with appropriate buffers, in the bottom of the facility. The increase in area will also allow for a shallower depth (approximately 1.3 m) ensuring that the soccer pitch is readily accessible to users.*
- *Like the west facility, the east "dry pond" will be designed to retain stormwater only during events less frequent than two years. The bottom of the facility, occupied by the soccer pitch, will be designed to drain to the perimeter, ensuring that the stormwater management function interferes as little as possible with recreation activities.*

The dry pond feature has been designed to satisfy the following requirements:

- *relationship with stormwater management facility;*
- *configuration;*
- *road frontage;*
- *visibility and safety; and*
- *linkages with other open space features.*

This approach to the provision of open space is similar to the "dual use" concept which has been under discussion within the City for several years. However, it differs significantly in that municipal reserve credit will not be granted for areas of land otherwise required for stormwater management. The treatment of municipal reserve dedication as described in more detail below. The approach also differs from the usual "dual use" concept in that there is no school proposed near the site. This minimizes the potential for conflict between such uses.

The total provided from MR is 10.6 hectares which is less than 10% of the G.D.A. It is anticipated "cash in lieu" provisions may apply.

*Bylaw 14149
December 5, 2005*

The north portion of Klarvatten will generate approximately 2.7 ha of municipal reserve based on the maximum dedication specified in the Municipal Government Act. This municipal reserve will be provided as follows:

*Amended by Editor
Bylaw 14493
February 26, 2007*

- *The linear park will receive full municipal reserve credit of approximately 0.71 ha based on its exclusively recreational function.*

- *An area of 0.12 ha will be dedicated on the northeast corner of the eastern stormwater management facility for the development of a playground.*
- *The stormwater management facilities will not receive municipal reserve credit for the proportion of their area that would have been required to perform only the necessary drainage function. The total area for both stormwater management facilities has been calculated at 3.01 ha.*
- *The area by which the stormwater management facilities have been expanded to serve open space functions (0.41 ha) will receive municipal reserve credit. Adding this area to that of the linear park (0.71 ha) and playground (0.12 ha) gives a total of 1.24 ha of municipal reserve dedicated as land.*
- *The remaining municipal reserve dedication of 1.46 ha (2.7 ha minus 1.24 ha) will be provided in the form of cash in lieu of land.*

These figures and the exact boundaries of the linear park, playground facility, and stormwater management facilities are subject to adjustment at the subdivision and plan endorsement stages.

Surrounding each of the storm utility lakes is an area provided to allow for lake level fluctuations. A portion of this area is to be publically owned the remainder, privately owned. The public frontage will also serve as part of a pedestrian and bicycle system.

Natural Area

Existing wetland area within the Klarvatten NSP has been incorporated as a stormwater influenced natural area in order to maintain water levels for wildlife habitat. The outlet of the wetland will be controlled to facilitate a range of water levels favorable to wetland and wildlife survival. Vegetation cover and animal habitat will be retained, as much as possible, in a natural state. Public access to a significant part of the shoreline will be limited. 82 Street has been constructed in a way as to minimize its impact on the wetland. 173 Avenue was designed to minimize its impact on the south bay of the wetland and the surrounding buffer area.

The bed and shore of the wetland has been surveyed at 12.38 ha. The municipal reserve buffer area of 3.53 ha will surround the wetland.

5.3 Commercial

A 0.6 hectare (1.4 acre) convenience commercial site is located at the corner of 91 Street & 167 Avenue. Another is located near the intersection of 167 Avenue &

*Bylaw 11495
June 16, 1997
Amended by Editor*

*Bylaw 7531
June 19, 1984*

Bylaw 12125

84 Street in the area originally designated for the Town Center area. Both are situated for the “work-home trip” and maximum visual exposure. (See Figure 6).

August 24, 1999
Amended by Editor

5.4 Church Site

The original Klarvatten NSP identified sites for religious assembly use. However under the current Zoning Bylaw, religious assembly uses can be developed in the majority of land use districts normally included in residential neighbourhoods and it is therefore not necessary to designate religious assembly locations.

Bylaw 11495
June 16, 1997
Amended by Editor

5.5 Town Centre Periphery

The area in the southeast corner of the neighbourhood closest to and previously forming part of the Town Centre has been included in the neighbourhood as a medium density residential area and a Neighbourhood Commercial area.

Bylaw 7531
June 19, 1984

Bylaw 12125
August 24, 1999
Amended by Editor

5.6 Geotechnical Review

This neighbourhood lies within an area of northeast Edmonton for which a hydro-geological study has been conducted by the City of Edmonton, to evaluate the potential causes of observed road settlement and sub-grade failure issues. More detailed geotechnical investigation may be needed to address these issues which appear more prevalent in this part of Edmonton. Therefore, appropriate design for residential and roadway drainage features will be important to the long-term performance of infrastructure. In addition, all new homes developed in Edmonton are required to have a foundation drain system constructed and connected to the sewer system.

Bylaw 14493
February 26, 2007
(New Section added)

A geotechnical report was submitted, and reviewed by the City of Edmonton. This geotechnical report identified the presence of bedrock soils at elevations quite close to the existing ground surface. Where proposed construction extends near to or within the local bedrock soils, appropriate design measures will be required to address potential adverse impacts. Local bedrock soils are very susceptible to swelling and such conditions may result in differential movements of building foundations or infrastructure. It is also not recommended to use the bedrock spoil from excavations as fill at any location where soil swelling cannot be tolerated.

The groundwater monitoring undertaken as part of the geotechnical investigation may not adequately reflect seasonal variations over all parts of the site or expected long-

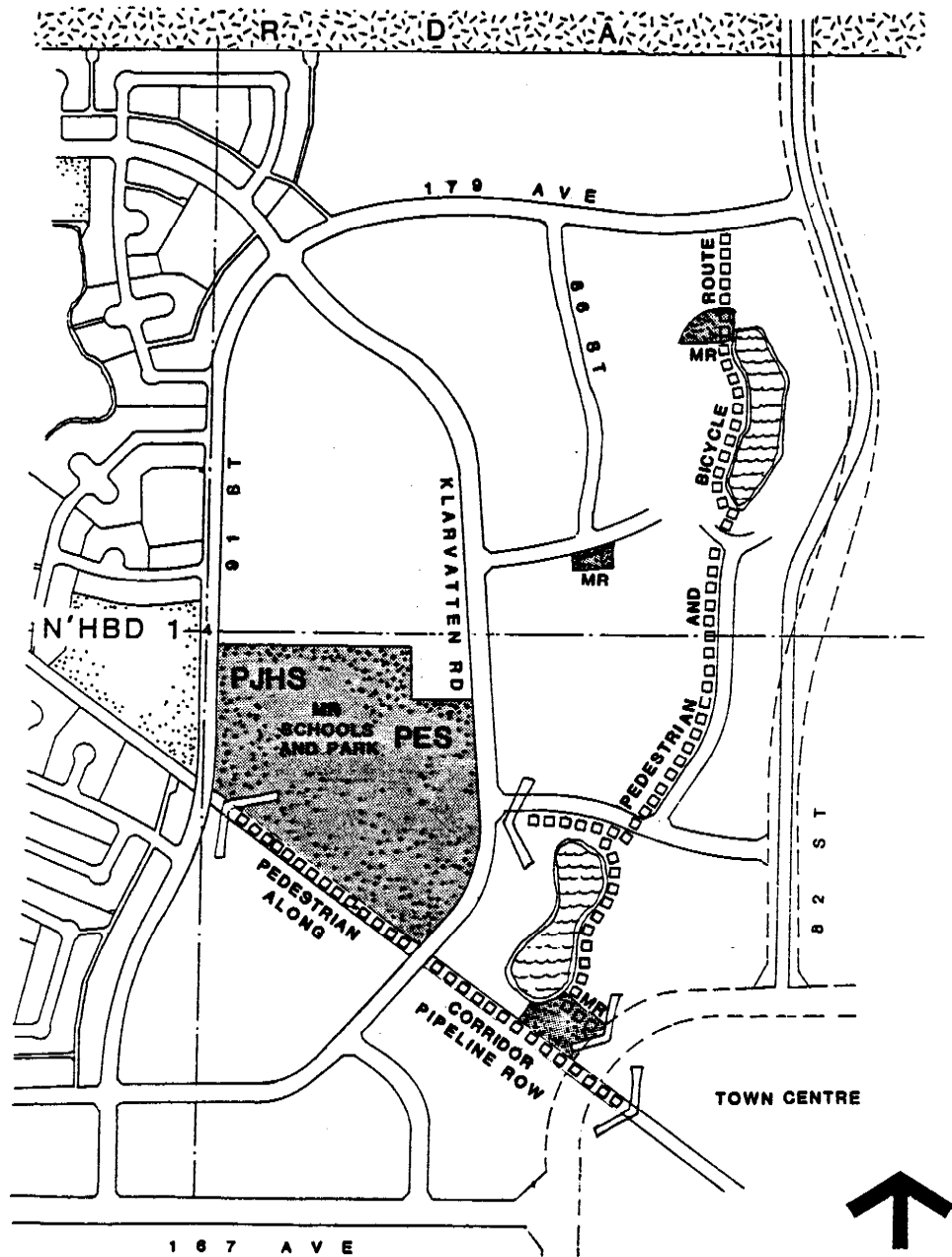
term increases associated with urban development. Potential groundwater seepage impacts on excavations and basements may be detrimental to construction and long term performance of residential structures and infrastructure in this area. Thus, proper engineering design and suitable construction techniques and practices must be followed to address the unique geotechnical conditions in this area. The various recommendations presented in the geotechnical report must also be implemented with appropriate care and due diligence.

CHAPTER 6: Statistics

The preliminary statistics are indicated in *Table 1* and *Table 2* and will be refined with detailed subdivision plans.

Amended by Editor

Figure 8: Open Space (*Bylaw 12125 August 24, 1999*)



Open Space

LAKE DISTRICT
Neighbourhood II Structure Plan

Figure 5

Figure 9: Commercial and Church Sites (*Bylaw 12125 August 24, 1999*)

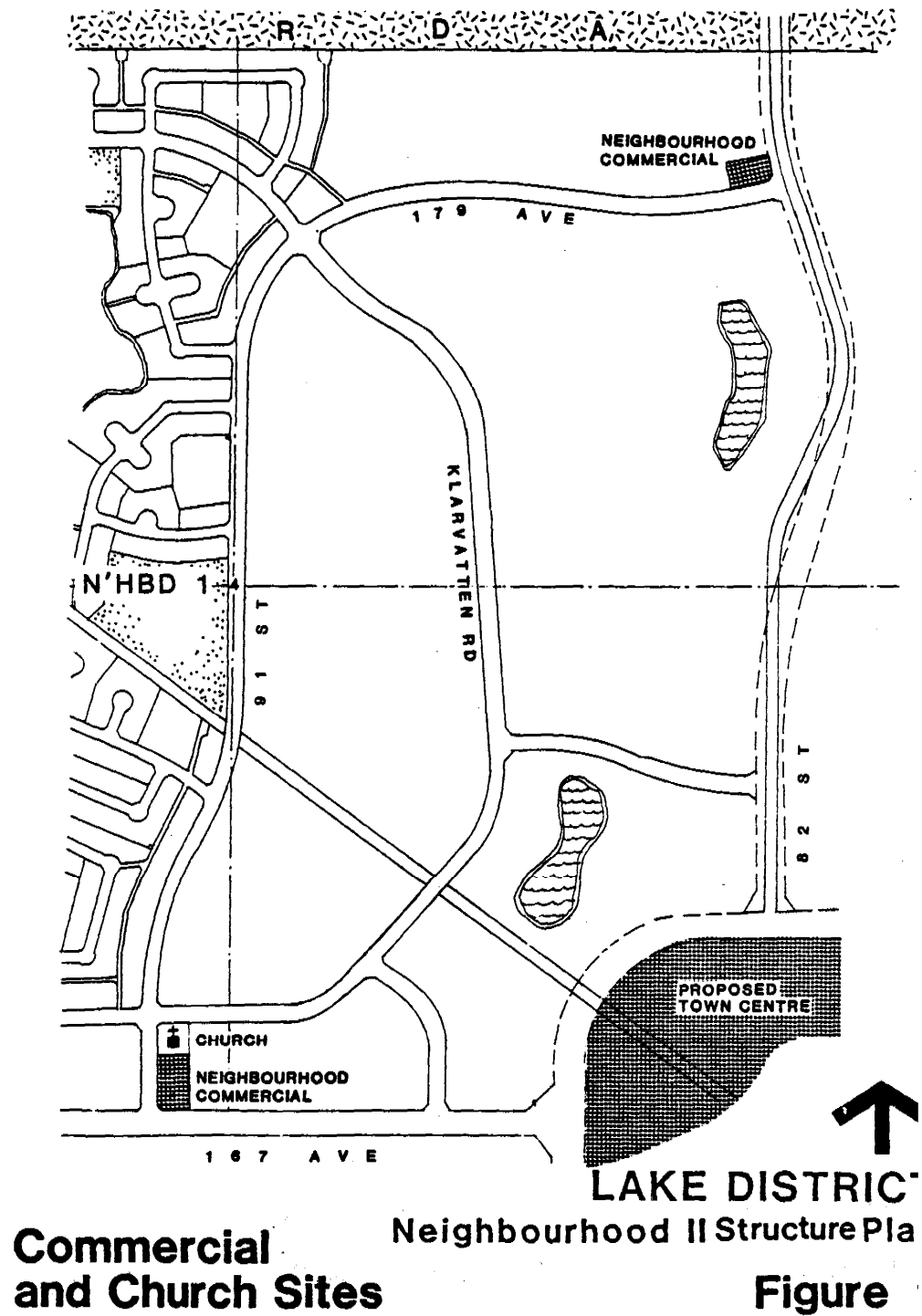


Table 1: Land Use Statistics

Approved Neighbourhood Structure Plan Bylaw 6368

(Bylaw 7531 June 19, 1984)

Land Use	Area (ha)	Percentage	Units	Population
RF1	46.87	38.36	811	2644
RPL	15.10	12.35	373	1216
RF4	3.60	2.95	106	310
RF5	5.26	4.30	221	725
RF6	3.28	2.68	262	859
CNC	0.61	0.49		
US	0.40	0.33		
M.R.	11.33	9.27		
Lakes	5.67	4.64		
Circulation	29.09	23.81		
Pipeline ROW	0.97	0.79		
Total	122.18	100.00	1773	5754
Gross Developable Area	115.24			
Density	49.8 p.p.g.d.ha		(20.15 p.p.g.d.ac)	

Table 2: Klarvatten Neighbourhood Structure Plan
Land Use and Population Statistics – Bylaw 15426, Approved April 26, 2010

Land Use	Area (ha)	% of GDA	Dwellings	%	Pop (n)	%
Gross Area	166.64					
167 Avenue and 82 Street	1.91					
Pipeline R/W	1.06					
Poplar Lake	13.23					
Transportation Utility Corridor	5.78					
Gross Developable Area	144.66	100.0 %				
School/Park/MR	11.22	7.76 %				
SWMF/PUL	8.77	6.06 %				
Circulation	28.93	20.00 %				
Commercial	1.95	1.35 %				
Subtotal	50.87	35.17 %		LDR/MDR		
Residential				RATIO		
<i>Low Density Residential</i>	84.47	58.39 %	1,605	72.1 %	5,553	75.7 %
<i>Medium Density Residential Total</i>	9.25	6.39 %	621	27.9 %	1,782	24.3 %
Medium Density Residential (planned as row housing)	6.45	4.46 %	271	12.2 %	777	9.8 %
Medium Density Residential (planned as medium density multiple family)	0.00	0.00 %	0	0.0 %	0	0.0%
Medium Density Residential (planned as low rise apartments)	2.80	1.94 %	350	15.7 %	1,005	13.7 %
Total Residential	93.72	64.79 %	2,226	100.0 %	7,335	100.0 %

Density: 50.7 persons per hectare.

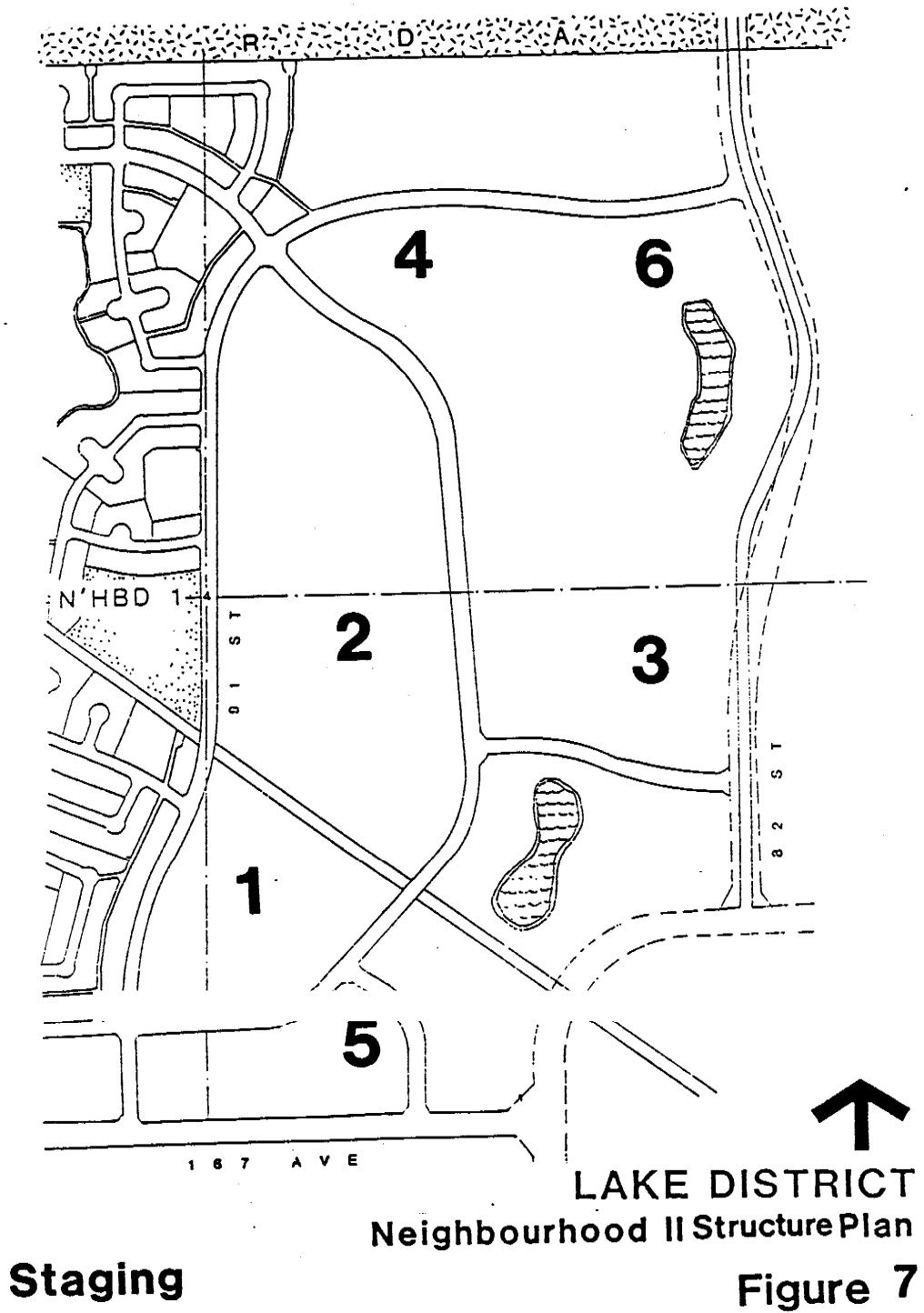
Notes:

1. Residential density:
 - Low Density Residential: 19 units/ha
 - Medium Density Residential: 42 units / ha
 - Medium Density Residential: 80 units / ha
 - Low Rise Apartments 125 units / ha
2. Population Density:
 - Low Density Residential: 3.46 persons/unit
 - Medium Density Residential 2.87 persons/unit

CHAPTER 7: Phasing

The phasing is as shown on Figure 7.

Figure 10: Staging (*Bylaw 12125 August 24, 1999*)



APPENDIX I

Environmental Impact Statement

Development within Lake District Neighbourhood 2 is seen as having negligible impact upon the environment. The southern portion of the plan is relatively flat with little in the way of natural vegetation and the northern portion, while exhibiting greater topographic relief and more natural vegetation is well suited to urban development. The Stormwater Management System utilizes and enhances natural drainage system for the direct benefit and pleasure of the residents. An archeological impact analysis was performed on the Neighbourhood 2 area producing no sites of historical importance.

APPENDIX II

Social Impact Statement

The end result of any neighbourhood plan is ultimately to provide a place for people to live. The object of the Neighbourhood 2 (*Klarvatten*) plan is to provide the best possible living environment for its residents through careful residential design and the provision of all components necessary to ensure a high quality of life.

Amended by Editor

Neighbourhood 2 is designed on the premise that it will be a "pleasant place in which to live" with a healthy feeling of community spirit, coupled with a strong pride of ownership. The demand for ownership of single family accommodation remains strong within Edmonton, and in Neighbourhood 2, efforts have been made to satisfy a socio-economic cross section of people. Along with the single family residential, a range of multiple family unit-types have been provided in keeping with the Density Distribution Guidelines as set out by the City of Edmonton. The multiple family sites have a density range suitable to accommodate a variety of building types satisfying most housing needs.

Within the urban design and the placement of residential house types every effort was made to allow for an energy conscious layout keeping in mind, roadways convenient for public transit and, where feasible, lots orientated for solar energy application.

Strong emphasis is also placed on the availability of parks and open space which are of benefit to all who live within Neighbourhood 2. The school and park sites are central to the neighbourhood and layed out in such a manner as to give maximum exposure, hence the greatest expression of open space. The school and park sites are linked to Neighbourhood 1 (*Lago Lindo*) so as to create a continuous park system through the entire northwest quadrant. A smaller park site is situated in the southern portion of the plan for the benefit of the surrounding residents and in an attempt to decentralize the park areas as much as possible under the present City policy regarding park size and distribution. Linked to the school and park sites are two stormwater utility lakes adding further open space and amenity value to the neighbourhood, for the benefit of all residents. The lakes are accessible for all to enjoy.

Amended by Editor

A fire station proposed in the northeast corner within the next neighbourhood and a convenience commercial site in the east central add to social fulfillment.

*Bylaw 11495
June 16, 1997*

Neighbourhood 2 is a well balanced residential area in which the social needs of people have been addressed through the provision of careful subdivision design, types of accommodation, distribution and layout of parks and open space and the variety of services, all of which contribute to the creation of a high quality life style and strong community spirit.