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COLD LAKE SOUTH OUTLINE PLAN

Prepared for :



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1.0 Introduction

1.1 [Outline Plan Purpose](#)

The City of Cold Lake owns several connected parcels located north of 54th Avenue in the South of Cold Lake, legally known as SW2-63-2-4 and SE2-63-2-4. The preparation of the Cold Lake South Outline Plan for these lands has been initiated by the City of Cold Lake, with the intention to be able to provide further technical detail for any future development of these parcels. The Outline Plan boundary is illustrated in **Figure 1 – Location Map**.

The purpose of having an outline plan that provides further detail for these specific parcels is to encourage development and invite opportunities to small scale developers along with well-established large-scale developers within the community. The Outline Plan will describe staging for the development of the lands, along with connectivity to existing infrastructure, adjacent lands, drainage, and trail systems. The strategic advantage of having an outline plan in place for the lands is to mitigate the associated pressures, time, and expense of this first step on the developer.

1.2 [Location](#)

The Outline Plan encompasses 46.20 hectares of undeveloped land located in Cold Lake South to the North of 54th Avenue from approximately 38th Street to 51st Street. These lands are also within the Cold Lake Central Area Structure Plan Bylaw #288-LU-07 adopted by Council August 14, 2007.

The land is situated between two existing subdivisions to the north and south, to the west is an established hotel and arterial commercial, undeveloped lands are to the east. Having this area developed will complement the surrounding existing land uses and complete the current hole it poses between the two established residential areas. Centrally located, the plan area provides walkability to schools, parks, and a grocery store, making it an attractive parcel for low to medium density residential developments. The addition of residential housing promotes the functionality and necessity of mixed use residential to aid with the densification of the plan area.

1.3 [Plan Alignment](#)

1.3.1 [Municipal Development Plan Bylaw 699-LU-21](#)

The Municipal Development Plan (MDP) Bylaw 699-LU-21 is a long-range framework to guide the City of Cold Lake's growth and development for the next 50 years (2020 – 2070). The MDP is a statutory planning document requiring all subsequent plans to conform with the following principles outlined in the MDP:

- Complete Community;
- Support Residents;
- Conserve natural assets and practice sustainable development;
- Practice resource efficiency;
- Support business;
- Create diverse opportunity;
- Create gravity; and
- Plan for robustness.

These principles impact the following land use objectives:

- That there is a sufficient supply of residential, parks, and open space land for the long-term growth of the City, and
- Provide development-ready land at the lowest service cost.

A former MDP set the framework for the preparation and adoption of the Cold Lake Central Area Structure Plan Bylaw #288-LU-07 for the future subdivision and development. This outline plan examined both the Cold Lake Central Area Structure Plan and the current MDP to ensure there is alignment with City of Cold Lake statutory plans. A variety of housing typologies and mixed-use development enhance the characteristics of an urban village that further achieves the current MDP principles and responds to market demands. The Cold Lake South Outline Plan is consistent with the general principles and objectives of the MDP.

1.3.2 [Cold Lake Central Area Structure Plan Bylaw #288-LU-07](#)

The Cold Lake Central Area Structure Plan (CLCASP) #288-LU-07 development objectives are:

- Develop a plan consistent with the vision and strategic priorities of the Municipal Development Plan;
- Provide a framework for the development of well-planned and attractive neighbourhoods with a wide range of housing choices, well-located and compatible commercial developments, an urban village and integrated parks, trails and open space that contribute to the city-wide system;
- Integrate existing development and where feasible natural features into the plan; and
- Ensure implementation of the plan in an orderly manner.

The Cold Lake South Outline Plan conforms with the land use characteristics of the CLCASP and ensures a land use scheme that is compatible with surrounding use as illustrated in **Figure 2 – Existing ASP Land Use**.

The Outline Plan has refined the residential land uses originally planned in the CLCASP by removing the high-density dedication and replacing it with a parcel designated to a residential manufactured home district, significant increase to medium density and maintaining low density land use. To provide a wide range of housing choices and to complement the medium density land use, the City of Cold Lake will be supportive of specific rezoning applications that aid in the creation of an urban village approach. The Plan provides two sites for mixed-use, and a variety of medium density parcels to encourage different street facades, rear access garages and townhomes that would provide a community feel and sense of place within a higher density area.

This Outline Plan document will provide the technical detailed information required for the future development of these parcels. To respond efficiently to changes in ownership, market demands and allow for sequential development in smaller development stages, it is recommended that this Outline Plan be revisited by the City of Cold Lake to determine if any amendments are needed to the Cold Lake Central Area Structure Plan.

1.3.3 [Land Use Bylaw #766-LU-23](#)

The Land Use Bylaw #766-LU-23 for the City of Cold Lake controls development of land within its jurisdiction. The current districting for the outline plan portion of the CLSASP area is low density, high density and storm water facility illustrated in **Figure 2 – Existing ASP Land Use**. Changes to the land use districts to be consistent with this Outline Plan will be required through an amendment to the LUB (redistricting) ahead of development. This will provide an opportunity for site specific zones to create the urban village concept, with reduced frontages, required rear access off a lane for garages, or other ideas that are supported by current statutory plans. The Cold Lake South Outline Plan has dedicated these lands to low and medium density, residential mixed use, residential manufactured home district, municipal reserve, and public utility lots for storm water management; as shown on **Figure 3 – Outline Plan Concept**.

1.4 [Public Consultation](#)

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2.0 Site Characteristics

2.1 [Topography and Natural Features](#)

Figure 4 – Natural Features depicts a recent air photo of the site. The air photo shows within the undeveloped land where there is pooling of water in the low-lying areas, along with a larger water collection pond to the far east. Throughout the parcel a natural drainage course has formed. The land primarily is low-lying grassland with sporadic clusters of trees covering predominantly in the east portion of the parcel, the northern portion of the site has a fill soil stockpiles.

The topography in the Plan area is quite varied as you span from the west to the east. Starting from the west and moving toward the central plan area, the topography is relatively flat with undulating to hummocky terrain with elevations ranging on the site from approximately 532 to 536 meters. Moving east of 43rd Street toward the eastern plan boundary, the topography has higher elevation areas defined by a steep inclined hill with elevations ranging from approximately 536 to 562 meters. A significant low-lying area within this eastern portion of the plan has allowed for surface runoff to settle creating a ponding of water which will need to be accommodated through planning initiatives. These assessments are illustrated in **Figure 5 – Topographic Plan**.

2.2 [Man-Made Constraints](#)

The Plan area has two Utility Right of Way (URW) lines, one for sewer and one for power running throughout and one lift station in the middle of the plan, known as Building 9. Sewer Line Right of Way (Plan 832 2393, Title Agreement 132 068 191) encompasses Building 9 and facilitates the sewer network that connects to the wastewater treatment plant lagoon and Building 4. A reserved force main enters the front of Building 9 from the north of 54th Avenue, the main continues south, and terminates to the east of the transfer station where it becomes an active main running to the wastewater treatment plant lagoon.

Additionally, connecting at the rear of the building, an active force sewer main line also runs south, parallel to the reserve line.

Within the Sewer Line Right of Way (Plan 832 2393, Title Agreement 132 068 191) the active force sewer main line connects to a manhole and runs north through the plan area to Building 4 on 28th Street north of Highway 55.

Running in the same URW a 300mm sanitary and 300mm water line run north and south providing services to the established surrounding subdivisions. The T shaped sewer line right of way, changes direction at Building 9 and runs west through the west portion of the plan area. This section of URW provides home to a 600mm sanitary line allowing for additional service connections to the residential developments to the west of the city limits.

South of Building 9 is a fiber optic vault with a fiber optic communication line running west to east within the same sewer line right of way (Plan 832 2393, Title Agreement 132 068 191). The fiber optic line goes south to provide service connection through 51st Street and north running far east of the city limits to 16th Avenue.

The most northerly part of the plan area facilitates a Power Line Right of Way (Plan 3959TR, Title Agreement 7763UK), running east to west, then in an L shaped line, continues south to 54th Avenue.

Both parcels are subject to various Utility Right of Way agreements with ATCO Gas and Pipelines (Title Agreements 2867NT, 932 140 316, 942 384 340).

The Utility Right of Way lines within the plan boundary have been accommodated through the design process incorporating them within road, municipal reserve, or public utility lot land use designation.

At the time of development coordination must be undertaken with the franchise utilities to either incorporate or relocate the existing infrastructure.

2.3 Existing and Adjacent Land Use

The Outline Plan is located within the City of Cold Lake municipal boundary, in what is known as Cold Lake South. The Plan area is bounded by the jurisdiction of the Municipal District of Bonnyville No. 87 to the east. It should be noted that the City of Cold Lake and the Municipal District of Bonnyville No. 87, jointly signed the newly adopted Intermunicipal Development Plan Bylaw 767-LU-23, on April 19th, 2023. The plan area is currently undeveloped and zoned as UR – Urban Reserve. The plan area is generally undeveloped except for the utilities previously mentioned, with light tree coverage.

The parcels located adjacent to the plan include institutional, established residential subdivisions, and undeveloped residential land as follows:

- To the north are undeveloped lands zoned UR – urban reserve. These parcels have been dedicated low density residential within approved future statutory planning documents:
 - A full ¼ section legally described as NE2-63-2-4
 - The remainder of the south portion of NW2-63-2-4
- North portion of NW2-63-2-4, is the built-out subdivision known as The Meadows and Fontaine Village – a manufactured home community;
- Across 54th Avenue to the southeast is an established residential area, known as Brady Heights;
- Directly South of the Plan area is Holy Cross Elementary school providing schooling from K to Grade 6;
- A current undeveloped subdivided lot, Lot 1 Block 22, Plan 132 3383, is just outside the plan area and has been redistricted to R1B; and
- To the west is the Hotel and higher density housing (R4), due to the proximity of light industrial / arterial commercial businesses along highway 28.
- Directly east are undeveloped lands on the Municipal Border.

The ASP is compatible with the existing land uses.

2.4 Phase I Environmental Assessment (ESA)

A Phase I Environmental Site Assessment was conducted by Solid Earth Geotechnical, 15 November 2023. The purpose of the Assessment is to identify potential or actual environmental contamination that could be associated with the current and past activities in the Outline Plan area, and to determine if additional investigations are recommended. The full report can be found in the appending documents. The methodology used for the assessment was through review of historical records, visual inspection, and interviews of personnel knowledgeable. The findings of the Assessment identified environmental concerns related to the following:

- Usage of the area southeast of the sewage lift station as a snow dump; and
- Fill soils of unknown origin throughout the western and central portions of the site.

The potential for environmental impact to the Plan area was considered moderate due to the presence of fill soils and the historical usage of the area near the lift station as a snow dump. The recommendations following the findings were for a Phase II ESA to be carried out prior to development to confirm the presence / absence of impact to the corresponding areas of the lands.

2.5 Desktop Environmental Assessment

Green Plan Ltd. prepared a Desktop Environmental Assessment for the plan area in March 2024 and is included in the appending documents. The purpose of the Desktop Environmental Assessment was to review current and historical documents, photography, and other information available from the Government of Alberta. Their assessment has identified general areas where wetland boundaries exist and will need to be confirmed by a field study. Primary constraints involve working in the vicinity of three potential wetlands. The environmental constraints are indicated as moderate and manageable through proper planning and construction measures. Any wetlands identified will require a Wetlands Assessment and Impact Report (WAIR) and construction mitigation measures. This may include providing compensation as outlined in the *Water Act*. As part of the wetland management process, any project design should follow the best practices for this type of development, including consultation with all stakeholders. Licenses, permits and approvals should be prior to development approval.

2.6 Limited Phase II Environmental Assessment (ESA)

Following the recommendation from the Phase I ESA, a Limited Phase II Environmental Assessment was executed in June 2024, by Solid Earth Geotechnical. The purpose of this was to assess the risk of environmental impact to the site and to confirm the presence/absence of any environmental impact from the operation of the snow dump and historical fill placement across the site. The assessment was undertaken on 110 acres between 45 and 51 Street, north of 54th Avenue, and consisted of soil sampling at 21 test pit locations which were collected and submitted for analytical chemistry testing for salinity, BTEX, PAH, VOC and submitted for Alberta Tier 1 Metals.

The results of the analytical chemistry testing indicated that:

- The concentrations for all analytical chemistry testing were either below the analytical method detection limits or AB Tier 1 Guidelines.
- The concentrations of all metal parameters tested were either below analytical method detection limits or AB Tier 1 Guidelines, except for Molybdenum at the location of TP24-20 (downgradient of the snow dump).
- Conductivity levels in TP24-20 and -21 (downgradient of the snow dump), at 0.3 and 0.6 mbgs exceeded AB Tier 1 Guidelines. No other exceedances in conductivity levels were detected in any of the other submitted soil samples.

Salt impacts were detected in soil samples collected from the low area downgradient of the snow dump, with no salinity detected in the snow dump area up-gradient of the low area. As this low area will be capped, stripped or otherwise managed during the site development, and the levels being less than or just slightly exceeding the AB Tier 1 Guidelines for conductivity parameters, the potential impact of the salinity was considered low.

The report suggested that the approved final development plan be reviewed by Solid Earth so that further direction on management of the impacted low area can be provided. Further information on this report can be found in Appendix IV of this report.

3.0 Land Use Concept

The Cold Lake South Outline Plan concept integrates low, medium, mixed-use, and residential manufactured home districts to achieve a variation in housing types and forms to ensure complete communities. This allows for social and economic diversity to achieve an inclusive balance of low to medium density housing. The design will efficiently and economically extend existing infrastructure and transportation services to support a mixed-use residential community. The design considers the integration and preservation of the existing environment by retaining natural features and following existing drainage patterns, where possible. Cul-de-sacs, parks, and pedestrian trail systems have been included to create and enhance the sense of place, with connectivity to the surrounding neighborhoods, as illustrated in **Figure 3 – Outline Plan Concept**.

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3.1 Low-Density Residential

Low density residential accounts for 12.08 hectares of the plan area, becoming the predominant land use for the Cold Lake South Outline Plan area. Complimenting the surrounding existing low-density residential developments, this Stage will abut an established area of which is known as Brady Heights, while paving the way for the future parcel to the north. Connectivity to the existing linear municipal reserve and walkability to Brady Heights Park and Holy Cross Elementary School confirms the suitability of the placement of this density. Low density continues along the existing roadway patterns providing new single-family homes to be developed abutting the rear of the established homes. A portion of the low-density residential that front onto 54th Avenue include a provision for lots to have rear lane access. This provides an opportunity for rear parking pads or detached garages to reduce the need for on-street parking. Lots with rear lane access will require changes to the traditional placement of homes on a lot including reduced setbacks for front yards and the locations of walkways and driveways to allow space for rear parking pads and garages. The existing housing fronting 44th Street will also benefit from the construction of rear-lane access, as they too will have the option to utilize this infrastructure, which was not present when those homes were developed. The remaining low-density residential in the plan area allows for more traditional front attached garage uses, though in areas where rear lanes exist, the rear lane access and parking pad provisions along 54th Avenue should be maintained. Since 54th Avenue has been designated as a higher traffic collector, this approach will reduce interactions between vehicles backing out onto 54th Avenue to improve traffic safety and reduce vehicle conflicts. In support of these planning objective described in this Outline Plan a Restricted Development Area is being implemented for lands along 54th Avenue, which is discussed in section 3.5 The lands are currently zoned for UR, with the adoption of the plan, redistricting will need to occur following subdivision approval for the Stage of the development.

Low Density Residential Design Objectives:

1. Ensure a variation in housing façade treatments to achieve a safer, more attractive streetscape;
2. Provide additional buffers for land use transitions between low density residential housing and all other land uses using landscaping, site orientation, architectural elements, and changes to elevation.
3. Residences shall make additional improvements to front yards, and when applicable side yards will be landscaped with appropriate walkways and vegetation.



3.2 Medium Density Residential

Medium Density Residential may accommodate detached and attached dwellings, within the 6.71 hectares of dedicated plan area. The intent is to intersperse medium density housing forms within the low-density residential area to increase density while maintaining the low-density character of the community. The Plan area provides a variety of densities and parcel sizes, offering additional affordable options in the housing market and will visually transition land use from lower density to a higher density residential. Medium density housing has additional design objectives to the low-density residential design objectives, providing this zoning an opportunity to ensure a variety of forms and design.

The Plan provides developers with density and parcel size options to market in the community to first time homebuyers. Northern portions of the Plan area include two large parcels that may be attractive for larger scale multi-family construction with unique site design flexibility. With these parcels abutting Municipal Reserve it creates an opportunity for high density development that still benefits from open space views, access to trails and parks, and other amenities in the neighbourhood.

Medium Density Residential Design

Objectives:

1. Site design should create opportunities to share rear driveways to reduce run-off, increase space for landscaping and provide less interruption to the flow of sidewalks;
2. Ensure a variety of medium density housing form and design, including an area dedicated to rear lane access; and
3. Buildings on sites facing public streets and areas should have detailed facades on all visible sides.
4. Housing forms that reduce the visual impacts of garages;
5. Promotion to maximize front verandas and landscaping.
6. Creation of private outdoor spaces, with covered and uncovered space in the back that is shielded from the alley.

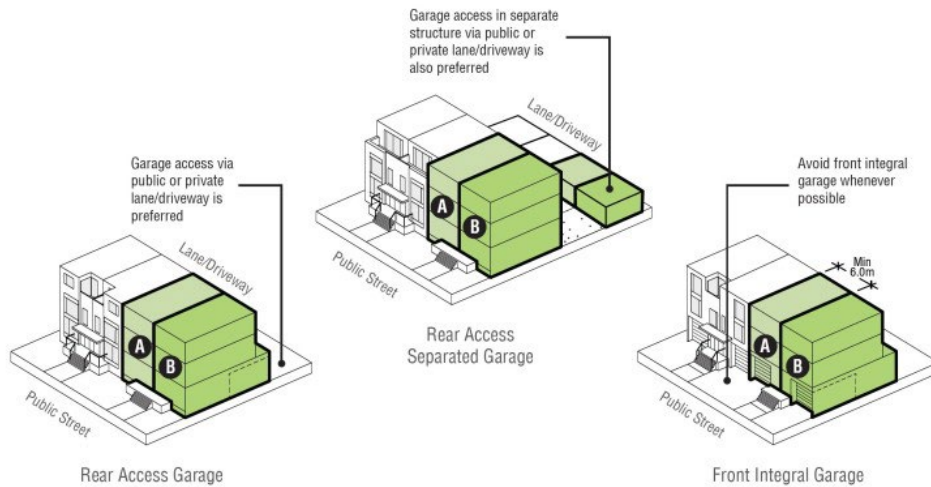


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With the provision of rear lanes in the center block design, these lots as shown in **Figure 6 – South Outline Plan Restricted Development Overlay Area**, become part of the Restricted Development Area which is discussed in section 3.5. This design decreases the cost of infrastructure while providing an increased sense of community with lower front yard setbacks, promoting a pedestrian friendly environment. Changing the focus of garages to a lane enhances curb appeal, provides a larger front yard area which results in upscaled landscaping opportunities and potential to maximize front verandas, larger back yards, and reducing the prominence of garages on the streetscape. Rear garages can provide easier access and more space for parking in the front of the lot.



Upon the adoption of the plan, the redistricting of the lands will be undertaken according to the Land Use Bylaw following subdivision approval and the execution of a development agreement for the pertinent Stage of the development. The creation and adoption of a new Land Use Bylaw suitable for the streetscape focused medium density housing will have to be considered by the City of Cold Lake prior to the implementation of the medium density.



3.3 Residential Mixed Use

Residential mixed use as defined is a type of urban development zoning classification that blends multiple uses, such as residential, commercial, institutional or entertainment all into one space. The intention is to provide physical functionality to the community and while integrating this outline plan into the existing area, it ultimately densifies this portion, making mixed-use development become a necessity. Not only does RMX provide employment to the area and housing opportunities, but the zoning also supports a “live, work, play” neighborhood, enhancing a quality of life, promoting community and socialization.

Two parcels incorporating 1.59 ha of the plan area are dedicated to the intention of residential mixed use, blending commercial and residential into one.

Upon the adoption of the plan, the redistricting of the lands will be undertaken according to the Land Use Bylaw following subdivision approval and the execution of a development agreement pertinent to the development of these parcels.



3.4 Residential Manufactured Home District

West of 49th Street a parcel is dedicated for a Residential Manufactured Home Park and/ or subdivision (RMH) within 3.04Ha. This form of residential living is generally characterized as a denser form of single-family housing. The nature of the parcel provides a unique opportunity for developments that offer affordable housing with a close-knit community feel. The best design practices for this parcel will provide a U-shaped roadway system with provisions for an internal playground space. The overall visual quality and design shall be sympathetic to the surrounding residential development and built form. The location is close to schools and within walking distance of existing commercial businesses. Residential Manufactured Home District is appropriate for the topography of the lands where there may be construction limitations because of geotechnical challenges, such as professional recommendations to use piles or alternative foundation construction options. By including RMHC districting, the neighborhood design is able to provide affordable housing options for first time homeowners, low-income, new-to-here residents, elderly residents, or persons with specialized needs that may choose to live in housing suitable to their needs with more manageable lot sizes. The plan becomes limitless by providing a full range of housing options for residents at all stages of their life.

3.5 South Outline Plan Restricted Development Area

The City of Cold Lake has identified 54th Avenue as a collector road. This designation will require additional site considerations to allow for both the efficient movement of vehicles through the residential area while ensuring the safety both for vehicular access from the residential lots and the movement of pedestrians. To improve safety and visibility traffic entering 54th Avenue will be from controlled intersections rather than driveways. Accommodations have been made for parcels abutting 54th Avenue to be serviced by wider lanes to allow for rear access to the properties. This provision will continue north encompassing an additional two linear parcels of low-density housing and the four linear parcels of medium density to the west of 45th Street. The specific parcels that are within this restricted development area are shown in **Figure 6 – South Outline Plan Restricted Development Overlay Area**. In addition, to ensure pedestrian safety and to facilitate the open space corridor connections, pedestrian crossings may be required along the collector roadway in a few locations. Appropriate traffic calming measures for these crossings will be determined at the time of development.

Homes within this *Restricted Development Overlay* will be street orientated and have reduced front building setbacks to 4.0m, with front attached garages or driveways being not allowed within the development area.

3.6 Parks, Open Space and Natural Areas

The City of Cold Lake adopted the Cold Lake Open Space and Linkages Plan by Resolution #CM20131126.1006. This policy identifies various types of park site types, including open space, parks, linkages, and trails. The park sites within the Outline Plan are strategically linked to existing and proposed park spaces and connected throughout the neighborhood. Park amenities are within short walking distance for the majority of housing and linked to the overall open space system in the City of Cold Lake to create a more complete and livable community. Where appropriate, pedestrian linkages are conveniently located to reduce walking distances to various destinations. Park sites are configured to provide ample street frontage to allow for increased visibility, access, and safety. A total of 12.56 ha will be dedicated to non-residential uses. In total park/municipal reserve, stormwater management and PUL will account for 27.2% of the gross developable area (GDA).

3.6.1 Municipal Reserve

The Municipal Government Act allows for a municipality to require up to 10% of a parcel of land being subdivided to be dedicated as Municipal Reserve, School Reserve, or Municipal and School Reserve, subject to reductions because of dedications for Environmental Reserve. The dedication can be in the form of land, or cash in lieu of land at the municipality's discretion. This dedication can be deferred against parcels either wholly or in part to future subdivisions.

A total of 6.87 ha will be dedicated to Municipal Reserve, which is 14.9% of the GDA. Because of the scope of the development, the various dedications will be deferred and be dedicated when the Municipal Reserve spaces are required.

3.7 Statistics

The adopted CLCASP does not include an overall land use density. This outline plan only includes an estimated land use statistics and population allocation for the plan area as described in **Table 1 – Amended Area Land Use Allocation and Population**. The Outline Plan will provide 6.87 ha for Parks/Municipal Reserve, 5.69 ha Stormwater Management/PUL and 10.22 ha Circulation. Residential uses include 12.08 ha for low density, 6.71 ha medium density, 3.04 ha manufactured home district and 1.59 ha residential mixed use. In total, low density residential will account for 26.4%, medium density 14.5%, manufactured home district 6.6% and mixed-use for 3.4% of the GDA.

3.7.1 Population

The target policy for residential density requirements according to the Municipal Development Plan is based on a minimum overall density of 37 Persons per Gross Residential Hectare. The Plan provides 23.52 Gross Residential Hectares. Based on the minimum density of 37 persons, the target requires a population of 927 persons for the Plan area.

The estimated population for the Cold Lake South Outline Plan is expected to be approximately 1,544 persons in approximately 594 units, including the mixed-use development. The school population for the Outline Plan area is estimated at 335 students. See **Table 1 – Outline Plan Land Use Allocation and Population** for further information.

4.0 Infrastructure and Staging

4.5 Transportation

A Traffic Impact Assessment (TIA) was completed by D & A Paulichuk Consulting Ltd, dated April 2024 in support of the Cold Lake South Outline Plan. The nature of the plan area dictates the location of proposed minor and major collector roads connecting the hollow portions of the existing minor and major collector roads and will act as access to the site. As shown in **Figure 7 – Transportation Network**.

The objective of the TIA is to:

- Forecast traffic generated from the proposed development and assess the background traffic generated from other developments.
- Evaluate the traffic operation at the following intersections:
 - 54th Avenue and 49th Street
 - 54th Avenue and 45th Street
- Identify required intersection geometric configurations as well as any needed short-term and long-term roadway improvements to enable the intersections to operate at acceptable levels of service.

61st Avenue and 54th Avenue eastbound off Highway 28 have both been identified as joining collector roads within the City of Cold Lake Transportation Master Plan. The extension of 54th Avenue within the plan area will be the first step towards their connection. This road will terminate within the plan area leaving future connectivity to NE2-63-2-4. The current 49th Street in the NW2-63-4-4 will connect into the 49th Street portion in the plan area. The development of the NE 2-63-2-4 will finish the loop and connect with the extension of 61st Avenue. Until that time, during the design process of the undeveloped quarter section closing of the collector roads will be facilitated providing a horseshoe

loop to the arterial roadway Highway 28 with branches to local roads. 47th, 45th and 41st Streets within the plan area will serve as minor collectors linking back to the identified major and minor collector loop. 54th Avenue is currently a City of Cold Lake bus route. Bus routing may be revised by the City as development within the plan area progresses.

At full development build out, the combination of local road and minor collector roads onto the 54th Avenue collector will necessitate the implementation of the restricted development area. The recommended restrictions are to eliminate driveway access directly onto 54th Avenue, and to restrict street parking if a future Traffic Impact Assessment recommends this.

Proposed lanes and roadways will connect to existing collector roadways following the City’s standards for roadway hierarchies and will be constructed to City of Cold Lake Road standards and specifications.

The intersections of 54th Avenue and 49th Street, and 54th Avenue and 45th Street were analyzed for the need of any required improvements due to the increased traffic volumes and turning movements attributed to the growth within the plan area.

The following is a summary of the suggested traffic controls at the four key access intersections:

Intersection	Traffic Control
54 th Avenue and 49 th Street	Four-Way Stop with Right Turn Channels <u>Alternative:</u> Traffic Signalization if the original Four-Way Stop becomes undesirable with delays.
54 th Avenue and 47 th Street	Two-Way Stop
54 th Avenue and 45 th Street	Two-Way Stop
54 th Avenue and 41 st Street	Two-Way Stop

To accommodate 54th Avenue and 49th Street intersection traffic control suggestion to have this intersection with multiple turn lanes (Four-Way Stop or Signalized), a shift of roadway centerline of 49th Street will be required. This will require some roadway widening on the south leg of the intersection on 49th Street. As the outline plan becomes built out, an upgrade to a traffic signalized Four-Way Stop System at this intersection may be suggested due to the undesirable delays.

The report assumes that Two-Way Stops at the other three key intersections would be substantial even at the full development potential over the span of the next 20 years.

It is important to note that intersections on route to and from major intersections with major collector roadways, arterial roadways and highways will also be impacted by the development as part of a growing community. In this case, review of intersections along 54th Avenue to the west of 49th Street to Highway 28 and along 49th Street to 50th Avenue should be reviewed for adequacy, addition of turning lanes and/or timings of signals.

4.6 [Municipal Services](#)

An analysis of the development's impact on the existing utility systems and future expansion was carried out to support the Outline Plan. The analysis concludes that the existing storm, sanitary and water systems can accommodate the future planned use. The site will be serviced for storm, water and sanitary sewer at five locations extending from existing infrastructure connections at 54th Avenue, 49th Street, 47th Street, 45th Street, and from 41st Street. The Plan allows for three future connection locations, providing the ability for future municipal services to developments in the north. Infrastructure services shall be designed and constructed in accordance with the City of Cold Lake Standards and in an efficient and cost-effective manner.

4.6.1 [Water Distribution](#)

Stage 1 will initiate the use of existing connections by extending the terminated water line from 41st Street to service the outline plan area. The existing 300mm water line will connect to a constructed 300mm water line. Following the roadway patterns this line will service the residential area and will terminate in two locations to provide future connections to the lands to the north. These future connections are beneficial as they provide the enticement of having a fully municipal serviced residential subdivision, which otherwise was not possible. In addition, a connection to service Stage I is possible through the existing tie-in on 38th Street to provide water looping opportunities. After the completion of Stage I, following the roadway pattern, the line will terminate at one location and will be extended at the time of Stage II development.

Stage II is not dependent on this connection and will utilize the existing 300mm water connection from 45th Street and 200mm water off 47th Street, to provide services to the medium density and residential mixed-use lot through a 200mm constructed water line.

Stage III will be serviced from a constructed 200mm water line connecting to the existing 400mm water line off 54th Avenue, extending the water line north to service the RMH and medium density parcels. The existing 300mm water line off 54th Avenue running within the sewer line R/w (832 2393) will provide service to the residential mixed-use lots.

The water line system will follow the roadway alignments through each Stage as per the City of Cold Lake standards. Water services and pipeline sizes are depicted in **Figure 8 – Water Distribution**.

The distribution system will follow the roadway pattern and as staging proceeds will terminate at three locations to provide future extensions onto adjacent lands. Water servicing analysis may be required for specific higher density and/or commercial sites subject to the final development proposed.

4.6.2 Sanitary Collection

The proposed sanitary collection system will take advantage of the existing service lines within the south outline plan to streamline the development of the project area. Stage I starting independently from the other stages will be connected from the existing 200mm sanitary line from 41st Street, servicing this residential area with a 250mm sanitary line. The local sanitary collection system concept is illustrated in **Figure 9 – Sanitary Collection**. Stage II can be serviced with a constructed 200mm and 250mm sanitary line. Utilizing the existing sanitary collection services available within the Cold Lake South Outline Plan area, Stage III becomes a partially serviced Stage with the existing 375mm and 200mm connections, and the RMH parcel being serviced with the existing 600mm sanitary service line. Connecting constructed 200mm sanitary lines where applicable from the existing sanitary lines will complete the servicing of the plan area.

There is an existing URW running north south through the plan area encompassing the sanitary force main pump house, known as Building 9. From this building a 500mm active force sewer line runs from the north to the building and south to the Cold Lake sewage lagoons and an 800mm reserved force sewer line runs south from the pump house to the sewage lagoons. The development though planning initiatives will accommodate the URW that encompasses these force sewer mains.

4.6.3 Storm Water Collection

The proposed storm water collection system as depicted in **Figure 10 – Storm Water Management** will connect to the existing network at 41st Street and 54th Avenue, 45th Street and 54th Avenue, and at the Eagle Ridge storm trunk main inlet. The proposed storm water management collection system will utilize both underground and surface facilities to provide adequate runoff conveyance, storage and treatment for the proposed development area and its upstream catchments.

As described within the City of Cold Lake Drainage Master Plan, the existing 54th Avenue drainage conveyance system is to be managed by a linear drainage parkway (see **Figure 11 – Proposed Drainage Parkway Cross-Section**) prior to discharging into the existing piped storm drainage system. The proposed stormwater management concept has been developed to provide adequate conveyance for the existing 488 hectares of upstream drainage area, as well as providing sufficient capacity for the proposed 69th Avenue storm trunk main that will add an additional 227 hectares for a total upstream area of 715 hectares of upstream drainage area.

The proposed stormwater management system will employ a series of control structures, sediment bays, and management facilities along its route to a restricted runoff to a release rate of 2.0 l/s/ha to ensure that downstream facilities are not overwhelmed during peak runoff events, as described within the Drainage Master Plan. The proposed management facilities will release stored runoff over a 96-hour period to ensure that downstream conveyances and storage capacity are available should another runoff event occur.

The proposed stormwater management concept will also provide runoff quality improvements as described within the Province of Alberta Stormwater management Guidelines (2013) and Alberta Transportations Erosion and Sediment Control Manual (2011), by providing runoff a settling period for sediment and suspended solid to be deposited within the proposed stormwater management facility prior to discharging into the existing storm system.

4.7 Staging

Subject to market conditions, Cold Lake South Outline Plan will proceed in three (3) stages, as illustrated in **Figure 12 – Staging Plan**. Based on existing infrastructure commencing with the far east parcel of land is the most logical and efficient connection to existing municipal services from 41st Street. Stage I consists of low density residential in a ladder shaped circulation, with three cul-de-sacs. This design provides the independent Stage and integrates with the current Brady Heights neighbourhood, creating a community feel. Developing this parcel of land first will provide a sense of place, as if not to feel reliant on the future development of the Plan area to feel complete.

Stage II will bring varied residential districts, implement landscaping and development of municipal reserve, and construct storm water management for the outline plan area. This stage completes single-family districting and introduces medium density areas. Medium density consists of one large parcel and in the form of individual lots north of 54th Avenue. The uniqueness of single family and individual medium density lot design in this Stage is the offering of new lots with rear-lane access to the community. These options provide a variety of marketing opportunities for developers, new housing options for the community, as well as providing a variety of parcel size and density choices.

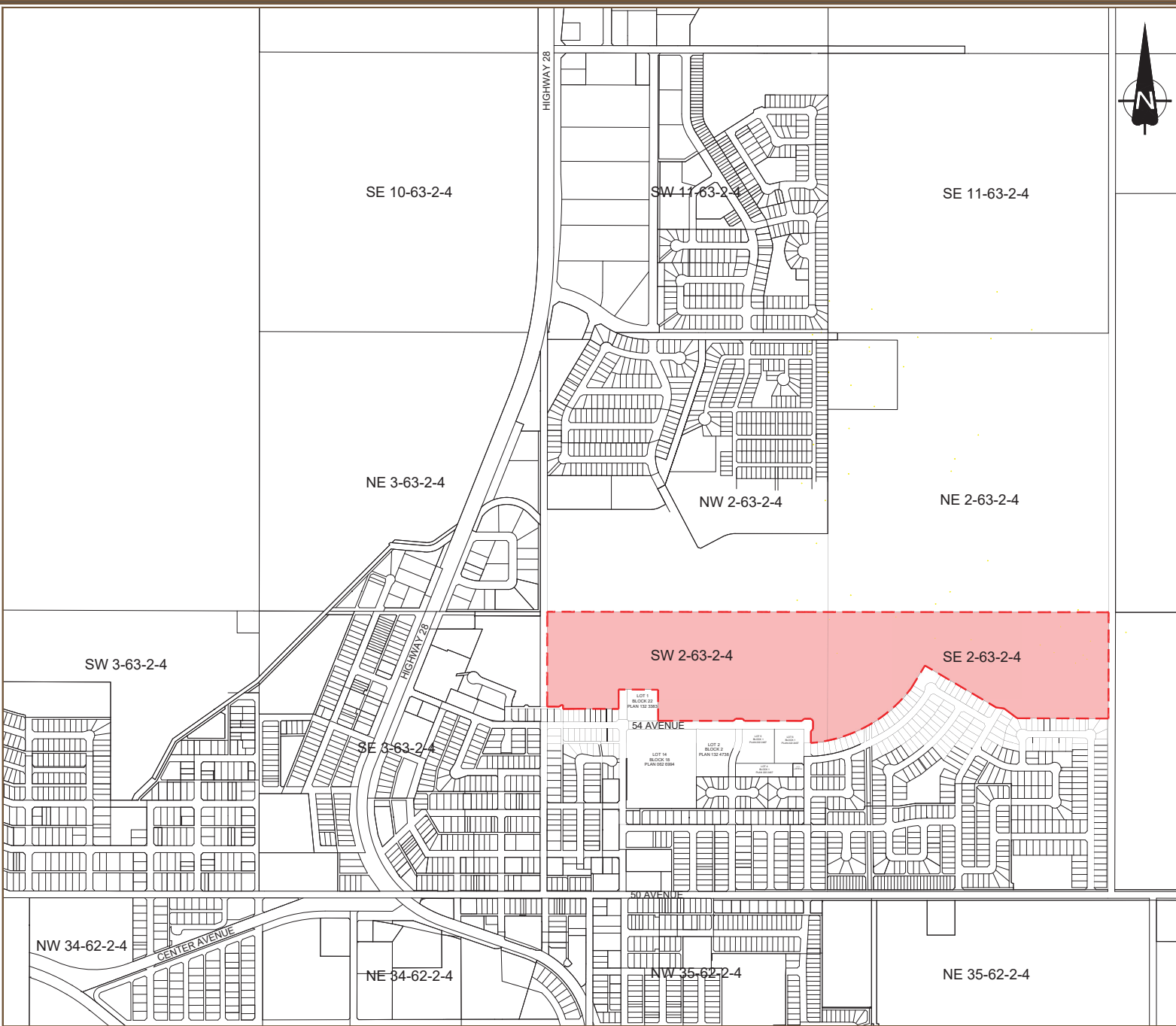
Stage III is comprised of the completion of individual medium density lots and independent parcels, one of medium density, two of residential mixed use, and one parcel to be dedicated to a residential manufactured home district. The northern portion of individual medium density lots will have the advantage of backing on to the linear park space. The development of these parcels will complete the plan area.

COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

■■■■ OUTLINE PLAN BOUNDARY



SCALE: N.T.S

Figure 1
Location Map

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
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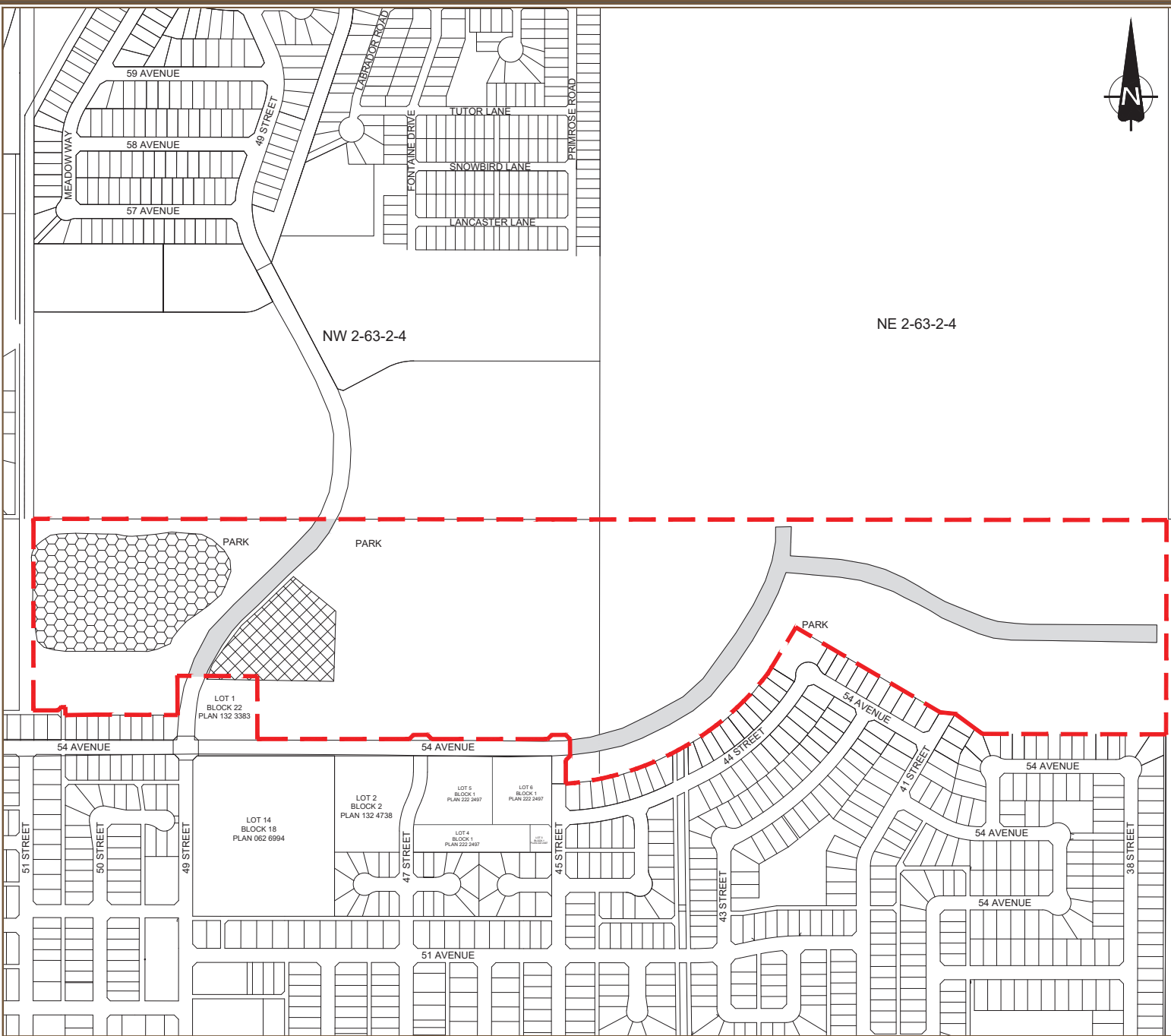
COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE



LEGEND:

-  OUTLINE PLAN BOUNDARY
-  STORM WATER FACILITY
-  HIGH DENSITY RESIDENTIAL
-  LOW DENSITY RESIDENTIAL
-  COLLECTOR ROADWAYS



SCALE: N.T.S

Figure 2
Existing ASP Land Use Concept

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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

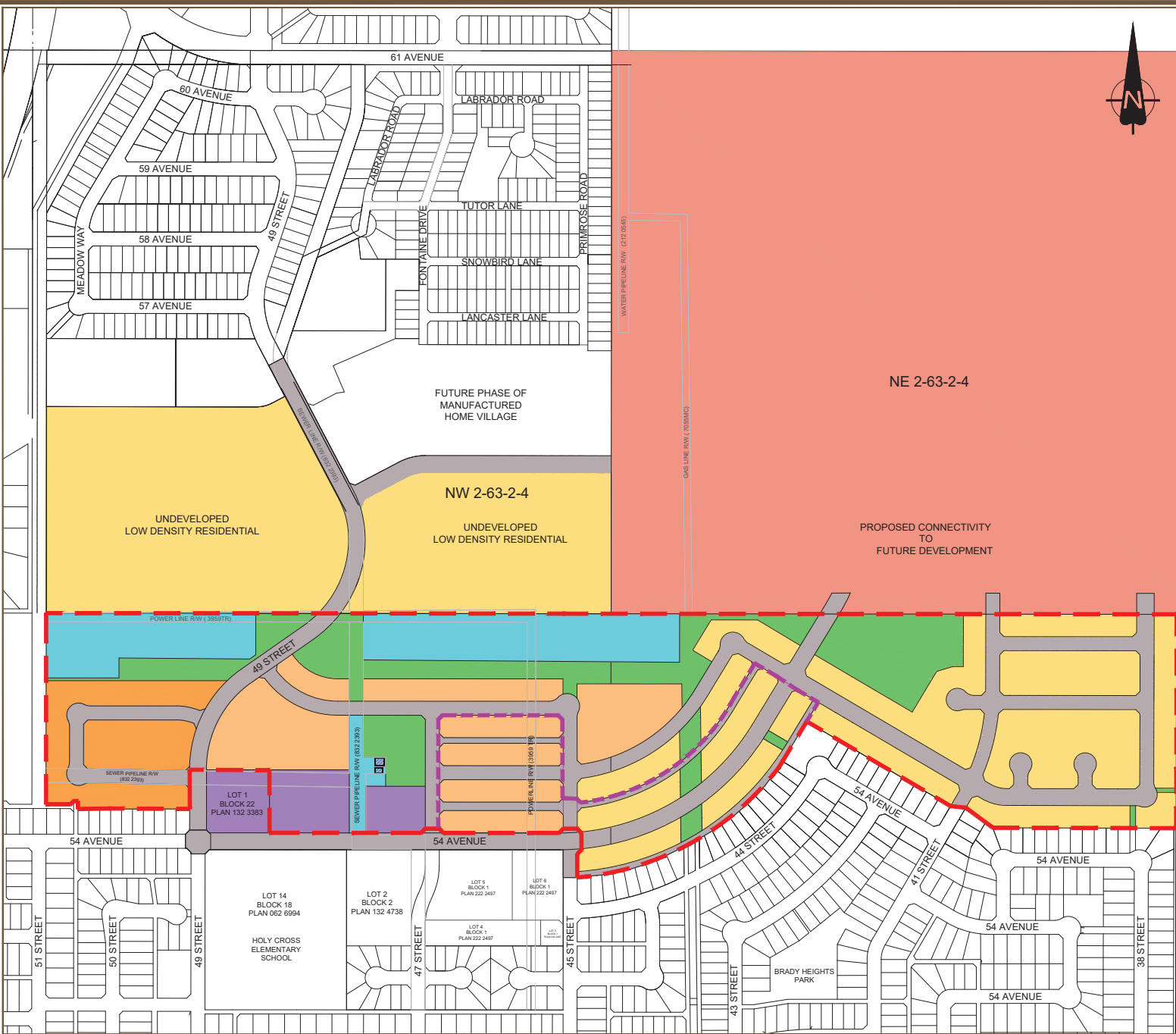
- OUTLINE PLAN BOUNDARY
- SOUTH OUTLINE PLAN RESTRICTED DEVELOPMENT OVERLAY
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- RESIDENTIAL MANUFACTURED HOME DISTRICT
- RESIDENTIAL MIXED- USE DISTRICT
- URBAN RESERVE DISTRICT
- PUBLIC PARK/ OPEN SPACE
- PUBLIC UTILITY LOT
- CIRCULATION

SCALE: N.T.S

Figure 3
Outline Plan Concept

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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

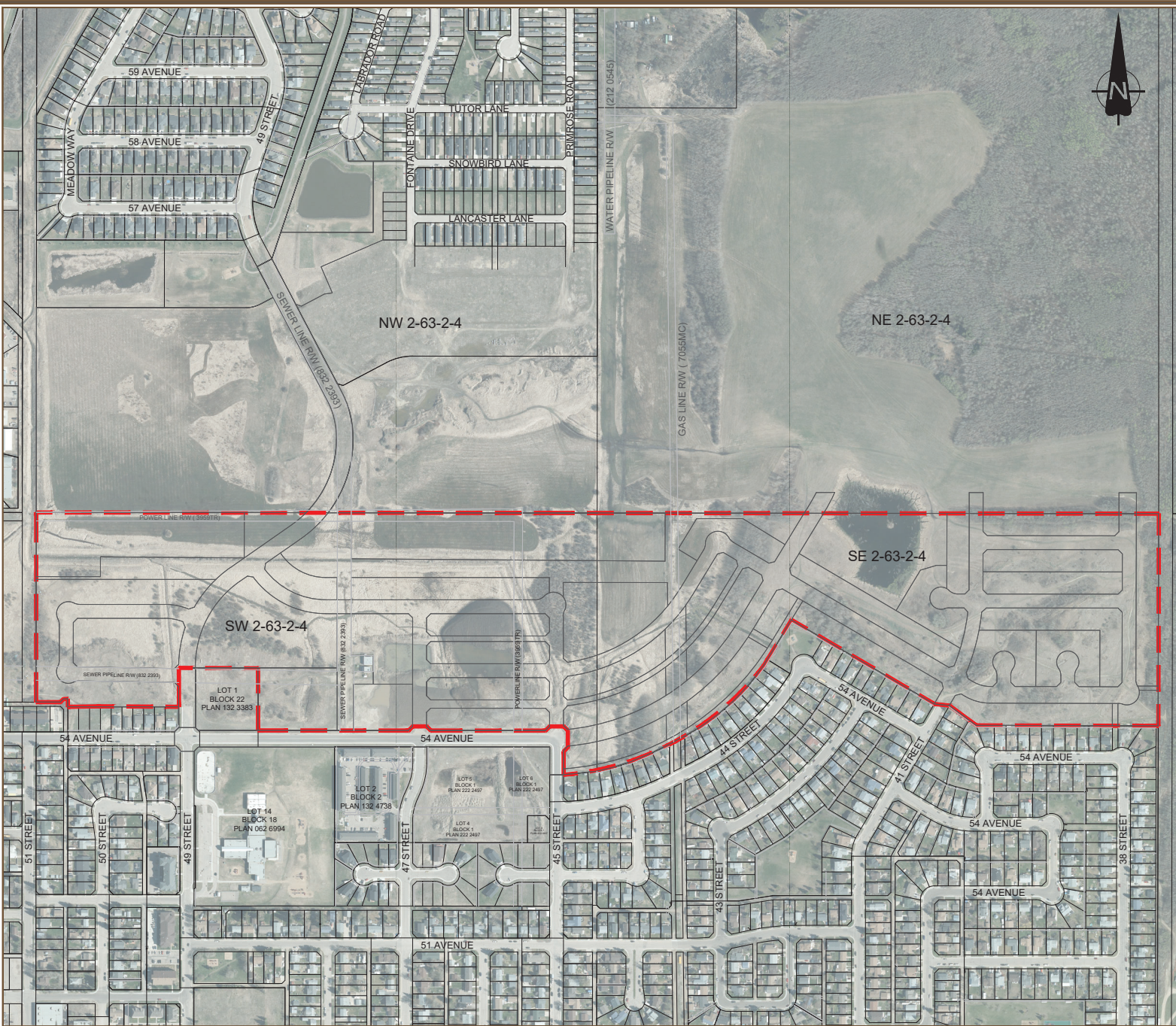
■■■■ OUTLINE PLAN BOUNDARY

SCALE: N.T.S

Figure 4 Natural Features

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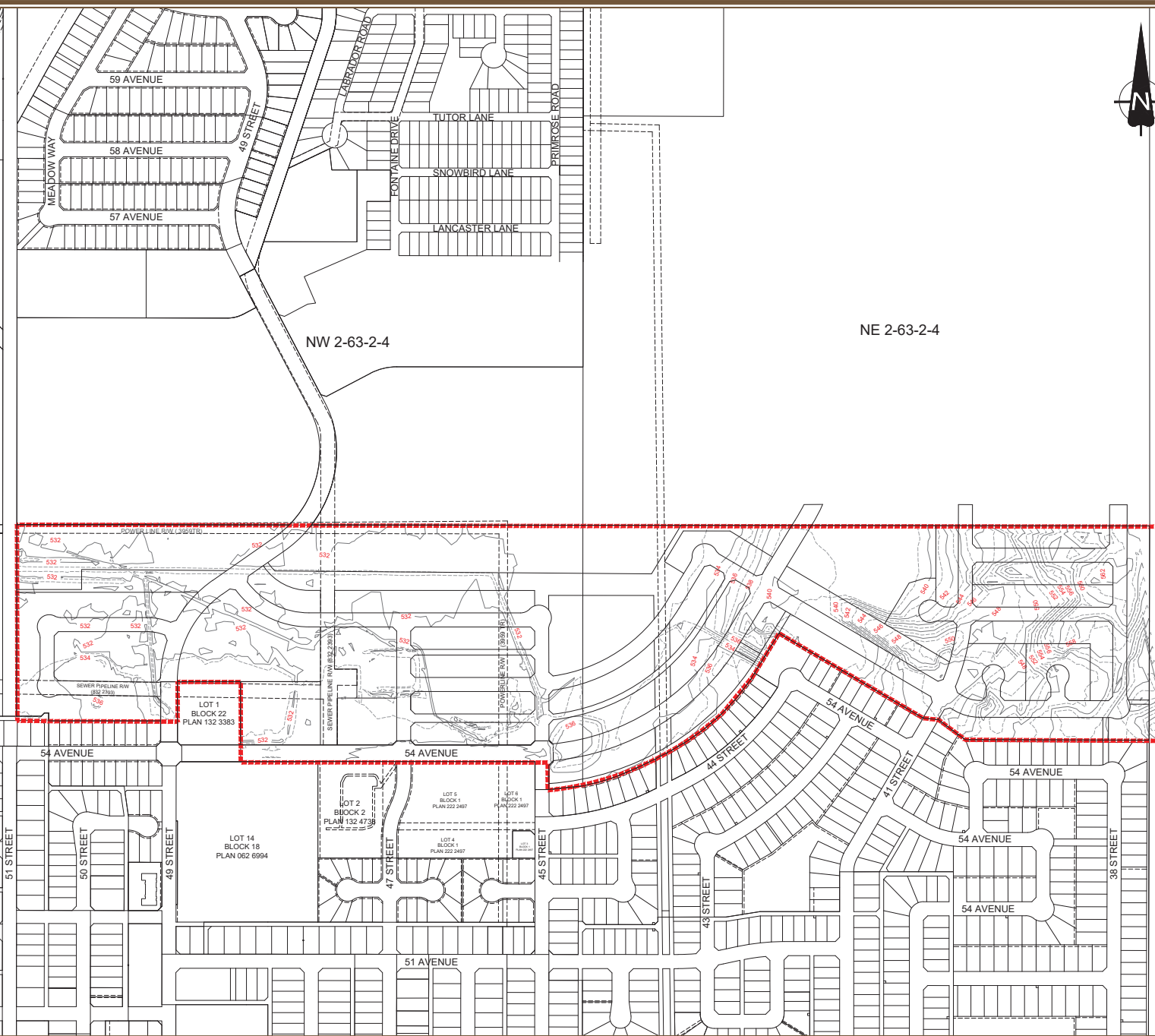


COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

-  OUTLINE PLAN BOUNDARY
-  MAJOR CONTOURS
-  MINOR CONTOURS



SCALE: N.T.S

Figure 5 Topographic Plan





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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

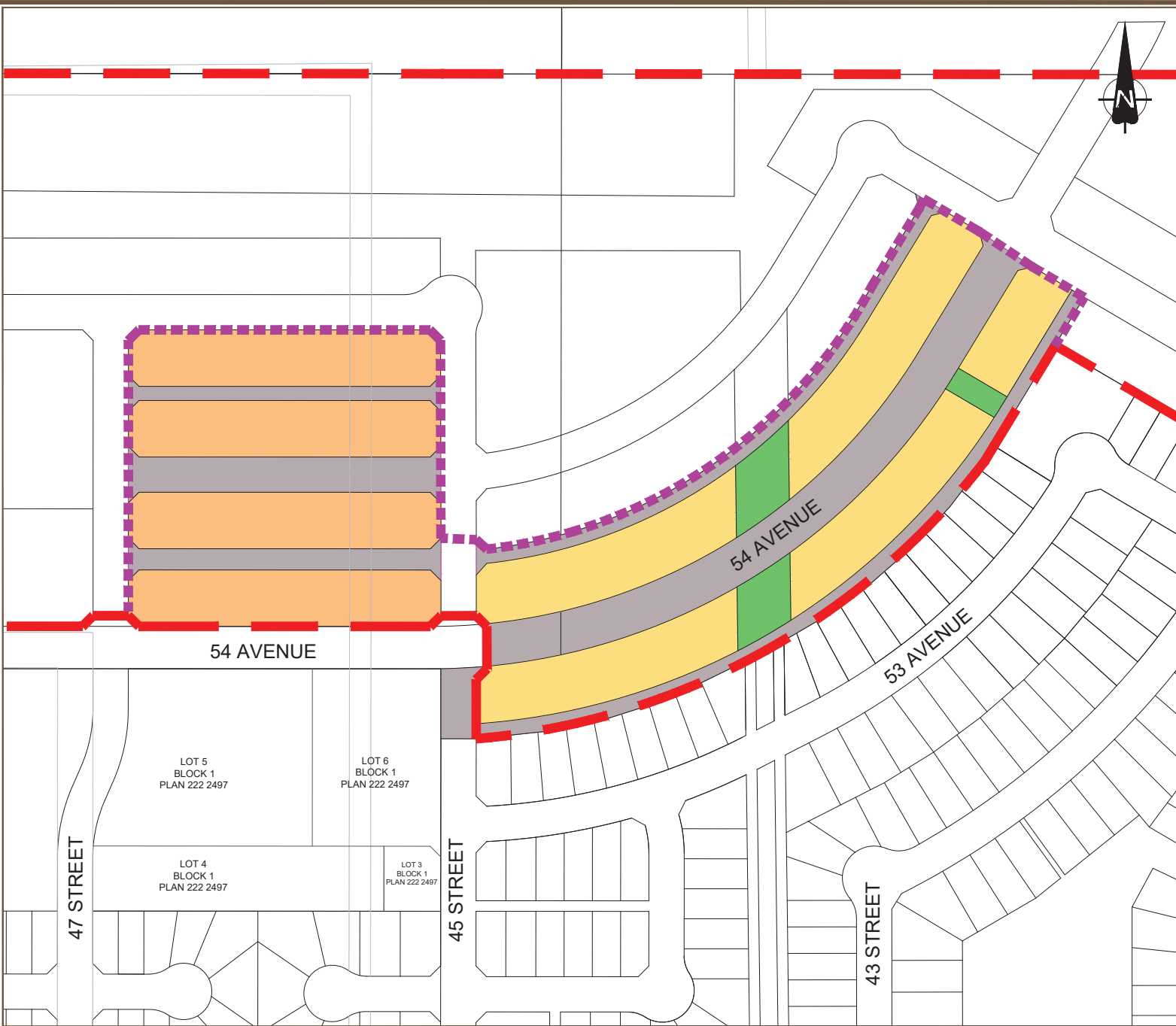
-  OUTLINE PLAN BOUNDARY
-  SOUTH OUTLINE PLAN RESTRICTED DEVELOPMENT OVERLAY
-  LOW DENSITY RESIDENTIAL
-  MEDIUM DENSITY RESIDENTIAL

SCALE: N.T.S

Figure 6
South Outline Plan Restricted
Development Overlay Area

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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

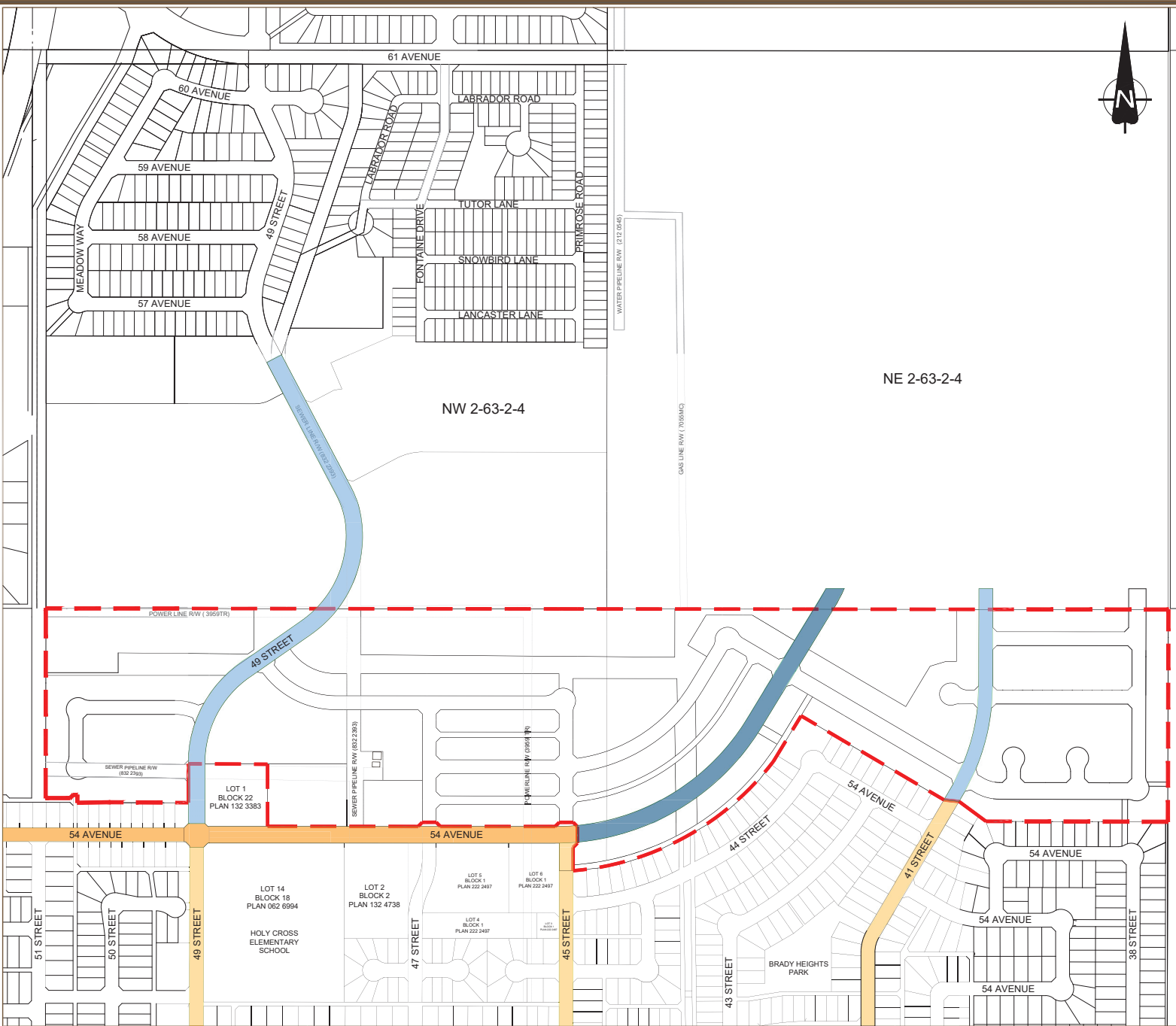
-  OUTLINE PLAN BOUNDARY
-  EXISTING COLLECTOR (MINOR)
-  EXISTING COLLECTOR (MAJOR)
-  PROPOSED COLLECTOR (MINOR)
-  PROPOSED COLLECTOR (MAJOR)

SCALE: N.T.S

Figure 7 Transportation Network

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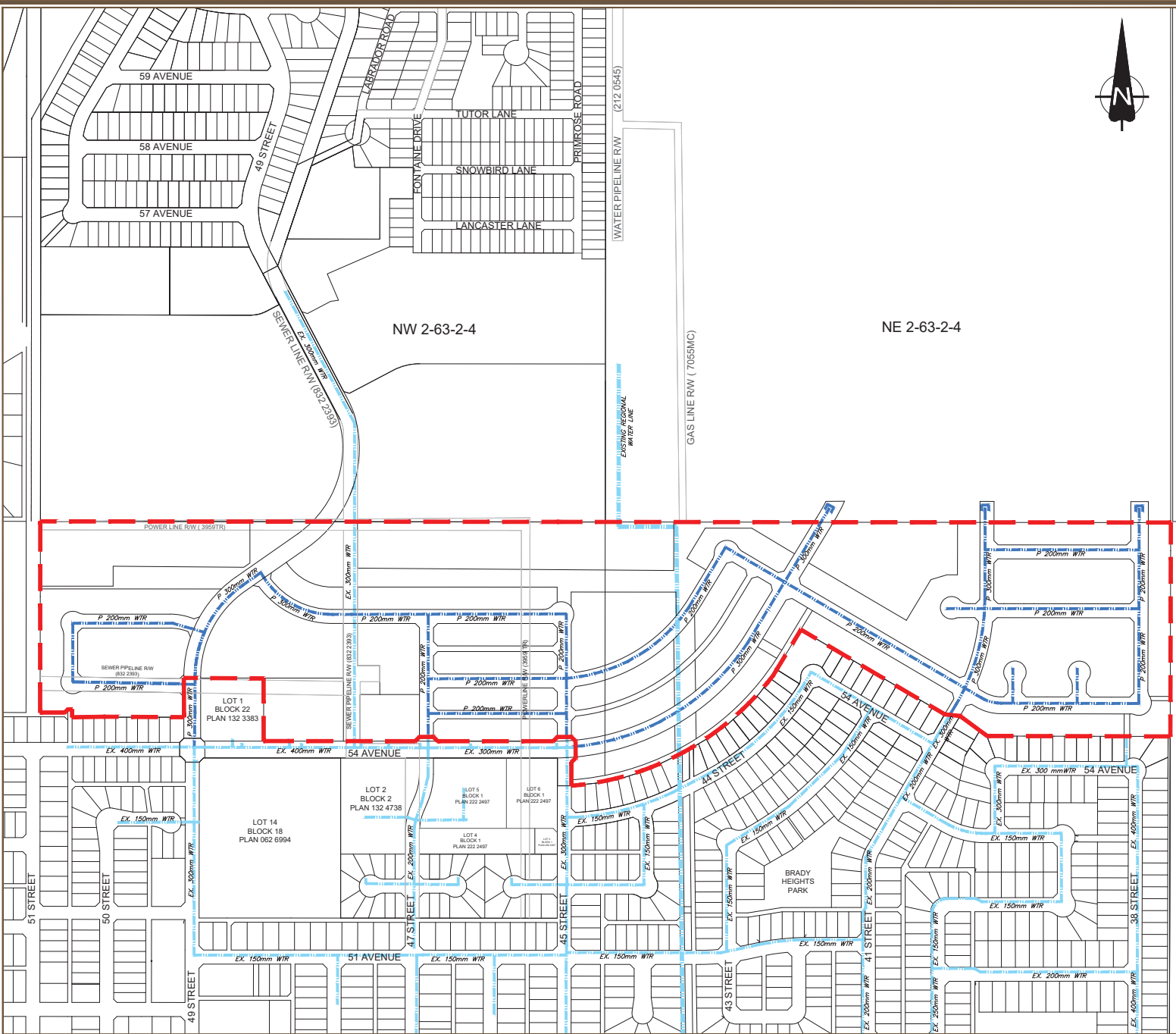
COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE



LEGEND:

- - - OUTLINE PLAN BOUNDARY
- — — PROPOSED WATER LINE
- — — EXISTING WATER LINE
- — — EXISTING REGIONAL WATER LINE
(NO CONNECTION TO WATER DISTRIBUTION SYSTEM)



SCALE: N.T.S.

Figure 8
Water Distribution






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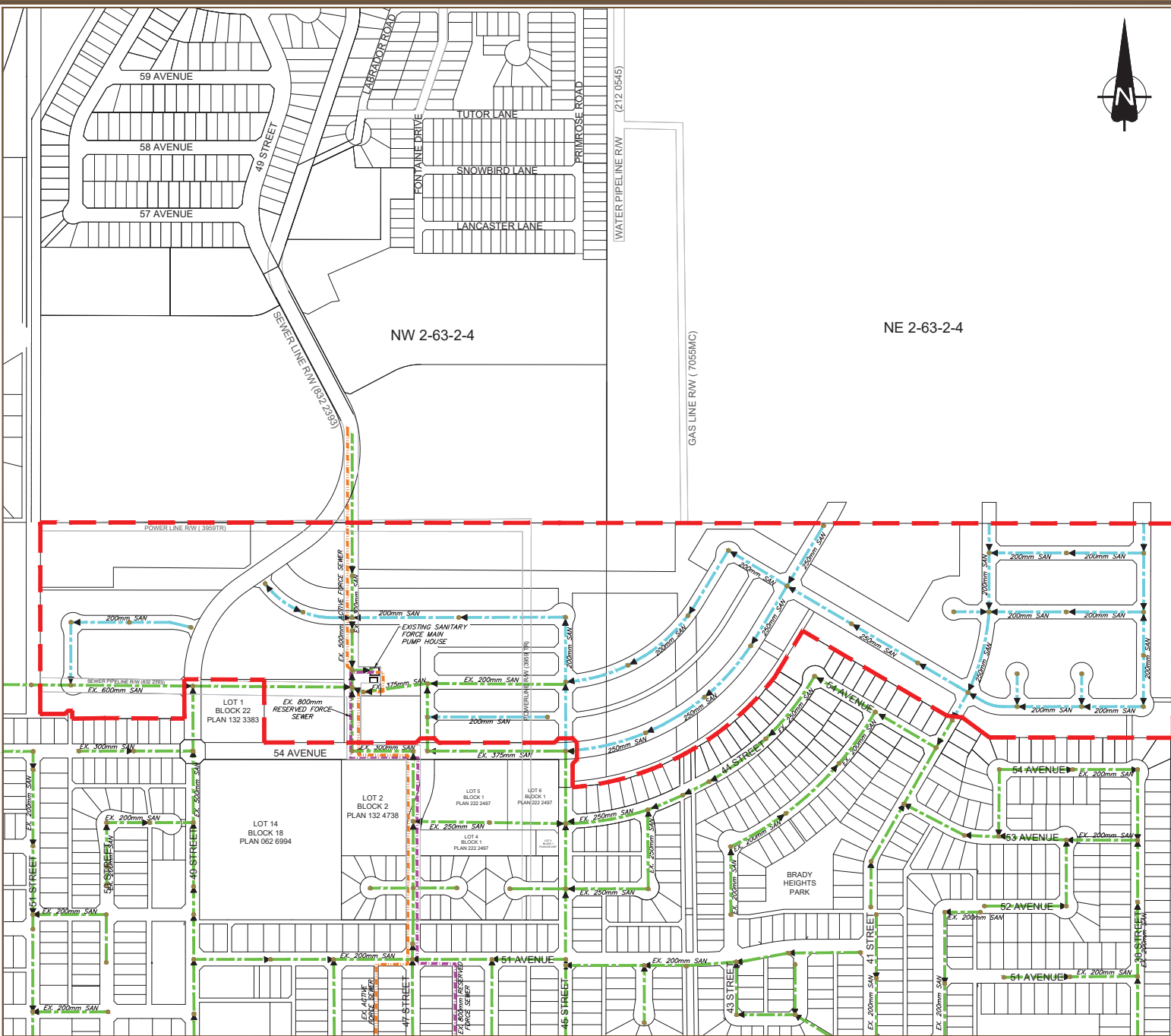
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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

-  OUTLINE PLAN BOUNDARY
-  PROPOSED SANITARY SEWER
-  EXISTING SANITARY SEWER
-  EX. ACTIVE FORCE MAIN SEWER
-  EX. RESERVE FORCE MAIN SEWER



SCALE: N.T.S






Figure 9
Sanitary Collection

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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

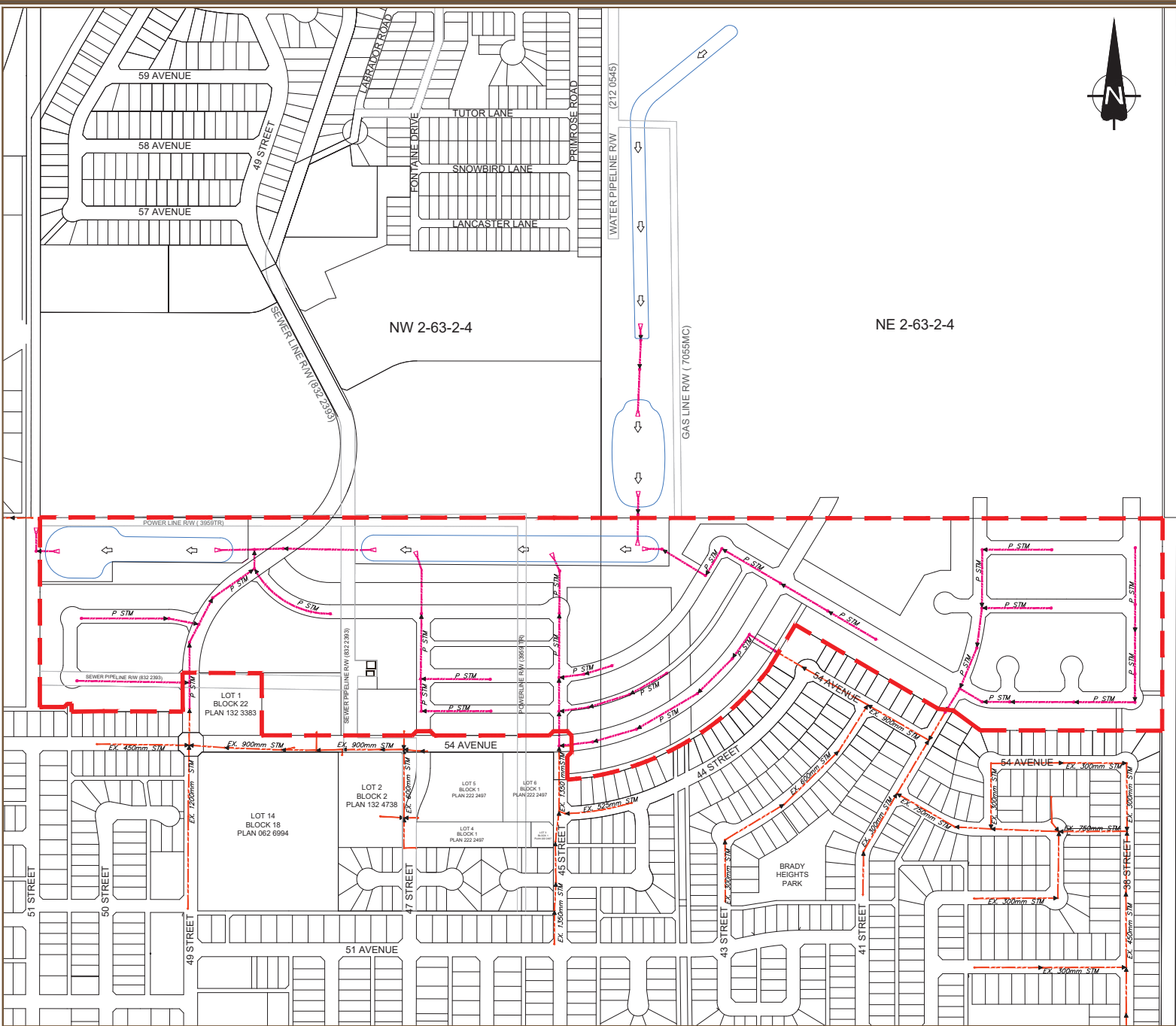
-  OUTLINE PLAN BOUNDARY
-  FUTURE STORM WATER FACILITY
-  PROPOSED STORM SEWER
-  EXISTING STORM SEWER
-  REGIONAL STORM FLOW

SCALE: N.T.S

Figure 10
Proposed Stormwater
Management

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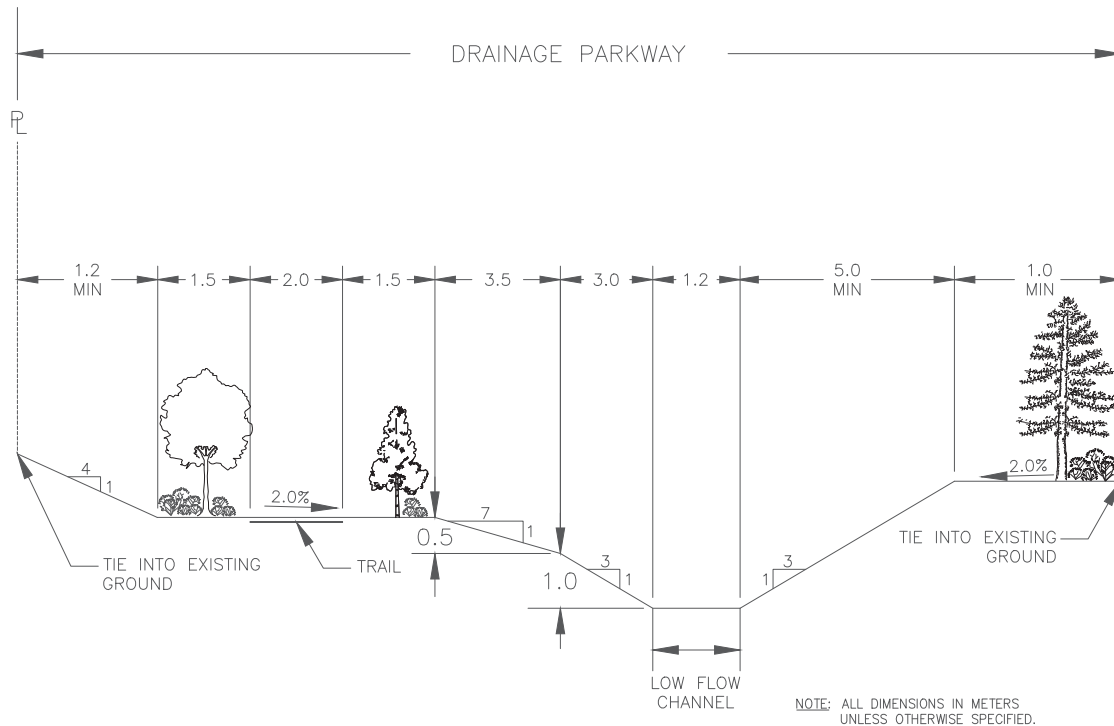
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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:



*PROPOSED DRAINAGE PARKWAY
CROSS-SECTION
N.T.S.*

SCALE: N.T.S

Figure 11
Proposed Drainage
Parkway Cross-Section

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COLD LAKE SOUTH OUTLINE PLAN

CITY OF COLD LAKE

LEGEND:

- OUTLINE PLAN BOUNDARY
- STAGE BOUNDARIES
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- RESIDENTIAL MANUFACTURED HOME DISTRICT
- RESIDENTIAL MIXED-USE DISTRICT
- URBAN RESERVE DISTRICT
- PUBLIC PARK/ OPEN SPACE
- PUBLIC UTILITY LOT
- CIRCULATION

SCALE: N.T.S

Figure 12
Staging Plan

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