

**TO:** CITY MANAGER 2001 NOVEMBER 13

**FROM:** DIRECTOR PLANNING AND BUILDING **OUR FILE:** RZ #99-09

**SUBJECT:** **PROPOSED REZONING OF GLENWOOD INDUSTRIAL ESTATES FOR COMPREHENSIVE INDUSTRIAL DEVELOPMENT**

**PURPOSE:** To provide Council with information in response to the issues and questions raised at the 2001 October 30 Public Hearing with respect to the subject rezoning application.

**RECOMMENDATION:**

1. **THAT** a copy of this report be sent to all those recorded as making submissions to the 2001 October 30 Public Hearing for Rezoning Reference #99-09

**REPORT**

**1.0 BACKGROUND**

Council, at its regular meeting of 2001 November 5, gave Second Reading to the subject rezoning bylaw and requested a report in response to the issues and questions raised at the 2001 October 30 Public Hearing with respect to the subject rezoning application. The lands proposed for rezoning are referenced on Sketch 1, *attached*, as *Parcels A and B*.

The City Clerk has provided staff with a record of the Public Hearing discussion of the subject rezoning. The following responds to the issues and questions raised at the Public Hearing.

**2.0 RESPONSE TO ISSUES AND QUESTIONS RAISED**

**2.1 *What is the objective of enhancing Jerry Rogers' Creek?***

In relation to the subject site, Jerry Rogers' Creek is currently located within a road side channel within the existing Meadow Avenue road right-of-way on the eastern boundary of the subject site. The Creek will need to be relocated into the development site to accommodate a finished road standard on the adjacent Meadow Avenue right-of-way.

As noted at the Public Hearing, from a watershed perspective, there are significant challenges to returning Jerry Rogers' Creek to a condition that would provide quality habitat for salmon and other fish species. Of notable concern is the barrier to fish access posed by the pump station and outfall structures at the Fraser River, the limited riparian area associated with the Creek given its road side alignment along Meadow Avenue and 12th Avenue, and the impact on water quality arising from existing adjacent and upland uses.

Given these challenges, the proposal within the Glenwood Industrial Estates Concept Plan, focuses the provision of required compensation for the closure of other drainage channels abutting and within the development site on the creation of new habitat using a 1.9 ha site within the immediate area located on the Fraser River. This site is referenced as Parcel D on Sketch 1, *attached*.

The requirement for the provision of a 30 metre wide riparian corridor to accommodate a relocated Jerry Rogers' Creek on the subject site is based on a perspective arising from the review of the proposed development and the adjacent Creek by City staff, and Provincial and Federal agencies. This requirement recognizes the present limited value of the Creek from a fish habitat perspective by the establishment of the reduced riparian area of 30 metres, inclusive of the Creek channel and side slopes which will occupy an area of 20 metres. In comparison, the typical standard for higher quality streams can range from 15 to 30 metre wide setbacks on each side of the creek measured from the top of the side slopes or top-of-bank

At the same time, however, the required 30 metre wide corridor is expected to provide sufficient riparian area for fish habitat should longer term future improvements be achieved within the Jerry Rogers' Creek system. In addition, it will serve as an ecological linkage / green way for birds and other species connecting the Fraser River environment to an upland ravine habitat with connections through Willard Park, 14<sup>th</sup> Avenue Ravine Park, Taylor Park, and Byrne Creek Ravine Park.

**2.2 *Can the riparian area required for Jerry Rogers' Creek be designed to provide other types of wetland habitats for birds, frogs, salamanders, and other species?***

The riparian corridor required for Jerry Rogers' Creek is directly adjacent to a proposed bio-filtration wetland which will treat storm water to remove common urban pollutants prior to release to the adjacent Jerry Rogers' Creek. The planting scheme for the bio-filtration facility will incorporate wetland grasses and marsh

plants which will support aquatic species. This area would complement the extensive planting scheme envisioned for the riparian corridor. Together, these two areas will provide a range of habitat types for birds, small mammals, and other species. In addition, the wetted channel of the Creek will provide a substantial habitat area that supports other types of aquatic and non-aquatic species, while maintaining the potential to achieve greater fisheries values for the Creek in the future.

The portion of Jerry Rogers' Creek to be relocated into the development site, however, can not be fully designed as a marshland habitat given its role as a fore bay area for storage of storm water awaiting release through the Meadow Avenue pump station and flood box to the Fraser River. The water levels in the Creek channel in this area will fluctuate dependent on storm events, tide levels and pump station operations. As such, it would not provide a stable water level regime to fully support a marshland planting approach for the 12 metre wide section of the bottom of the Creek channel. This wetted portion of the channel will, however, support the growth of grasses and other plant species that can withstand the effects of variable water levels. Staff will review the planting scheme for the section of Jerry Rogers' Creek to be relocated and will seek to ensure that it takes into account the objective to support other species through the provision of a suitable and sufficient variety of plant types.

**2.3 *Can the riparian corridor compensation area associated with Jerry Rogers' Creek be transferred to other streams outside the development?***

Currently, established policy of Federal and Provincial environmental agencies (Ministry of Water, Land and Air Protection (WLAP), and the Department of Fisheries and Oceans (DFO) does not support the suggested approach to direct required habitat compensation to areas outside of the immediate watershed impacted by proposed development. As such, in relation to the Glenwood Industrial Estates proposal, required compensation was applied in the immediate area utilizing Parcel D, referenced on Sketch #1, *attached*. This compensation area will also achieve a City objective to provide for linear public access along the Fraser River on a constructed urban trail, with opportunities for public enjoyment and interpretation of the restored Fraser River habitat.

With regard to Jerry Rogers' Creek, the required 30 metre wide riparian corridor was not viewed as compensation for the closure of drainage channels within and abutting the site, but rather as the minimum required riparian setback area for an existing watercourse that was to be retained in an open condition. Regulatory agencies are, however, currently reviewing established policies for cross watershed compensation.

With a future change in policy, staff would review potential opportunities for application of cross boundary compensation in relation to recent assessment information compiled on Burnaby Creeks and through our established liaison with Burnaby streamkeeping groups.

**2.4 *What impact or effect will the development of the subject site have on upland drainage and water table characteristics of the Willard Street area?***

The residential and agricultural lands in the Willard Street area are located on the low lying area of the Fraser River Flood Plain. The area experiences the effects of a naturally high water table in the Big Bend and associated generally poor drainage characteristics. Ground water levels in the area are reflected in the water levels in adjacent road side ditches, and are typically near the ground surface, and are affected by precipitation. The Jerry Rogers' Creek system and the storm sewer on Willard Street and Spur Road conveys storm water from the Willard Street area to the Meadow Avenue pump station on the Fraser River.

Currently, all storm water from the subject lands within the proposed Glenwood Industrial Estates flows to the adjacent Jerry Rogers' Creek on Meadow Avenue and then to the Fraser River through the pump station and flood box. The pump station, as designed, was re-assessed as part of the preparation of the Concept Plan for Glenwood Industrial Estates. This assessment determined that capacity upgrades would not be required to accommodate drainage from Phase 1 of the proposed Glenwood development. Subsequent phases of the Glenwood development will re-direct about 50% of site drainage from the Jerry Rogers' Creek system to a new gravity outfall to the Fraser River recently approved by the Fraser River Estuary Management Program (FREMP) for servicing of industrial property at 5600 Riverbend Drive.

Preliminary site preparation work (property filling and pre-loading) of the subject Glenwood site has been undertaken over an extended period of time, with works first initiated in about 1990/91. Site preparation work is continuing on the property with a focus on pre-loading works for Phase 1 and 2 subdivision servicing. A similar, extended program of site preparation is continuing on the adjacent Burnaby Business Park lands based on a Concept Plan adopted by Council on 2001 January 8.

Given the extended program of site preparation, the proposal to re-direct drainage from about 50% of the Glenwood site to a new outfall, the upstream location of the Willard Street area, and the intervening location of Marine Way and the CPR line facilities, staff have no basis to attribute impacts from the proposed Glenwood development to the upland drainage and water table characteristics of the Willard

Street area. Nor is there any indication that water within the section Jerry Rogers' Creek to be relocated within the Glenwood site would seep upstream into the Willard Street area.

In response to previous concerns regarding drainage in the Willard Street area, a drainage study of the Willard Street area has been initiated with a view to developing a mitigation program for localized drainage and flooding concerns. This drainage study has proceeded with a focus on improving storm drainage characteristics in the Willard Street area through the Jerry Rogers' Creek system. Initial results of the study indicate that existing under sized culverts on the Meadow Avenue alignment of the Jerry Rogers' Creek system are restricting the peak flow of storm water through to the Meadow Avenue pump station on the Fraser River. The Glenwood Industrial Estates development proposal would result in the upgrade of one of these culverts at Trapp Avenue related to works for the relocation of the Creek. Other remaining works identified to improve the drainage system would need to be pursued through the City's Capital Program.

Once complete, the outcome of the drainage study and any arising remedial actions will be forwarded to Council for consideration and approval of any require capital expenditures. In response to previous submissions to Council on this subject, staff contacted area representatives to advise of the study being undertaken and that subsequent results would be conveyed. Following completion of the above noted study, as requested, staff will undertake to convey the results to representative area residents, property owners and agricultural operators, and to receive comment on the drainage plan prior to pursuing an approach for implementation.

**2.5 *Are qualified experts used to ensure proper approaches are taken to developing in a bog area?***

Peat lands in the Big Bend are classified as "readily treatable peat". Treatment is typically achieved by filling and reloading to compress the underlying subsurface soils to achieve stable foundation conditions. Due to the variable nature of subsurface soil conditions in the Big Bend, a specific approach is required for each property considered for development.

Within the Glenwood site, subsurface information indicates the deposits of lowland peat up to 8 meters in depth overlying Fraser River sediments including overhand sand to silt loam normally less than 2m thick overlying 15m or more of deltaic and distributary channel fill (including tidal flat deposits), 10 to 25m thick interbedded fine to medium sand and minor silt beds that may contain organic and fossiliferous material. These conditions are typical of the treatable peat area in the central portion of the Big Bend.

The services of qualified geotechnical engineers are employed in all major site development, servicing and building pre-loading programs in the Big Bend. Site specific geotechnical investigation, performance and design is undertaken for each development to establish stable foundation conditions for buildings and services. The Glenwood Industrial Estates development has and will continue to require input from qualified geotechnical experts at all stages of site preparation, servicing and development.

**2.6 *How has sanitary sewer service been made available to the Glenwood Industrial Estates development and can the development provide for the extension of this service to the Willard Street area?***

As part of servicing requirements for rezoning and subdivision, the Glenwood Industrial Estates development will be required to fund and construct the sanitary service required to support the proposed future industrial development. This will include the extension to a sewer forcemain from its current terminus at North Fraser Way and Wiggins Street to the proposed future location of a City pump station incorporated with the Gateway feature at North Fraser Way and Marine Way. The future pump station and extension of the forcemain to Marine Way will provide the basic infrastructure to extend the sanitary service to the Willard Street area. The Glenwood development proposal will not, however, result in the direct extension of these services to properties outside the subdivision within the Willard Street area.

A specific program to extend the sanitary sewer system to the adjacent residential and agricultural area would need to be implemented through a City capital expenditure program. The most recent estimated costs for extension of the sanitary sewer system to the approximate 100 lots in this area is in the order of \$4.5 million (\$45,000 per lot), excluding individual on-site connection costs for adjacent property owners. On-site connection costs would be the responsibility of each property owner. This estimate is based on a sanitary sewer system designed to accommodate current development density in the area permitted under the prevailing zoning district, and would not support the rezoning or subdivision of existing 1 acre or smaller lots.

A capital program item to extend sanitary service to the Willard Street area has been included in previous funding applications under the Federal/Provincial/City infrastructure program, but has yet to receive priority for funding in relation to other civic projects. The extension of sanitary sewer service to this area is, however, within the scope of the City's infrastructure improvement program, but is subject to availability of capital funding to provide for its implementation.

**2.7 *Why has provision not been made to include the Willard Street residential properties with the flood proofing measures required for the Glenwood Industrial Estates?***

Given that most of the Big Bend, and the Willard Street area, is located within the low lying Fraser River Flood Plain, new buildings and other structures and improvements within the designated flood plain, that are subject to damage by flood waters, are required to be constructed above 200 year flood levels. This requirement provides for the protection of structures and improvements from flood damage should the area flood as a result of a combination of either high tides, Fraser River levels, and upland drainage from storm events.

Flood proofing measures employed in the Glenwood development, and most new developments in the area, typically involve the raising of the elevation of the property and building footprints through the placement of fill on the property (building footprints and yard areas) to achieve minimum bylaw or recommended flood proof elevations. Alternatively, flood proofing can be achieved by structural elevation of the habitable floor plate. Utilization of either of these approaches in established areas, such as the Willard Street neighbourhood, would require the filling/reloading of sites areas intended for building footprints prior to the construction of new buildings, the relocation of existing structures onto filled and flood proofed areas within existing lots, or the structural elevation (raising) of structures above minimum elevations. Given the established development pattern within the Willard Street area, the comprehensive flood proofing approach used for the Glenwood Industrial Estates can not be applied in the Willard Street area on a wholesale basis. New buildings within the Willard street area that are subject to damage by flood water, are to be constructed to flood proof elevations.

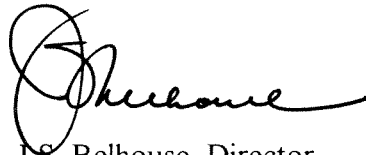
**2.8 *What impact will the development have on the water quality of Jerry Rogers' Creek abutting the development site?***

Storm water management measures for the Glenwood development includes treatment facilities for storm water. Prior to being released to Jerry Rogers' Creek, storm water from development sites will be routed through storm interceptors and bio-filtration facilities. The combination of on-site and common storm water management and treatment facilities will be designed to established criteria to provide a detention period of up to 10 days for a 1:10 year return period for a 1 hour event to allow for the removal of metals, suspended sediments and nutrients prior to release to Jerry Rogers Creek and the Fraser River.

**3.0 SUMMARY**

The subject rezoning seeks to establish an overall comprehensive plan of development based on the proposed '*Glenwood Industrial Estates Concept Plan*' to be implemented on a phased basis through subdivision and rezoning approval processes. The subject rezoning bylaw, given Second Reading by Council at its regular meeting of 2001 November 5, is in accordance with Council directions contained with the City's Official Community Plan and Big Bend Development Plan.

Implementation of the proposed *Glenwood Industrial Estates Concept Plan* for the subject area will result in significant improvements to area infrastructure, habitat, and public amenities. On it own, the *Glenwood Industrial Estates Concept Plan* will not resolve broader issues related to the quality of the Jerry Rogers' Creek system, drainage characteristics of the Willard Street area, or the level of infrastructure improvements in this established neighbourhood. At the same time, however, the proposals for Glenwood will make significant contributions towards the resolution of these issues by protecting the future potential of the adjacent portion of Jerry Rogers' Creek, upgrading the capacity of this reach of Jerry Rogers' Creek to convey peak storm water to the Fraser River, and extending trunk sewer forcemain facilities to a required future City sewer pump station at North Fraser Way and Marine Way.



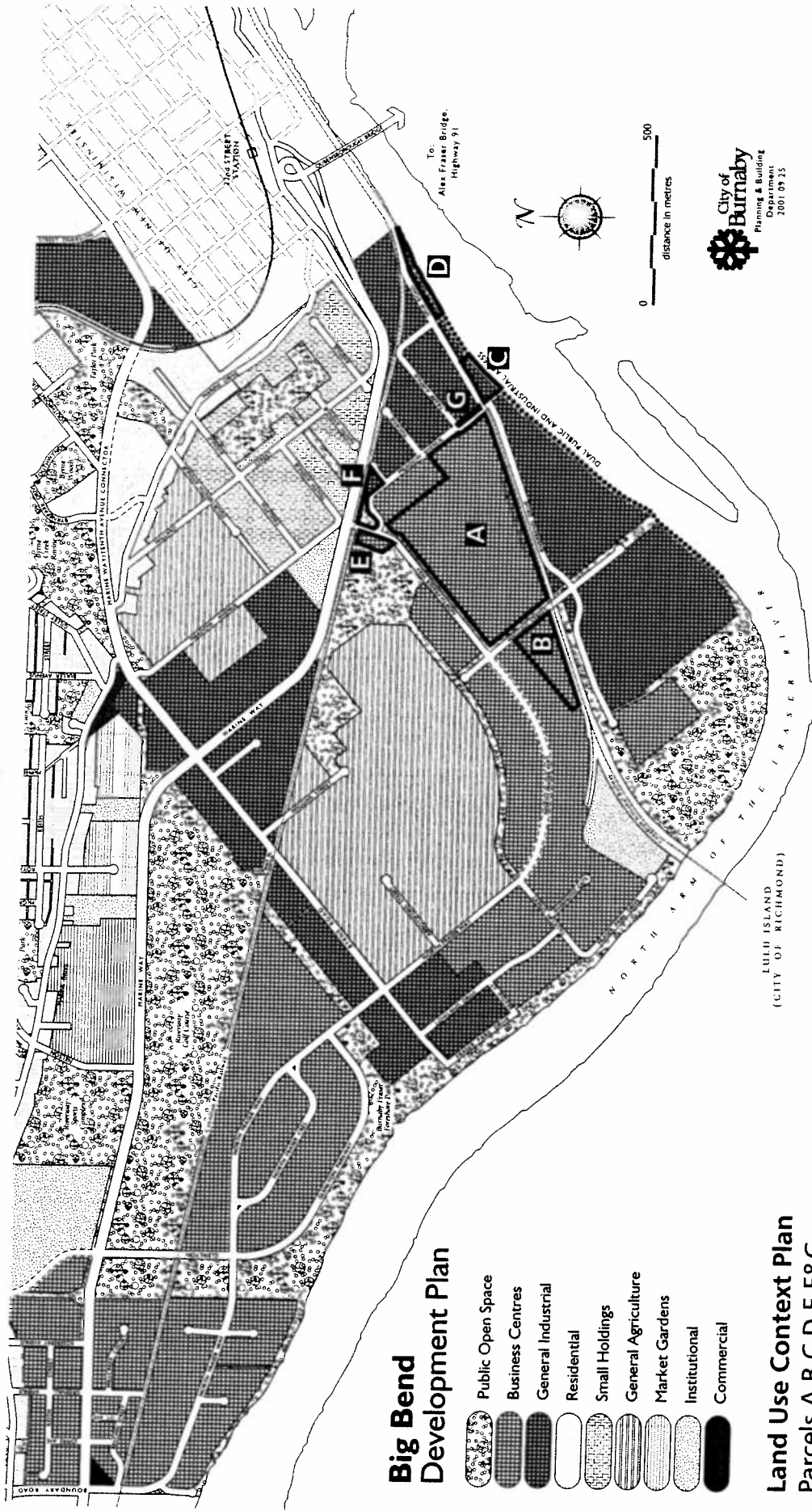
J.S. Belhouse, Director  
PLANNING AND BUILDING

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Attachment (1)

cc: City Clerk  
Director Engineering  
Director Parks, Recreation and Cultural Services

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### Big Bend Development Plan

- Public Open Space
- Business Centres
- General Industrial
- Residential
- Small Holdings
- General Agriculture
- Market Gardens
- Institutional
- Commercial

### Land Use Context Plan

Parcels A, B, C, D, E, F, G  
 (CNRP Ownership: Parcels A, B, C, D)  
 (City Ownership: Parcels E, F, G)

**Glenwood**  
 Industrial Estates

Sketch #1

