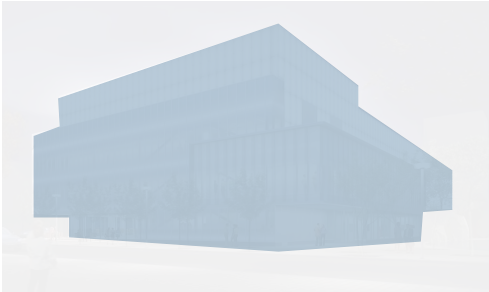
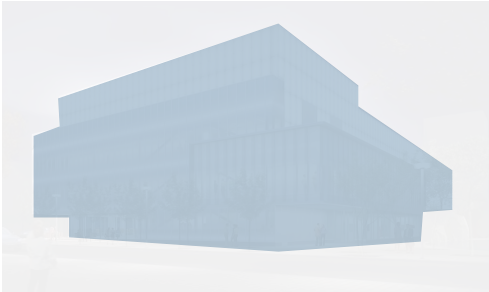


Performing Arts Centre Feasibility Study

Riverside Drive West Site

Nyhoff Architecture Inc.

May 11th, 2017



Performing Arts Centre Feasibility Study

Table of Contents

Executive Summary

May 11th, 2017

Mr. Marley Oness
Engineering Manager
Town of Okotoks

Nyhoff Architecture was engaged by the Town of Okotoks Planning Department to facilitate an analysis of the feasibility of building a Performing Arts Centre (PAC) on an available property along Riverside Drive West between the Sheep River and the Canadian Pacific Rail line. The objective of the report is to identify the cost premium of building a PAC on the available property within the flood fringe of the river over and above the cost of building on a typical green field site.

The proposed property buildable site area is reduced by the setbacks of the Sheep River floodway which crosses the property at its' mid point. All new construction within the flood fringe must be set back from the line of the floodway by 10m and have its' main floor set .5m above the 1% flood event elevation, which for the purposes of this analysis is assumed to be at elevation 1053.6m.

The property is further challenged by its' proximity to the existing Canadian Pacific Rail line which we understand operates daily with trains passing once in the morning and once in the later evening. While train movement can be anticipated, the impact of noise and vibration must be considered in the design and construction of the PAC.

In accordance with the Town of Okotoks bylaws, all parking for the facility must be provided on site and no construction can be more than 4 storeys in height.

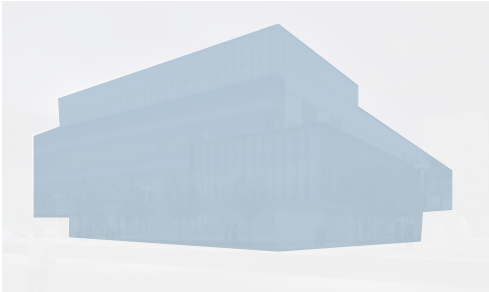
The scope of this study involved the following steps:

1. The development of a test fit of the proposed PAC facility on the site to a conceptual planning level. The test fit is based upon the 300 seat PAC originally developed by Nyhoff Architecture for the Town of Okotoks Performing Arts Venue Feasibility Study issued May 7th, 2012. The test fit was intended to identify any unique planning or construction issues related to the unique conditions of the site such as noise and vibration isolation, building in the flood fringe and any relevant planning regulations and policies.

2. Collaboration with a consultant team consisting of Civil, Structural, Mechanical and Electrical Engineers as well as an Acoustical Consultant to identify and document design strategies, construction techniques, or assemblies that would need to be employed to create a feasible and fully functional venue.

3. Share the PAC conceptual design drawings and consultant design narratives with the Cost Consultant for their use in the development of a high level conceptual budget estimate for the facility. The conceptual estimate identifies the cost premium for the construction of the facility on the flood fringe site over and above a green field site.

4. Prepare and assemble the final report for submission to the Planning Department for their use.



Performing Arts Centre Feasibility Study

Architectural Conceptual Design #1

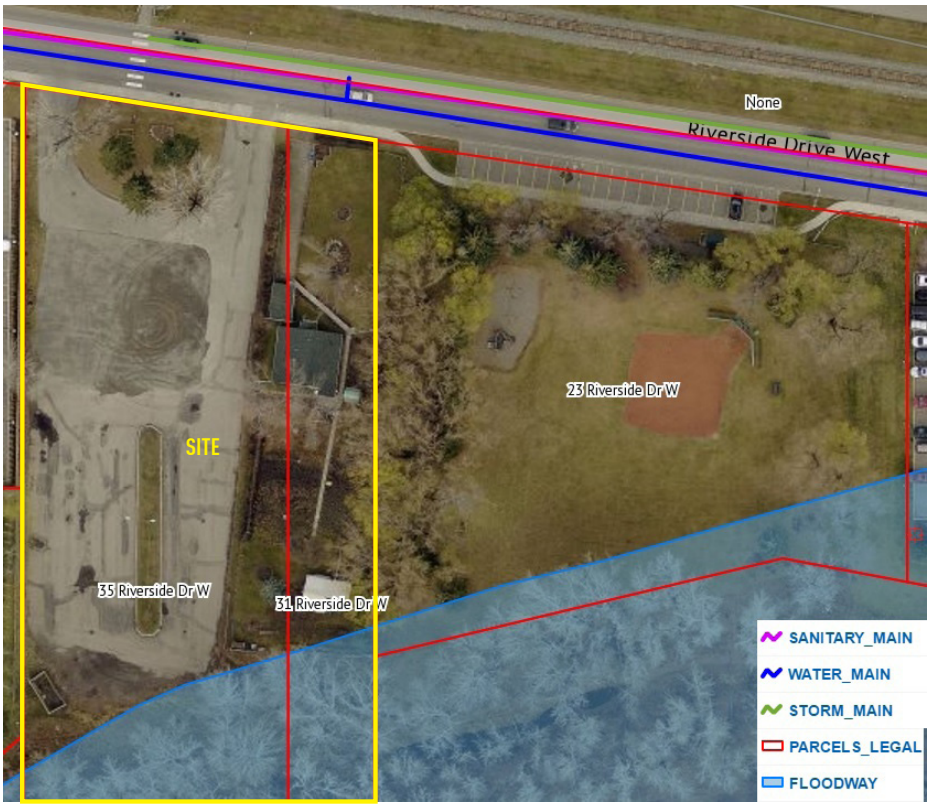
The initial Architectural Conceptual Design of the proposed PAC facility is based upon the program for a 300 seat PAC originally developed by Nyhoff Architecture for the Town of Okotoks Performing Arts Venue Feasibility Study issued May 7th, 2012.

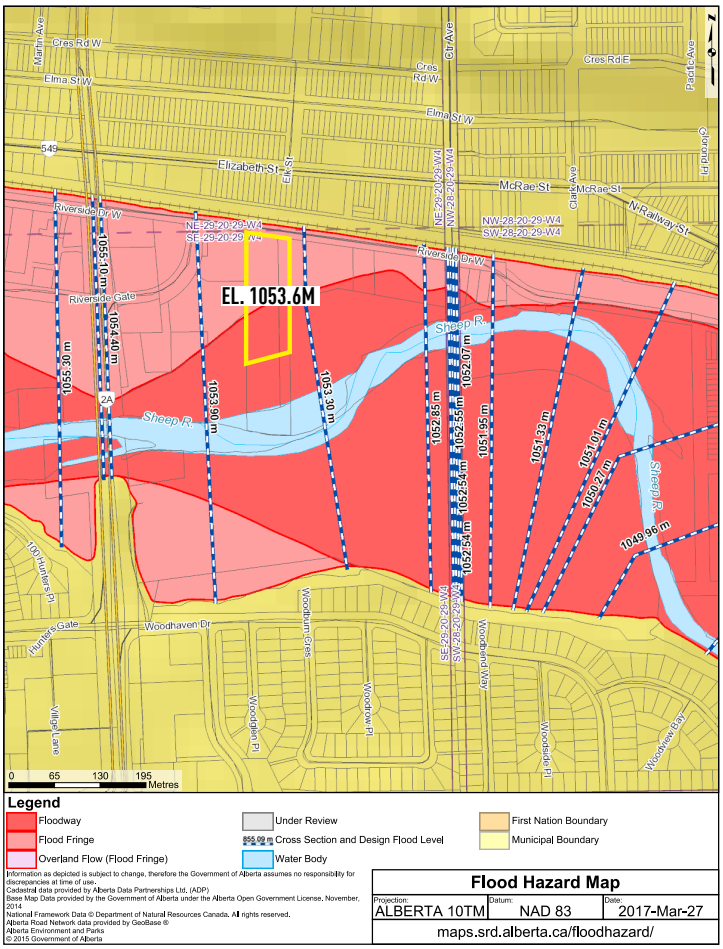
Approximate Site Boundary

The proposed site is located on the southern edge of downtown along Riverside Drive West between the Canadian Pacific Railway line and the Sheep River. To the west is a retirement community and to the east is a multi-use park. The public library is located on the east side of the park. A bike and walking path connects the southern edge of the proposed site with the adjacent facilities.

The proximity to the park, river and library beyond offer interesting and compelling opportunities for arts programming, partnerships and shared uses.

Floodway and 1% Flood Event Elevation





For the basis of this study, the conceptual design of the PAC assumes the combined use of both the 35 and 31 Riverside Dr W properties to create a synergistic relationship with the adjacent park at 23 Riverside Dr W.

The extent of the flood way is illustrated in blue above and the remaining site is considered to be in the "flood fringe".

The 1% flood event elevation has been assumed at el. 1053.6m which is the average between the two cross section design flood levels identified in the Alberta Flood Hazard Map to the left.

nyhoff architecture

Assumed PAC Facility Program

Space	Notes	Net Area (sf)
PUBLIC AREAS		
Foyer		150
Main Floor Lobby	7 sf / seat	2,100
Upper Mezzanine Lobby		1,200
Chair and Table Storage		100
Box Office		150
First Aid Room		100
Café / Concessions		200
Café / Concession Storage		100
Coat Room		100
Catering Kitchen		200
Janitor Closet		50
Female Restrooms	10 assumed	500
Male Restrooms	5 assumed	250
Unisex Restroom 1		60
Unisex Restroom 2		60
Furniture Storage		100
Elevator	Passenger / Service Elevator	75
Elevator Machine Room		50
Total		**5,545**
ADMINISTRATION		
Reception		100
Box Office Manager		100
Theatre Manager Office		100
Flex Office		100
Small Meeting Room		200
Storage		100
Kitchenette		75
Copy Room		75
Total		**850**
300 SEAT THEATRE		
Seating Area	200 Floor	2,700
Stage	25'd x 55'w	1,500
Mezzanine	100 Mezzanine	1,500
Control Room		250
Sound and Light Locks	4 @ 55sf	220
Chair Storage		250
Miscellaneous Storage		450

Equipment Storage	Genie Lift	300
Riser Storage		300
Piano Storage		100
Dimmer Room		100
Catwalk		0
Total		**7,670**

THEATRE SUPPORT SPACES

Green Room / Multipurpose Room		600
Large Dressing Rooms	2 @ 350sf	700
Dressing Room Unisex Washrooms	(2) Washrooms w/ Showers	120
Small Dressing Rooms	2 @ 50sf	100
Small Dressing Room Washrooms	(2) Washrooms w/ Showers	120
Wardrobe and Laundry		300
A/V Equipment Storage		50
Tech Equipment Storage		100
Loading Area		300
Workshop		600
Total		**2,990**

MULTIPURPOSE ROOM

Multipurpose Room	Retractable Seating for 100 people	2,000
Storage Room		100
Total		**2,100**

SERVICE SPACES

Garbage and Recylcing Room		200
Electrical Room		300
Mechanical Room		600
I.T. Closet		30
Dimmer Room		40
Janitor Storage		50
Total		**1,220**

COMMUNITY MEDIA LAB

Recording Studio		400
Equipment Library		200
Classroom		600
Editing Suites	2 @ 80sf	160
Storage		100
Gathering and Exhibit Area		800
Total		**2,260**

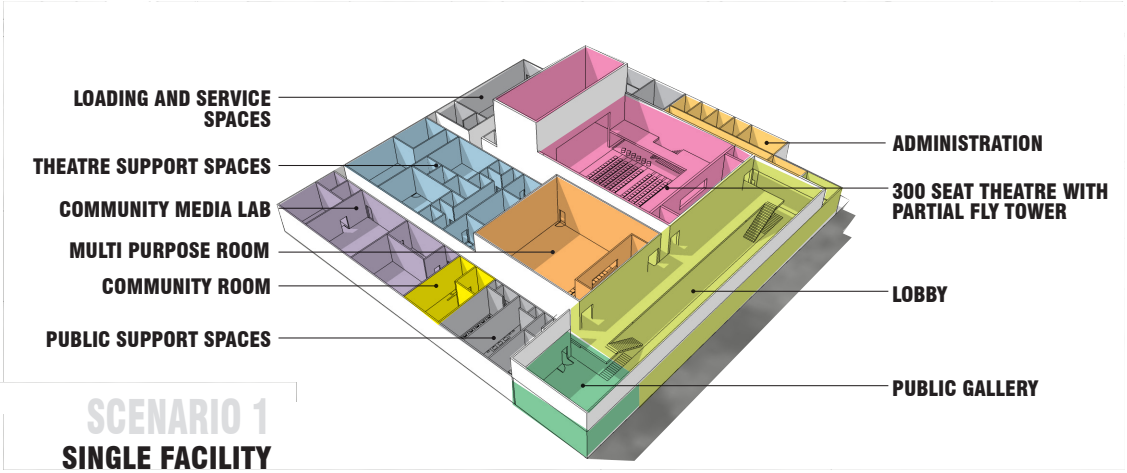
Assumed PAC Facility Program

PUBLIC GALLERY AND COMMUNITY SPACE		
Gallery		1,000
Community Room		400
Gallery Storage		100
Total		**1,500**

REHEARSAL AND MOVEMENT STUDIO		
Studio		1,600
Storage		100
Total		**1,700**

ARTS CLASSROOM		
Studio	Sinks	1,300
Classroom	Sinks	800
Storage		200
Total		**2,300**

TOTAL NET AREA		**28,135**
TOTAL GROSS AREA	Assumed Net to Gross - 1 : 1.60	**45,016**



SCENARIO 1

SINGLE FACILITY

45,016 SF

PAC Facility Precedents

These precedent images are intended to convey the scale, function design, materiality and quality of the proposed PAC conceptual design.

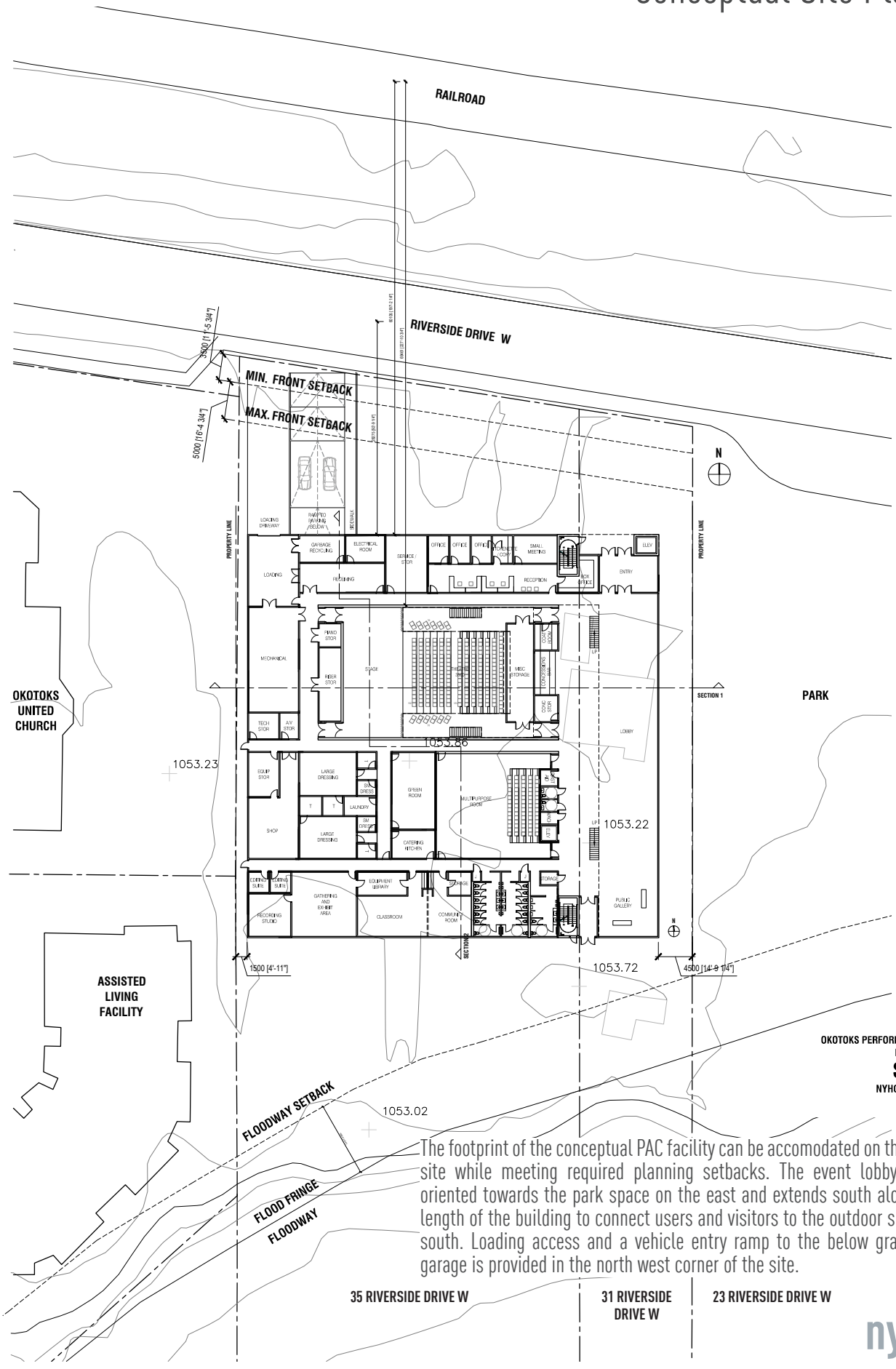
Facility Precedents

Strategic site planning could take advantage of the proposed sites' relationship to the adjacent park space to enhance the user's experience of both the PAC and the park including physical and visual connections.

Facility Precedents

The PAC facility program includes a wide range of spaces to service the function of the facility and the larger community of Okotoks.

Conceptual Site Plan #1



OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY
SITE PLAN
NYHOFF ARCHITECTURE
MARCH 27TH, 2017
1:500

The footprint of the conceptual PAC facility can be accomodated on the proposed site while meeting required planning setbacks. The event lobby has been oriented towards the park space on the east and extends south along the full length of the building to connect users and visitors to the outdoor space to the south. Loading access and a vehicle entry ramp to the below grade parking garage is provided in the north west corner of the site.

nyhoff architecture

Conceptual Parking Plan #1

OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

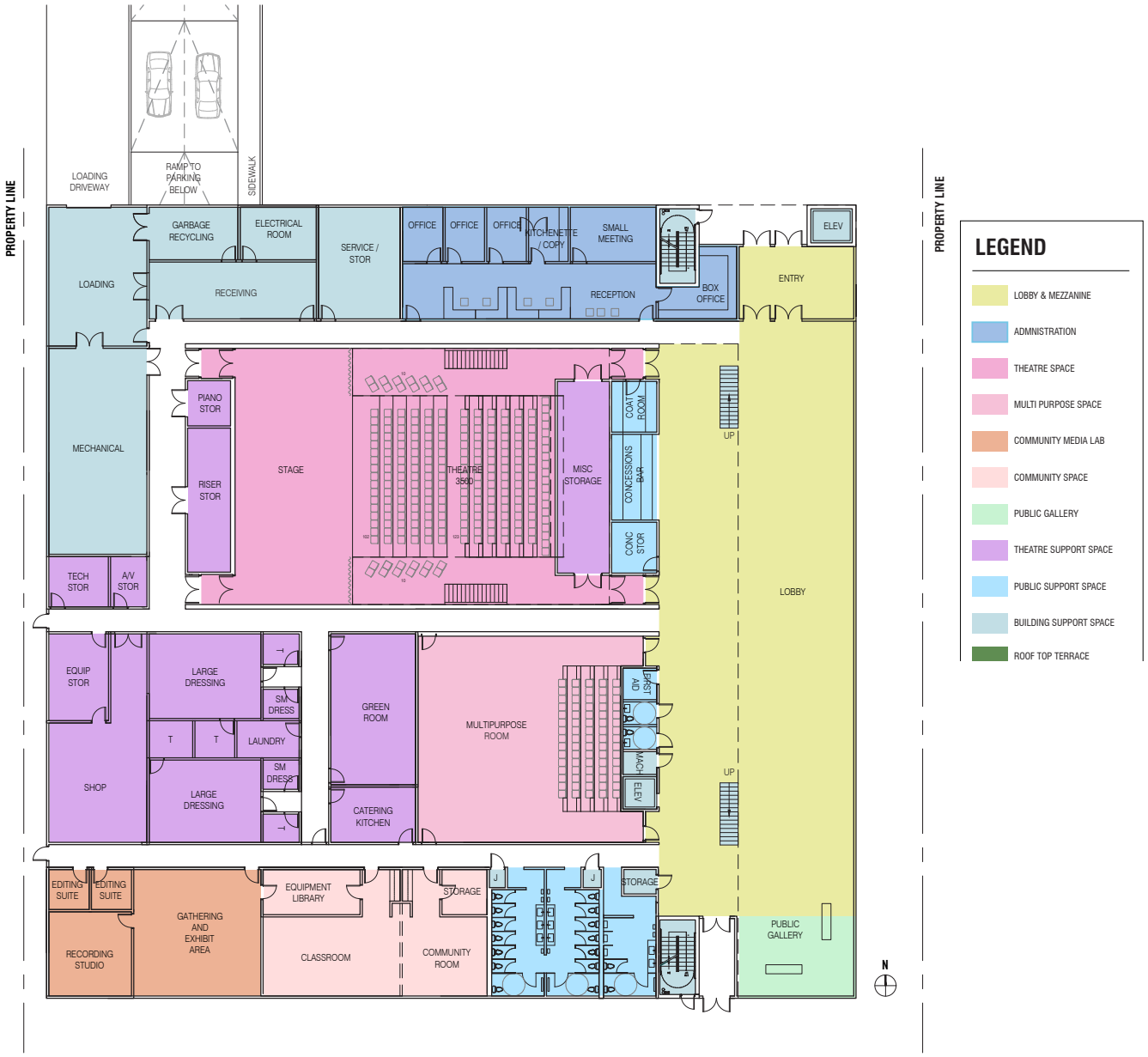
PARKING LEVEL

NYHOFF ARCHITECTURE
MARCH 27TH, 2017
1:300

With access to Riverside Drive West in the north west corner, approximately 94 parking stalls can be provided in a single level of parking below the PAC facility above. A walk out sidewalk flanks the vehicle ramp and an entry lobby is provided in the north east corner connecting with the PAC entry lobby directly above. The conceptual design assumes that the Parking Garage will be designed to flood during the 1% flood event. The nature of the facility is such that access to the garage can be controled and restricted during the flood event.

nyhoff architecture

Conceptual Main Floor Plan #1



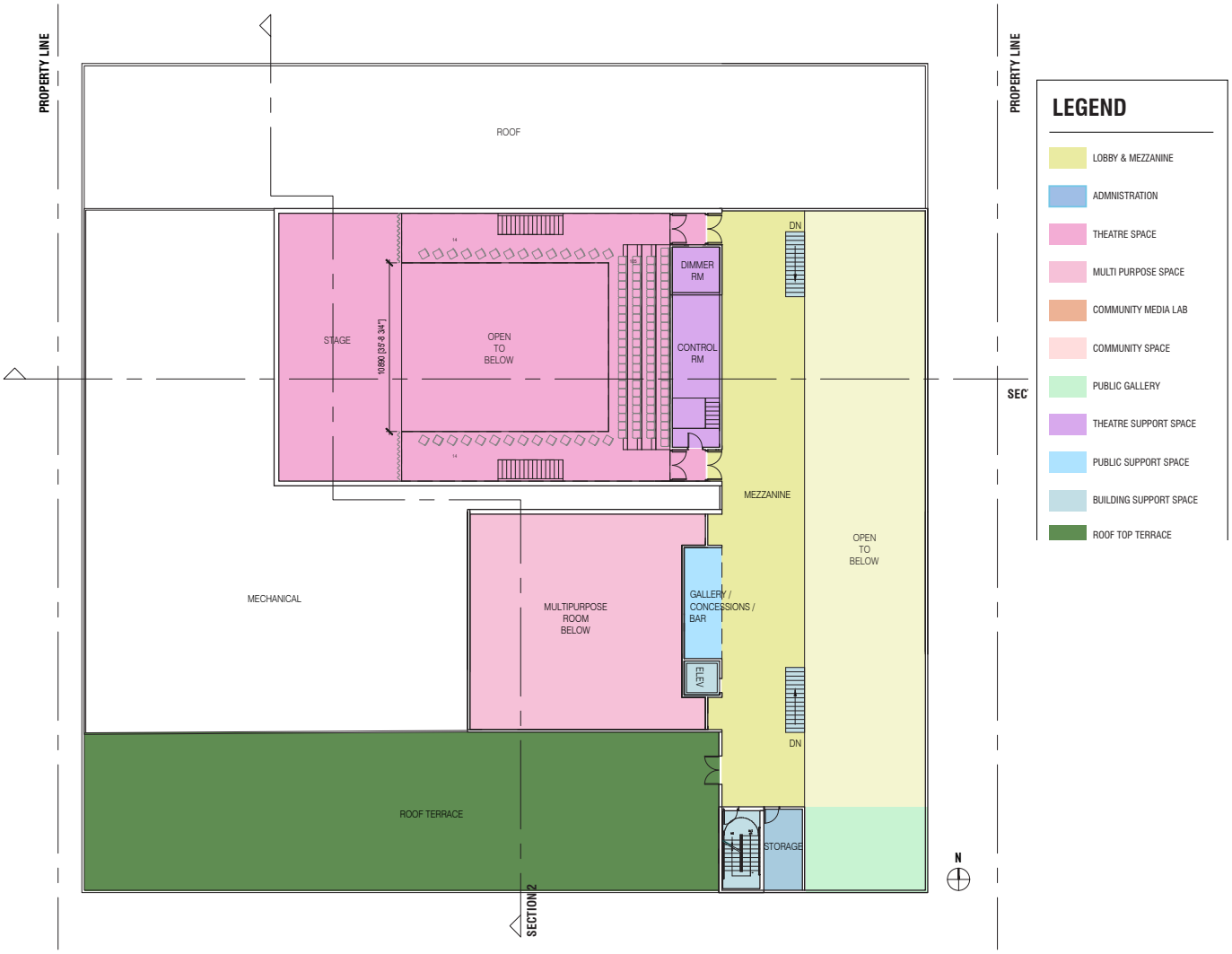
OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

MAIN FLOOR PLAN

NYHOFF ARCHITECTURE
MARCH 27TH, 2017
1:300

The conceptual design of the PAC uses the supporting spaces as buffer to the external noise and vibration by wrapping them around the theatre and multipurpose room which also provides better physical and visual access to exterior spaces.

Conceptual Mezzanine Floor Plan #1



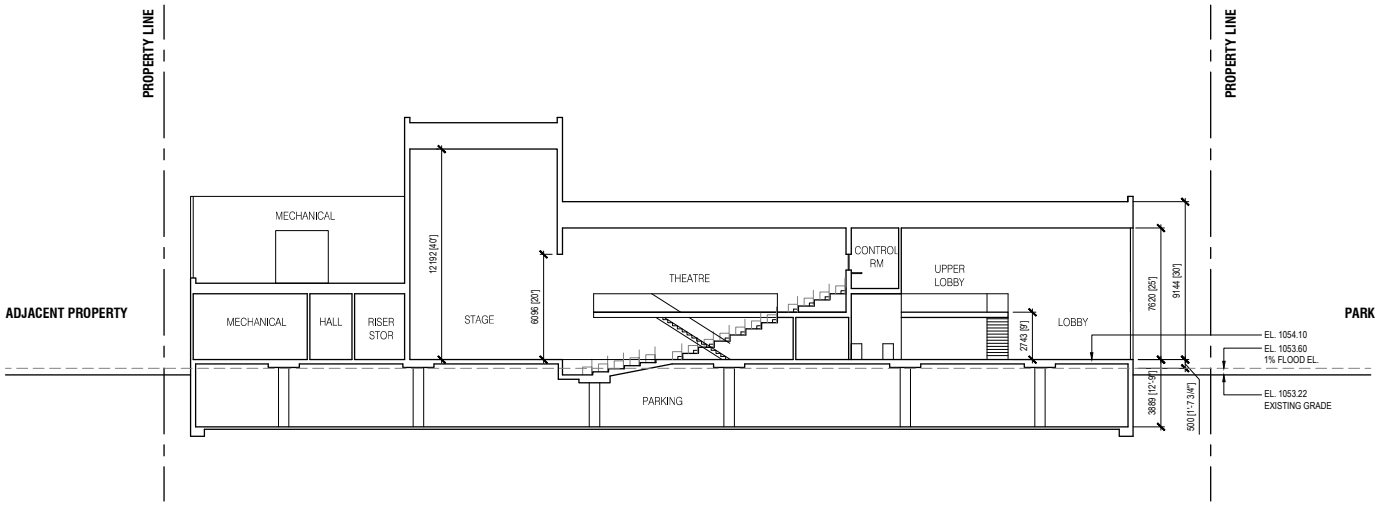
OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

MEZZANINE FLOOR PLAN

NYHOFF ARCHITECTURE
MARCH 27TH, 2017
1:300

The mezzanine level of the conceptual design provides access to the balcony level and control room of the theatre. It also provides a great overlook into the lobby below and the park beyond as well as direct access to the south facing roof terrace with views of the Sheep River. Access to mechanical support spaces is provided through service corridors between the theatre and multipurpose room.

Conceptual Building Sections



OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

BUILDING SECTION 1

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MARCH 27TH, 2017
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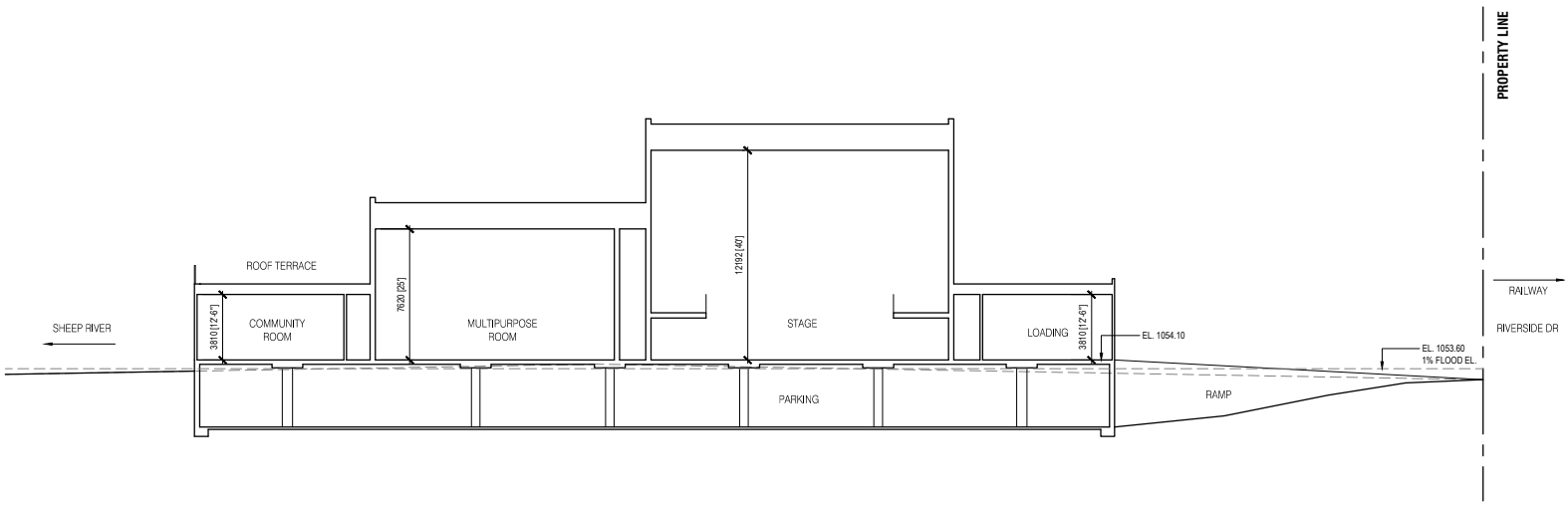


OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

BUILDING SECTION 2

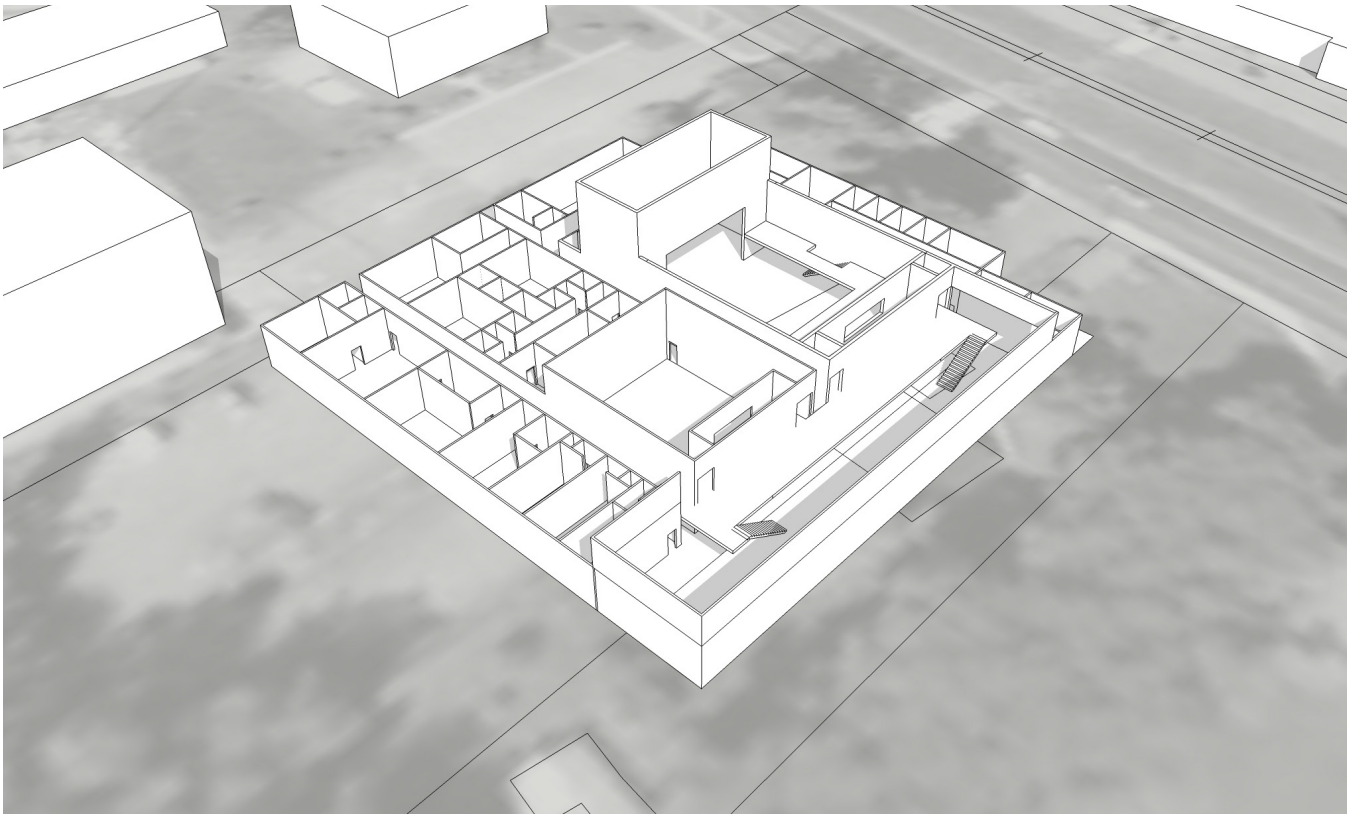
NYHOFF ARCHITECTURE
MARCH 27TH, 2017
1:300

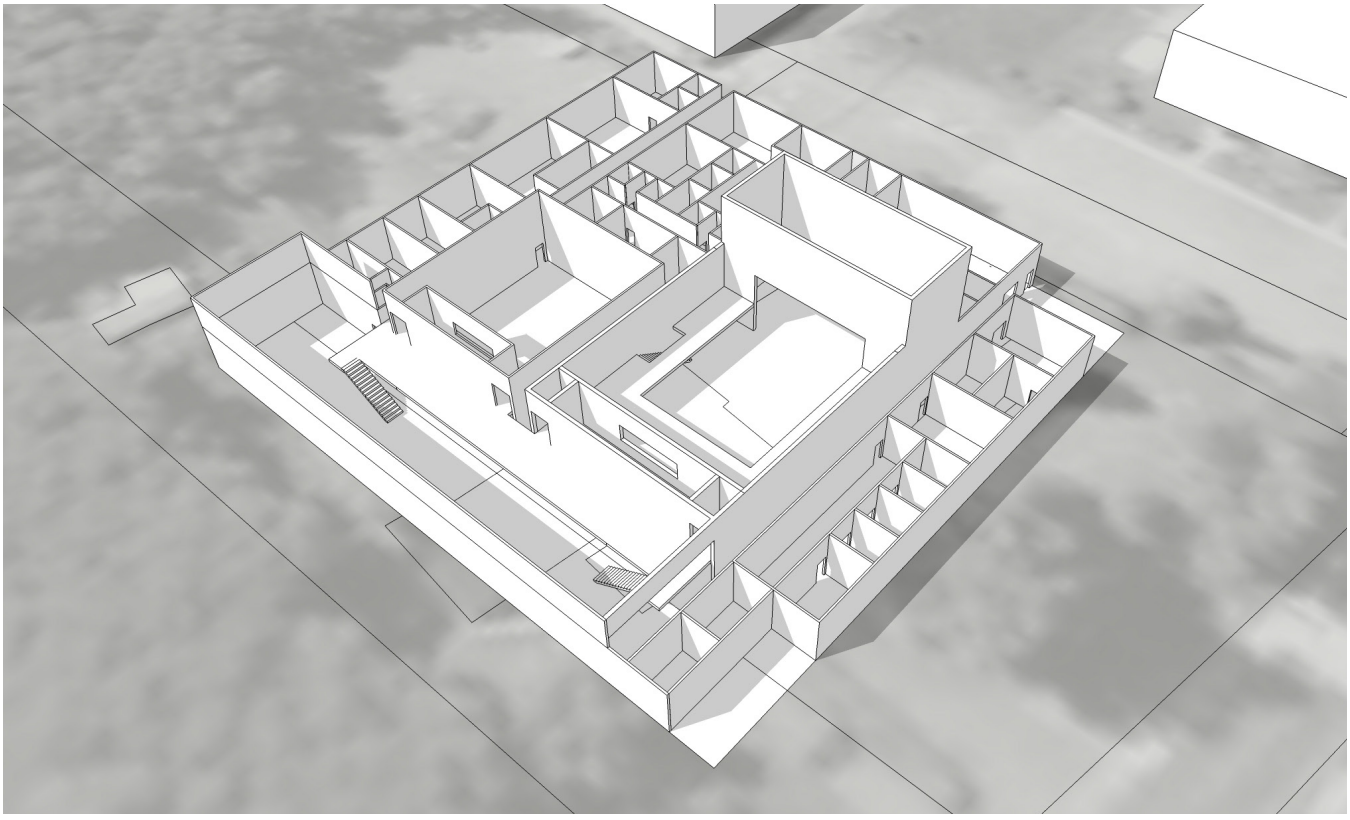
The conceptual design sections confirm the ability to set the main floor of the PAC at elevation 1054.1m which meets the required .5m above the 1% flood event elevation of 1053.6m. The site dimensions allow for a vehicle ramp to access the parking level below the PAC with additional vertical dimension provided for unique acoustic separation construction.

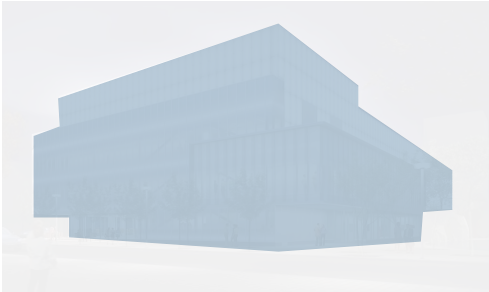
Conceptual Site Massing

The conceptual massing of the facility on the proposed property confirms the scale of the PAC is consistent with existing buildings and is not overwhelming to the site or adjacent context.

Conceptual Building Massing







Performing Arts Centre Feasibility Study
Consultant Design Narratives

WATT Consulting Group
Since 1983

#310, 3016 – 5 Avenue NE
Calgary, Alberta T2A 6K4

T 403.273.9001
F 403.273.3440
wattconsultinggroup.com

DESIGN BRIEF

To:	Kevin Nyhoff	**From:**	TERRY VAN STADEN
Company:	Nyhoff Architecture Inc	**Date:**	April 3 2017
File:	3426.E01	**Pages:**	2
Re:	Civil Narrative for Okotoks Performing Arts Venue		

As part of the feasibility study being prepare for the proposed Okotoks Performing Arts Venue a site has been identified that falls within the flood fringe of the Sheep River. Constructing within the flood fringe can lead to additional costs that would not be incurred in a typical green field site. Watt Consulting Group (Watt) has been asked to provide input on what premiums may be incurred from a Civil Engineering perspective to construct this Venue on the proposed site.

As mentioned in the information provided by Nyhoff Architecture Inc. the site falls within the flood fringe of the Sheep River. The current Flood Hazard Map from Alberta indicates that this site falls between the 1053.9 and 1053.3 flood contours. Based on the location of the site within these contours an assumed flood fringe elevation of 1053.6 has been assumed. Based on the town requirements the main floor of the building would need to be constructed a minimum of 0.5m above this elevation which would set the main floor of the building at 1054.1m.

The following items will need to be considered as a premium to developing on this site:

1. The current elevation of the site and adjacent properties appears to be around 1053.4m. Due to the size of the building footprint within the site and to ensure access to all entrances it appears that a retaining wall on the west side of the building would be required as a result of the elevated main floor of the building. For the purposes of this study this wall would be assumed to be 0.7 m in height and would need to extend from the north to the south end of the building along the west property line.
2. As there is a proposed underground parkade for this facility the access to this parkade would need to be protected to minimize the potential for flooding into the parkade. This could include a combination of permanent as well as non-permanent measures. Some of these could include a storage area within the building for sandbags or equivalent measure to block off the parkade entrance up to the main floor elevation of the building. This could be minimized by installing permanent upstand walls on both the east and west sides of the parkade entrance to a height of the main floor elevation of the building.

This site appears to have access to water, sanitary and storm mains along Riverside Drive so no additional costs would be associated with the site services over and above a greenfield site.

If you have any questions on the above information please contact the undersigned to discuss.

Respectfully Submitted,
Watt Consulting Group

Terry Van Staden, P.Eng
Project Manger

D 403.569.0720
C 403.829.8964

tvanstaden@wattconsultinggroup.com

ENTUITIVE

May 9, 2017

Okotoks Performing Arts Venue Feasibility Study

Project Site Related Structural Considerations

This document is intended to provide a high level discussion of the structural design considerations to be taken into account for a new building located within the floodway of the Sheep River in the Town of Okotoks vs. a building located on a site outside the flood affected area.

We understand the current conceptual design of the building includes a single level of underground parking with two levels of occupied space at and above grade. The main floor of the building is at an elevation above the 1% flood height and as such the assumption is that only the basement structure will be subject to flood conditions.

Structural Foundations Considerations:

There are two approaches which can be taken with respect to foundations below ground water or overland water elevations.

Tanked Structure:

The first approach is to tank the foundation structure. In this system a 100% water tight membrane is constructed around the sides and bottom of the building foundations. The structure is designed to resist 100% of the hydrostatic pressure imposed by the highest design water pressure. In this system the basement structure would not ever be expected to flood.

There are significant cost and design implications for a system such as this. The basement slab would be designed as a structural raft slab to resist the water pressure imposed on it. The planned building is only two levels above grade and as such would not have adequate mass to resist the buoyant force of the hydrostatic pressure below the foundations. In order to hold the building down permanent foundation anchors would have to be drilled below the foundations and anchored into bedrock. Each of these measures while possible would be extremely costly and may impact the feasibility of the project.

Mechanical Controls and Allowing the Basement to Flood:

The second approach is to design the structure up to a reasonable level of water resistance, but in the critical condition allow the basement to flood through the use of pressure relief plugs in the structure. The current design of the basement does not include any critical building functions or occupancies, and the concrete parking structure and surfaces can withstand being submerged. The structure in this approach would be typical foundation construction with foundation walls capable of resisting water pressure. The basement slab would be a conventional slab on grade with relief plugs placed at a regular spacing. The mechanical systems would include a below slab weeping tile system to move water away from the foundations. In the event that the mechanical system fails or the water flow rates become too great, hydrostatic pressure would begin to build up below the slab activating the relief plugs. The basement level would begin to fill with water to equalize the pressure. Once the flood waters recede the building can return to normal operation.

This option would require a similar foundation system to that of a site outside the flood area. Ground water conditions in a non-flood area can also trigger the need for a water management plan similar to that described above and as such there may be virtually no cost difference between the two.

Any site selected for the construction of this building will have different foundation design criteria and as such making a generalized comparison difficult to quantify. Different sites may require different foundation types; piles vs. pad footings. And ground water conditions can vary greatly.

The above is intended to be a general discussion for high level budgeting only. More detailed information on sites being considered would allow for a more specific and detailed commentary on foundation systems.

Entuitive

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Okotoks Performing Arts Centre
Okotoks, Alberta
Mechanical Design Narrative

Prepared for:

Nyhoff Architecture Inc.
#205 – 619 11th Avenue SE
Calgary, Alberta
Telephone: (403) 457-1016

Issued: May 9, 2017
Project No. 3017-0043

hidi.com

General Limits

This report has been prepared solely for the use of Nyhoff Architecture Inc. and its design team associated with the Okotoks Performing Arts Centre project. The material contained in this report reflects The HIDI Group's best judgement in light of the information available at the time of preparation. There is no warranty expressed or implied. Professional judgement was exercised in gathering and assessing information and the final design reflects input from various sources including other design partner, architects and designers, and existing building code. The results presented are the project of professional care and competence and cannot be construed as an absolute guarantee.

Third Party Use

The project documents and deliverables are limited in circulation to Nyhoff Architecture Inc. and are intended for their use with respect to the Okotoks Performing Arts Centre project. Any use that a third party makes of this report, or reliance on or decisions to be based on it, are the responsibility of such third party. The HIDI Group accepts no responsibility for damages, if any, suffered by any party as a result of decisions made or actions based upon this report.

THEHIDIGROUP

Okotoks Performing Arts Centre
Okotoks, Alberta
Project No. 3017-0043

Mechanical Design Narrative
May 9, 2017

General

Introduction

The project includes development of a new Performing Arts Centre in the town of Okotoks, AB. The programming of the facility will include a new theater, multi-purpose room, general offices, associated support spaces, and one level of underground parkade. The preliminary program area of the facility is 4,000sq.m. with an additional 3,000sq.m below grade for the parkade.

This Report outlines the approach and design concepts proposed for the Mechanical systems in the new facility. It is intended that this Report will be used for co-ordination, preliminary budget review, and to ensure the design direction will meet the Owner's requirements.

The NECB-2011 requirements were considered In the development of the HVAC concepts outlined within this report. Due to the integrated nature of the building systems (arch/mech/elec), and our understanding of the building architecture, a whole building energy model will be required to confirm compliance and optimize the final building system requirements.

Scope

Major aspects of the scope for the new building will include the following:

- New Plumbing System including new water, storm, and sanitary services,
- Fire Protection Systems, including a sprinkler system and portable fire extinguishers,
- New HVAC systems, including custom air handling units with dual core heat recovery, variable volume air system, Air Cooled Chiller, and Condensing heating plant,
- DDC Building Automation System, with internet access for remote monitoring and control.

Reference Standards

Comply with all requirements of the Alberta Building Code, Alberta Fire Code, National Plumbing Code, and all applicable referenced Codes and Standards.

Meet industry standards for equipment quality assurance, including good engineering practice as described in applicable ASHRAE, HRAI, ASPE, and SMACNA handbooks and manuals.

Electrical Coordination

Power shall be:

- 120V/1ph for motors under 0.56 kW (3/4 hp)
- 208v/3ph for motors 0.56 kW (3/4 hp) and over

Premium efficiency motors to be provided for all applications, and will be suitable for variable speed operation.

Acoustics

The acoustic design requirements for this type of facility are extremely important. Preliminary requirements for pricing have been outlined in this report; however the final project requirements will need to be confirmed by a theater/ acoustical consultant during design.

Plumbing Systems

General

Plumbing systems, including domestic cold and hot water, and sanitary drainage, shall be designed to accommodate diversified design flow of connected fixtures.

The building would be provided with new combined fire/water, storm, and sanitary services. They would be connected to the town utilities, and it was assumed that this would be off Riverside Drive W. Final utility connection points are to be co-ordinated with the Town during design.

Natural Gas

A complete medium pressure natural gas distribution system will be provided. Natural gas will be regulated to the appliance service pressures at each piece appliance.

An outdoor gas meter will be installed in close proximity to main floor mechanical room.

Storm Drainage Systems

A complete storm drainage system will be provided to drain all roof areas. The storm drainage system will connect to full flow roof drains, and discharge into city mains.

The final flow and site storage requirements for the project are to be confirmed by the civil engineer during design.

Sanitary Drainage System

A complete sanitary drainage system, including waste and vent piping will be provided in accordance with the National Plumbing Code.

It has been assumed that the All drainage at the parkade level will be piped to a central sanitary sump, with duplex pumps, located in the parkade water meter room. Sanitary from fixtures on the main and second level will run be gravity and connect to city mains. Pumped sanitary mains from the parkade will connect to the gravity sanitary mains leaving the building.

Final available sanitary inverts to be confirmed by the civil engineer during design.

Domestic Water (Hot and Cold)

A new water service will be provided to serve the building. The water meter room will be located in the parkade water meter room.

A complete domestic water systems will be provided, including distribution that will be zoned by means of shut-off valves to permit repair of piping and/or equipment with minimum effect to the overall operation of the facility. All branches off mains will be valved.

Ultra-low flow fixtures will be provided throughout for water conservation. Plumbing fixture selection, including hands free operation to be confirmed during design.

Domestic hot water will be provided by two, condensing hot water tank heaters (AOSmith Cyclone xi). Domestic water to be stored at 60°C (140°F) and mixed to a lower distribution temperature for scald protection. A new packaged hot water mixing and recirculation system will be provided. Both the hot water tank and the mixing/recirculation system will be located in the main mechanical room.

Exterior non freeze type hose bibs will be provided to suit building maintenance requirements. Requirement to be coordinate with the Town.

Fire Protection Systems

Sprinkler System

The new facility will be sprinkler protected with wet sprinkler systems in accordance to NFPA 13, and the authorities having jurisdiction.

A dry pipe system will be provided for the loading area and parkade ramp area.

A Siamese connection will be provided for building, with final location and pipe routing to be coordinated during design.

A pre-action fire protection system would be provided for the stage. Additional requirements for pre-action zones to be confirmed during design.

An active smoke exhaust system will be provided for the stage, consisting of multiple, roof mounted, smoke duty rated fans. These are in addition to the performance smoke extraction system outlined in the HVAC section. Additional smoke control and performance requirements to be confirmed during design.

A hydrant test will be required during design to confirm water flow/pressure available for the sprinkler system, however, the provision of a fire pump is not expected.

Portable fire extinguishers in cabinets will be provided in accordance with NFPA 10.

HVAC Systems

Heating System

The building would be provided with a perimeter heating system that incorporates new baseboard radiation, cabinet unit heaters, heating coils on all air terminal units, and unit heaters in service spaces. The main floor lobby area would be provided with a radiant floor heating system.

The main heating plant would be locted in the main floor mechanical room, and would include fully condensing boilers. The boilers would be provided with circulation pumps and would be direct vented through the roof, with ducted sidewall combustion air. The main heating pumps would be vertical inline complete with integral variable speed drives.

A glycol heating system (50% Propylene Glycol) will be provided to serve the parkade ventilation system, parkade heating, parkade entry lobby pressurization, and the main air handling unit heat coils. The heat exchanger will be plate and frame, and the glycol heating pumps would be vertical inline complete with integral variable speed drives.

The radiant floor heating system would be provided with packaged secondary circulation pumps, and 2-way injection control valves to provide low temperature hot water to the floor. Assembly to be located in the storage room adjacent to the lobby.

Ventilation Systems

The building would be provided with the following air systems:

- 300 Seat Theater – Displacement, mixed air system,
- Main Lobby - Displacement, mixed air system,
- Main Floor - Overhead, mixed air system,
- Unloading/Garbage Room – overhead, 100% outside air system
- Parkade – Overhead, 100% outside air system with gas detection control,
- Parkade Entry Lobby – Overhead, 100% outside pressurization system.

Custom, packaged air handling units would be provided for the Theater, Main Lobby and Main Floor spaces and would be installed on the roof. The units will be complete with the following components:

- Supply fan with VFD,
- Return Fan with VFD,
- Motorized air intake, return, and relief air dampers (economizer),
- Dual Core Heat Recovery module, c/w supply and exhaust fans with VFD,
- Pre-filter (MERV 8) with summer and winter frames, and Final Filter (MERV 13)
- steam grid humidifier, complete with dedicated gas fired steam generator and water softener (installed in service corridor.
- Chilled Glycol cooling coil,
- Glycol heating coil (theater and Main Lobby only),
- Supply and return air silencers (Theater only).
- Service corridor

Okotoks Performing Arts Centre
Okotoks, Alberta
Project No. 3017-0043

Mechanical Design Narrative
May 9, 2017

Typical for all main floor air systems:

A combination of exterior and Interior medium pressure supply air ductwork would be provided for the distribution of air to the space air terminal units.

Exterior ductwork to be provided with internal rigid board insulation and will be of galvanized construction. The extent of exterior ductwork to be confirmed during the schematic design.

All sound critical zone air terminal units would be provided with 1500mm attenuators.

All main supply and return ductwork would be provided with 50mm of acoustic insulation.

Low pressure supply air ductwork would be provided after the air terminal unit with typical air supply to the space from overhead or displacement diffusers, as outlined above.

All supply ductwork would be provided with 25mm of insulation c/w vapour barrier.

The washroom and wet exhaust will be ducted back to the main floor heat recovery unit.

The stage will be provided with a variable speed, dedicated exhaust system for extraction of performance smoke. The exhaust fans will be on an adjacent roof to allow for appropriate sound attenuation. Controls to be provided to eliminate the return air back to the air handling units when in operation.

The unloading room will be provided with a dedicated air handling unit (100% outside air, glycol heating coil), to supply air into the unloading. The supply air will be transferred to the garbage room for make-up air. The garbage room will be provided with a dedicated exhaust fan.

A semi-custom, glycol coil make-up air unit would be provided for the parkade, complete with interlocked in-line exhaust fan. The make-up air unit would be located in the main floor mechanical room and would supply air through low pressure ductwork located along the west exterior wall of the parkade. The exhaust fan would be located above the bicycle storage. The fan would discharge above grade on the south side with a shaft incorporated into the stair location. Exhaust ductwork would be provided along the east side of the parkade.

A pressurization fan c/w glycol heating coil will be provided to serve the Parkade entry lobby.

Cooling

The cooling requirements of the facility will be provided by a high efficiency, air cooled chiller. The air cooled chiller to be provided with integral glycol pumps with VFDs, magnetic bearing compressors, ECM motor condenser fans, and full acoustic treatment (compressor blankets/ultra low noise fans). The chilled glycol solution to be 35% propylene glycole for burst protection. All chilled glycol piping will be installed on the roof, complete with aluminum cladding.

Due to the proximity of the assisted living facility a full review of the chiller sound data by the acoustic consultant will be required during the design. In addition to the acoustic treatment provided with the chiller, an acoustic louver enclosure is recommended. Final location for the chiller to be coordinated during design based on balance of mechanical and acoustical requirements.

Stand alone air conditioning units to be provided for server rooms and the dimmer room. To be Split DX units capable of ultra-low ambient operation.

Controls

a Building Automation System (BAS) will be installed to provide automatic control and monitoring functions of the Building systems.

The BAS shall be an electronic, microprocessor-based, standalone system capable of Direct Digital Control (DDC). All mechanical equipment will be provided with BACnet capability for full integration into the BAS. The integration of electrical systems, such as lighting or metering, will be confirmed during design.

An internet interface is proposed to allow for remote access, monitoring, and control of the building systems.

END OF MECHANICAL DESIGN NARRATIVE

C.S.

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Okotoks Performing Arts Centre

ELECTRICAL FEASIBILITY STUDY

Prepared for:

nyhoff architecture

Prepared By:

DESIGNCORE consulting electrical engineers

April 4, 2017 (Rev. 0.0)

TABLE OF CONTENTS

1.0 INTRODUCTION

Designcore Engineering Ltd has been retained to complete a Feasibility Report for a proposed Okotoks Performing Arts Facility. The report will identify several differences in the electrical installation between a Green Field development and the Riverside Drive development.

2.0 ELECTRICAL UTILITY SERVICE

We would anticipate the service to be fed from a padmount transformer located on the site. We would anticipate both sites to be fed the same way.

3.0 SERVICE ENTRANCE DISTRIBUTION

At the Riverside Drive location, the electrical service would be required to be located on the main floor to ensure it is above the 1% Flood Elevation. If the green field location was outside of the flood plain the service could be installed in the parkade allowing for additional usable space on the main level.

4.0 EMERGENCY GENERATOR

An emergency generator would not be required by code however a single diesel-electric Emergency Generator may be considered at the Riverside Drive location due to the risk of flooding. In the event of loss of power an emergency generator may allow storm water pumps (if recommended by mechanical) to prevent the accumulation of ground water in the parkade. Mechanical would have to confirm if pumps would be required as well as able to accomplish this task. The system may not be effective in an over land flood situation.

5.0 MISCELLANEOUS

Designcore would recommend the installation of all controllers for any parkade sump pumps to be installed in the main electrical room to ensure they are above the 1% Flood Elevation. This would ensure the pumps could operate as long as possible to remove ground water from the parkade. In the event the parkade was submerged, the water would have to be pumped out using temporary pumps or vacuum trucks. Once the level of the water was below the local disconnects located at the pumps the sump pumps should be able to operate again as the controllers would still be operable.

6.0 LIGHTING

The lighting design in all areas should conform to the recommendations of the Illuminating Engineering Society (IES).

The design should incorporate the use of LED luminaires.

The lighting design would be the same in both locations.

7.0 FIRE ALARM SYSTEM

The entire building should be protected by a single common fire alarm system which shall comply with CAN/ULC-S524-06.

The fire alarm design would be the same at both locations. The fire alarm panel would be located at the main entrance and should be installed above the 1% Flood Elevation.

8.0 SECURITY SYSTEM

The security design would be the same at both locations.

The security panel should be installed on the main floor in the Riverside Drive location to ensure the main panel is located above the 1% Flood Elevation. If the Green Field site is located outside of the flood plain, then the security panel could be located on the parkade.

9.0 TELECOMMUNICATIONS SYSTEM

The main telecommunications equipment should be installed on the main floor in the Riverside Drive location to ensure all equipment is located above the 1% Flood Elevation. If the Green Field site is located outside of the flood plain then the main telecommunications equipment could be located on the parkade level allowing for additional useable space on the main floor.

END OF REPORT

threshold

MEMO

To:	Kevin Nyhoff – Nyhoff Architecture
Copy:	Mairi Nyhoff – Nyhoff Architecture
From:	Dawn Schuette, Marcus Mayell - Threshold
Date:	24 April 2017 – Updated 9 May 2017
Project:	Okotoks Performing Arts Venue Feasibility Study
Topic:	Site Specific Acoustic Considerations

This document is intended to outline preliminary construction elements of acoustic significance for the Okotoks Performing Arts Venue, specific to 35 Riverside Drive in Okotoks, Alberta. The recommendations are offered as placeholders to assist in pricing estimates specific to this site as compared to a more typical green field location. This information is based on schemes issued 27 March 2017.

Site Limitations

A primary site limitation under acoustic consideration is related to airborne noise and vibration from the rail line which runs East-West, approximately 100 feet North of the site. It is assumed that the rail line accommodates freight traffic with sounding horns at nearby intersections. The frequency and speed of passing trains is unpredictable at this time. The following offers conservative recommendations to isolate noise and vibration from trains at moderate speeds as the frequency and speed of rail traffic could change over time. The ultimate level of necessary isolation will need to be evaluated and decided through conversation with end users as the project progresses.

Another site limitation under considerations is the accommodation of parking beneath the building. This is understood to be a site-specific limitation and has implications for airborne and vibration isolation to the performance venues above.

Although the flood fringe does not impose concerns directly to acoustics, certain acoustic solutions may have influence to how water retention and drainage on site are handled.

Recommendations

To isolate the building and its performance venues from site specific environmental noise, special acoustic considerations are necessary with regard to MEP systems, building envelope, vibration isolation, and overall building planning.

Site Vibration Isolation

Rail

The rail line renders with it a high level of vibration which easily transfers through ground at the distance on this specific site. This vibration can easily transmit into building structures. In order to isolate the building from vibration associated with the rail line, a gravel moat between the building and the rail line is recommended. An isolation moat would include:

- A trench, between the building and the rail line, running along the North side of the site and continuing approximately a quarter of the way along the East and West sides. The trench would consist of approximately a minimum 15-foot-

deep, 6 foot wide trench backfilled with gravel, typically #4 US standard size. It should be verified if a moat of this size would impact on site drainage and retention particularly related to the flood fringe.

Parking

Measures are necessary to isolate the theatre venues from vibration and noise induced from parking cars underneath as well as the opening of the garage directly toward the adjacent train line. Isolation recommendations include:

- A barrier ceiling construction for the extent of the area beneath the Theatre venues and Recording Suite.
- An isolation joint between the garage slab on grade and foundation walls, footings and columns.
- It will necessary for MEPF services to be organized in a way that minimizes the need for crossing the slab between parking and the venues above. All exhaust or other services for the Garage should be located below the main building slab to the extent possible.

Building Envelope Isolation

Airborne noise associated with passing trains will result in exceedingly loud airborne sound levels, even at the building facade approximately 200 feet away from the rail line. Additional measures are necessary for this site at the building envelope to ensure that noise sensitive spaces are adequately isolated. While there may be some tolerance for noise to be heard in slightly less sensitive spaces such as offices, conference rooms and classrooms (to be confirmed with the Client), the theatre, multipurpose room and recording suite all have low tolerances for extraneous noise and must maintain low background noise levels.

The following requirements are recommended for the building envelope at the **Theatres and Recording spaces**:

- **Rooftop Isolation** – Roof construction to consist of concrete with ballast or buildup roofing material including Densdeck equaling 75psf minimum (25-50psf would be required for a green field site without environmental noise concerns).
- **Exterior Wall Isolation (North, East and West walls)** – The overall wall envelope composition is to consist of a build-up including concrete or masonry and have a weight of approximately 100psf.
    - Note that the 100psf requirement is only for walls of the venues which are a part of the exterior building envelope. Walls of the venues which share adjacency with other building program do not need to meet this requirement as relates to the anticipated noise levels of this site. [Note that there are acoustic requirements for materials within these spaces that would be required regardless of the site conditions to maintain proper interior acoustic response in the spaces.]
- **Loading Dock** – The door of the loading dock, located on the north end of the building, opens to the nearby train line and naturally connects to the building and theater(s). Therefore, additional care to the sound path from the loading dock to the stage should be taken on this site. STC rated door assemblies and/or additional acoustically gasketed door vestibules may be required to provide sound isolation between the Theatre and building exterior along this path.
- **Smoke vents** - Smoke vents (as/if required by code) associated with the fly tower will require double leaf vents as opposed to single leaf to provide additional attenuation from outdoor noise.

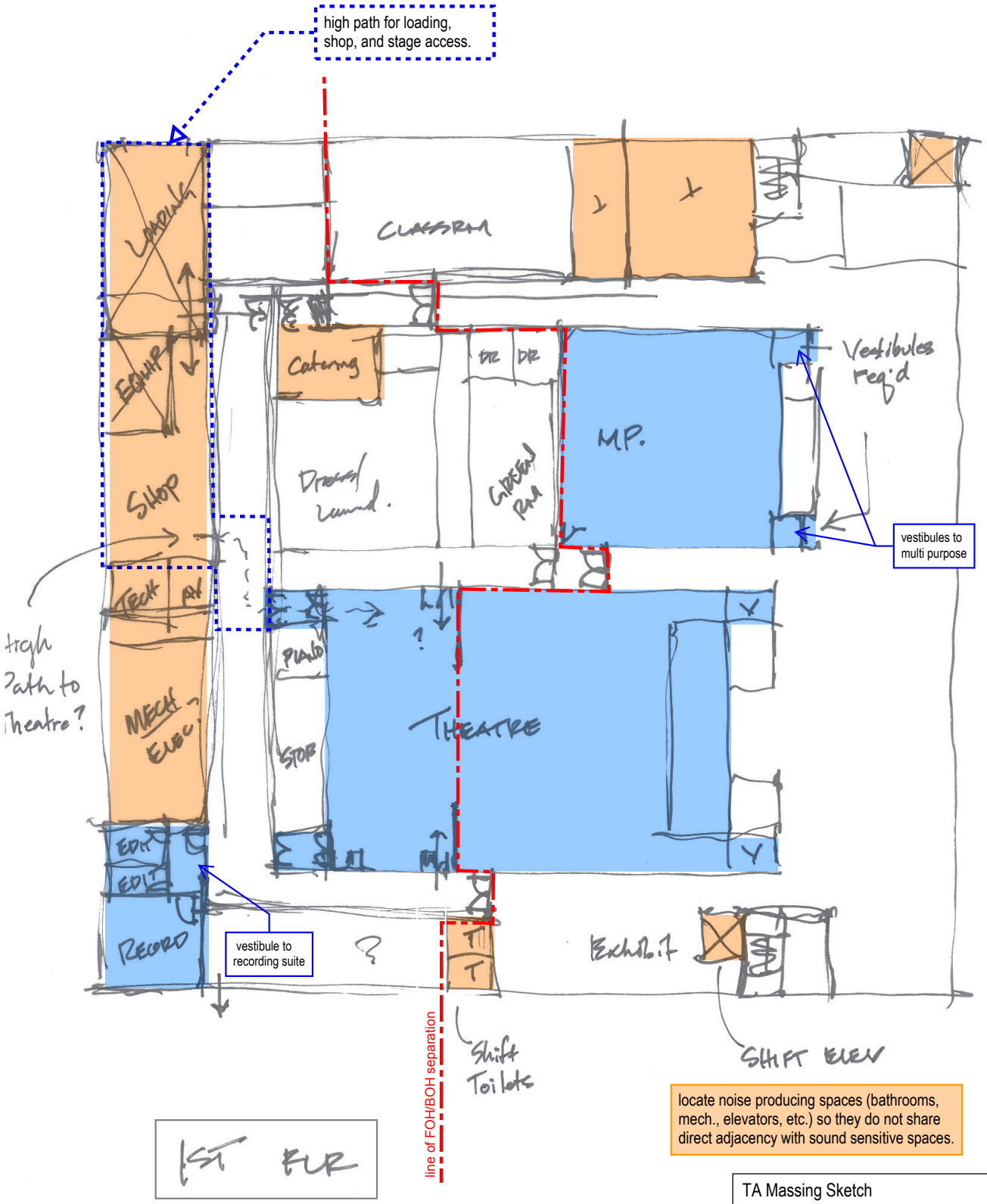
The following requirements are recommended for **all noise sensitive spaces in addition the Theaters and Recording spaces**:

- **HVAC** – Mechanical equipment located on the rooftop and ductwork which terminates at the building rooftop/exterior will likely require additional measures to mitigate noise transfer from exterior conditions through ductwork:

- Exhaust/Outdoor duct paths – Any exhaust or outdoor intake duct work that leads to noise sensitive spaces will require additional attenuation to mitigate transfer of noise from outdoors. Additional path length of ductwork and sound attenuators include possible solutions. An outdoor mechanical well may be a part of this solution as well to acoustically shield equipment from the direct path of the train and vehicular transportation noise.
- Mechanical and Exhaust Units – An acoustic enclosure around rooftop mechanical units and exhaust fans (including ductwork) will be necessary to stop attenuate sound that would otherwise travel into and through ductwork into noise sensitive spaces. Any openings of the enclosure will require acoustic louvers.

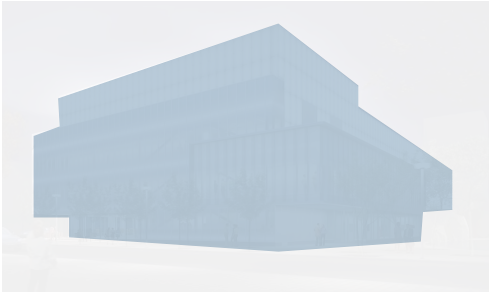
- **Glazing** – Glazing is not recommended at exterior envelope walls of the theatres and recording spaces, however other spaces which are less noise sensitive may be require improved sound isolation performance at exterior glazing as compared to a green field site. This would be accomplished by laminated glazing assemblies, more than standard airspace requirements in insulated assemblies, or both.

End of Memo



TA Massing Sketch
Okotoks
4 April 2017
Scale: NTS

threshold



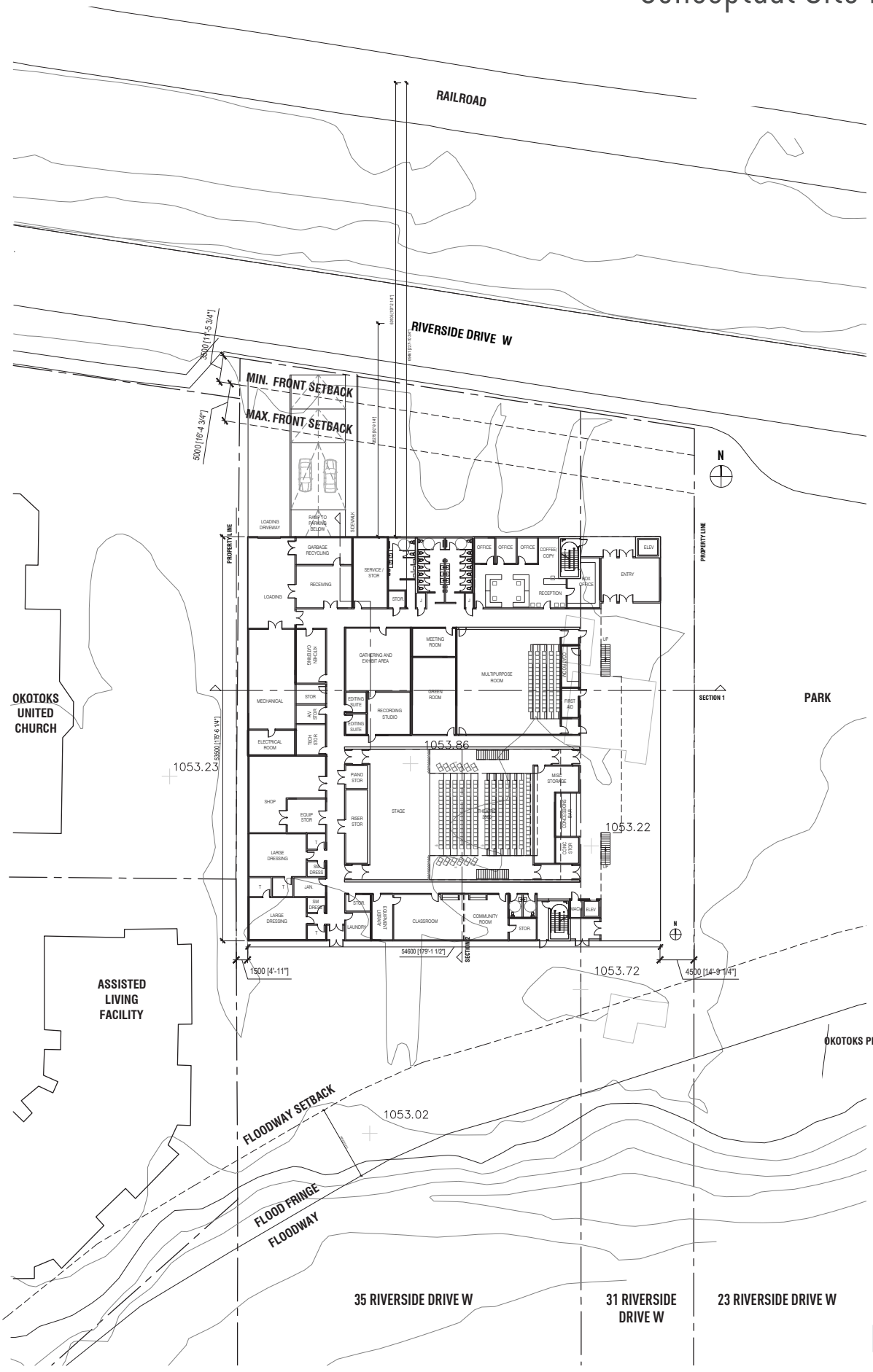
Performing Arts Centre Feasibility Study

Architectural Conceptual Design #2

Based on the alternate sketch planning recommendations from Threshold Acoustics, Nyhoff Architecture reconfigured the conceptual plan of the PAC facility as illustrated in the following plans. The reconfiguration places the theatre and other more sound sensitive rooms further away from the rail line and further buffers them by shifting the higher volume massings such as the mechanical spaces from the west to the north.

The reconfiguration of the plan confirms the feasiblity of the recommendations while still achieving the larger conceptual site design goals.

Conceptual Site Plan #2



OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

SITE PLAN

NYHOFF ARCHITECTURE
APRIL 24TH, 2017
1:500

nyhoff architecture

Conceptual Main Floor Plan #2

OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

MAIN FLOOR PLAN

NYHOFF ARCHITECTURE
APRIL 24 TH, 2017
1:300

Conceptual Mezzanine Floor Plan #2

OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

MEZZANINE FLOOR PLAN

NYHOFF ARCHITECTURE
APRIL 24 TH, 2017
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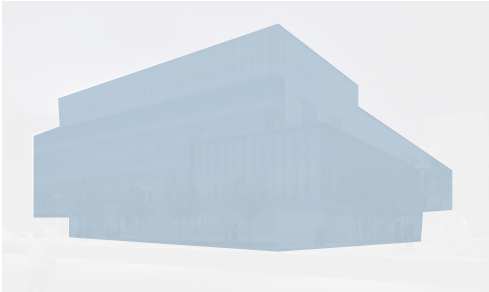

Performing Arts Centre Feasibility Study

Conceptual Design Cost Estimate

The Conceptual Design Cost Estimate is reflective of Architectural Conceptual Design #1.

The timelines of the report did not allow for a second conceptual design estimate to be produced based upon Architectural Conceptual Design #2. In Nyhoff Architecture's opinion, the difference between the two conceptual design plans would be negligible at this level of development.

CONCEPT COST ESTIMATE
April 20, 2017

for

OKOTOKS PERFORMING ARTS CENTRE
Okotoks, Alberta

Prepared For:

nyhoff architecture

Suite 205, 619 11th Avenue S.E
Calgary, Alberta T3C 0K2
403-437-1016

Prepared By:

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Suite 209, 2725 12th Street NE
Calgary, AB T2E 7J2
403.291.5566
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TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

The purpose of this report is to identify the cost premium for a new 300 seat performing arts centre built between a rail line and a floodway to a greenfield site.

Pricing is based on a Design Bid Build procurement.

Costs are summarized as follows:

	Greenfield Site	Estimated Cost In Current Dollars	Area (m²)	Cost/m²
1	Net Construction Cost	$21,956,557	6,332	$3,468
2	Design Allowance - 10%	$2,195,656	6,332	$347
3	Construction Allowance - 5%	$1,207,611	6,332	$191
	TOTAL CONSTRUCTION COST	**$25,360,000**	**6,332**	**$4,005**

	Floodway	Estimated Cost In Current Dollars	Area (m²)	Cost/m²
1	Net Construction Cost	$22,829,068	6,332	$3,605
2	Design Allowance - 15%	$3,424,360	6,332	$541
3	Construction Allowance - 5%	$1,312,671	6,332	$207
	TOTAL CONSTRUCTION COST	**$27,566,000**	**6,332**	**$4,353**

1.2 Purpose

This report is intended to provide a practical analysis of construction costs for a new performing arts Centre located in Okotoks, Alberta. All scope/cost item exceptions are listed below in section 1.4 Exclusions.

1.3 Methodology

Where possible, elements have been assessed or measured, then priced at rates considered competitive for a project of this type. This report is developed using standardized methods and techniques. Formatting of the report in accordance with the following documents:

> Canadian Institute of Quantity Surveyors. *"Elemental Cost Analysis-Method of Measurement and Pricing"* (Toronto ON, Canada: Canadian Institute of Quantity Surveyors, 1990).
>
> Construction Specifications Institute. "*UniFormat™: A Uniform Classification of Construction Systems and Assemblies"*(AlexandriaVA, USA: The Construction Specifications Institute, 2010 Edition).
>
> Construction Specifications Institute. "*MasterFormat 2010™*" (Alexandria VA, USA:

The Construction Specifications Institute, 2010 Edition).

Costing for the estimated areas of work is developed using the historical data of similar projects. Consideration is made to include for project complexity, geographic location and current market pricing.

1.4 Exclusions

This analysis excludes the following:

a. Independent testing (including air monitoring)
b. Escalation beyond April 2017
c. GST
d. Consultant Fees and disbursements
e. Removal of contaminated/organic soils
f. Hazardous material abatement
g. Equipment (included active IT)
h. Premium time working

2. DOCUMENTATION

This report has been prepared from documentation supplied by the following:

Prime Consultant / Architectural	Nyhoff architecture
Structural	Entuitive
Mechanical	The Hidi Group
Electrical	Designcore
Civil	Watt Consulting Group

The basis for this estimate are concept drawings and design narratives received on April 5 2017, and subsequent notes and comments.

3. COSTING

3.1 Cost Base:

The basic capital dollars are expressed in current **April 2017** dollars, that is, as if the project were tendered in **April 2017**.

Recently, infrastructure projects have demonstrated stabilized costs on recent tendered projects and have experienced a higher level of general contractor and sub trade interest. We expect a trend in increased number of bidders, providing better investor "value" through competition. Historically low interest rates would stimulate investment and capital ventures, but the market is predicting an investment slowdown. Timing of that occurrence is unknown but it is on the horizon.

We believe that as industry activity reduces, particularly as developers and government defer or cancel projects, escalation and market impacts will decrease. Contractors will reduce costs and take on higher cost risks to secure projects and maintain work force. Indicators are that as fewer projects are tendered, more will be at an increased value with lower cost.

3.2 Allowances / Contingencies:

As this project is currently at the concept design phase, the following allowances have been included:

a. Design Allowance / Contingency = 10% Greenfield, 15% Floodway
- An allowance for design changes during the development of the design. The allowance is to cover unforeseen items during the design phase that do not change the project scope. The allowance, which is included in the primary stages, is ultimately absorbed into the design and quantified work as more detailed information becomes available and is therefore normally reduced to zero at tender stage

b. Construction Allowance / Contingency = 5.0 %
- An allowance for changes to the contract price during construction. The allowance is to cover unforeseen items during the construction period which will result in change orders

4. GROSS FLOOR AREA

Building areas and volumes are measured in accordance with the latest issue of "Elemental cost Analysis - Measurement of Buildings by Area and Volume", published by the Canadian Institute of Quantity Surveyors.

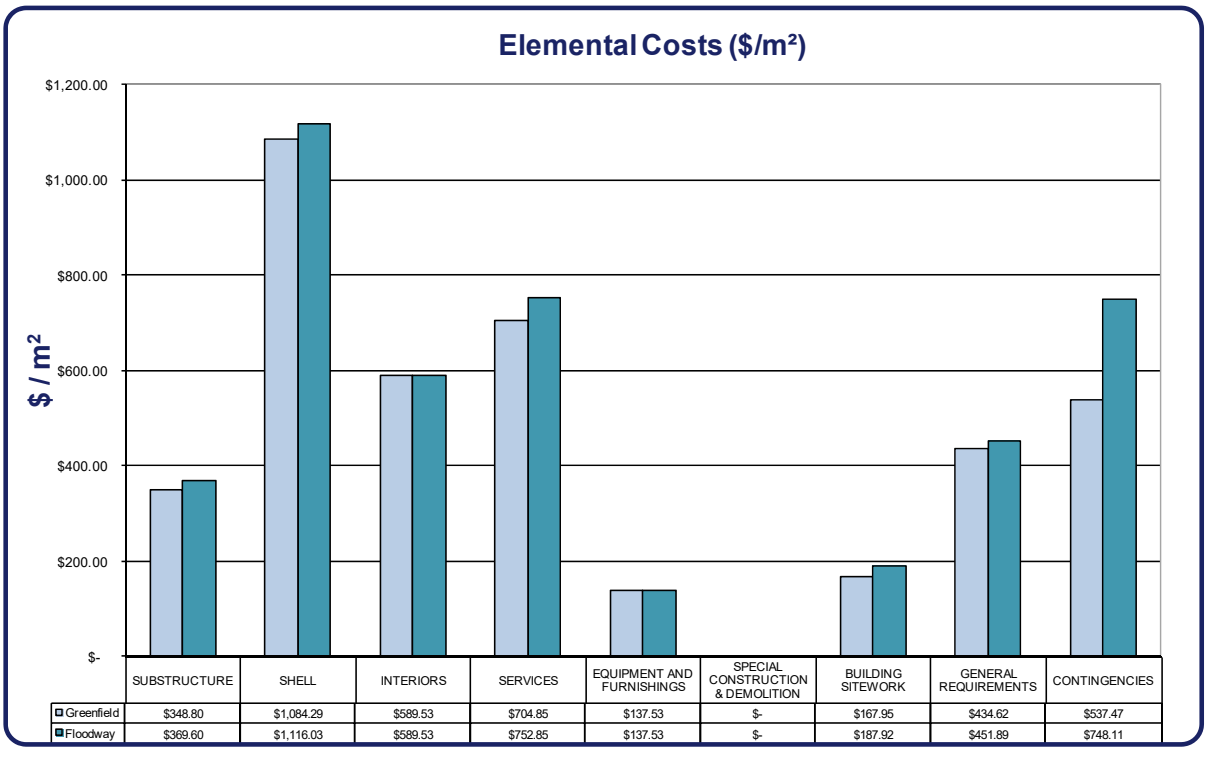
Description	Area (m2)
Parking Level	2,927
Main Floor	2,909
Mezzanine Level	496
Total	**6,332**

5.0 COSTING SUMMARIES

MAJOR ELEMENT $/ELEMENT

ELEMENTAL SUMMARY OF COSTS $		Greenfield	Floodway
	ELEMENT	TOTAL	TOTAL
A	SUBSTRUCTURE	$ 2,208,580	$ 2,340,295
B	SHELL	$ 6,865,695	$ 7,066,695
C	INTERIORS	$ 3,732,935	$ 3,732,935
D	SERVICES	$ 4,463,096	$ 4,767,032
E	EQUIPMENT AND FURNISHINGS	$ 870,810	$ 870,810
F	SPECIAL CONSTRUCTION & DEMOLITION	N/A	N/A
G	BUILDING SITEWORK	$ 1,063,430	$ 1,189,930
Z	GENERAL	$ 2,752,011	$ 2,861,371
	CONTINGENCIES	$ 3,403,266	$ 4,737,032
	TOTAL COST	**$ 25,359,824**	**$ 27,566,100**
	AREA (m²)	**6,332**	**6,332**
	RATE PER GFA (m²)	**$ 4,005.03**	**$ 4,353.46**
	RATE PER GFA (ft²)	$ 372.08	$ 404.45

MAJOR ELEMENT $/GFA (m²)



6.0 UNIFORMAT ELEMENTAL COST SUMMARIES

Uniformat Elemental Cost Summary

Project : OKOTOKS THEATRE
Greenfield Site
Location : Okotoks, Alberta

GFA : 6,332 m²
Date : April 20, 2017
Report Status : Concept Cost Report

ELEMENT	Ratio to GFA	Elemental Costs Quantity	Unit Rate	Elemental Amounts Sub-Total	Total	Rate per GFA Sub-Total	Total	% Total
A SUBSTRUCTURE					**$ 2,208,580**		**$ 348.80**	**9.14**
A10 Foundations					**1,126,895**		**177.97**	**4.67**
A1010 Standard Foundations	0.46	2,927 m²	240.00	702,480		110.94		
A1020 Special Foundations	-	-	-	-		-		
A1030 Slab on Grade	0.46	2,927 m²	145.00	424,415		67.03		
A20 Basement Construction					**1,081,685**		**170.83**	**4.48**
A2010 Basement Excavation	1.97	12,467 m³	55.00	685,685		108.29		
A2020 Basement Walls	0.14	880 m²	450.00	396,000		62.54		
B SHELL					**$ 6,865,695**		**$ 1,084.29**	**28.43**
B10 Superstructure					**3,484,995**		**550.38**	**14.43**
B1010 Floor Construction	0.54	3,405 m²	625.00	2,128,125		336.09		
B1020 Roof Construction	0.46	2,918 m²	465.00	1,356,870		214.29		
B20 Exterior Enclosures					**2,578,250**		**407.18**	**10.68**
B2010 Exterior Walls	0.32	2,010 m²	850.00	1,708,500		269.82		
B2020 Exterior Windows	0.11	665 m²	1,150.00	764,750		120.78		
B2030 Exterior Doors	0.00	14 no.	7,500.00	105,000		16.58		
B30 Roofing					**802,450**		**126.73**	**3.32**
B3010 Roof Coverings	0.46	2,918 m²	275.00	802,450		126.73		
C INTERIORS					**$ 3,732,935**		**$ 589.53**	**15.46**
C10 Interior Construction					**1,559,720**		**246.32**	**6.46**
C1010 Partitions	0.62	3,933 m²	280.00	1,101,240		173.92		
C1020 Interior Doors	0.02	108 no.	1,900.00	205,200		32.41		
C1030 Fittings	1.00	6,332 m²	40.00	253,280		40.00		
C20 Stairs					**122,500**		**19.35**	**0.51**
C2010 Stair Construction	0.00	7 flt	12,500.00	87,500		13.82		
C2020 Stair Finishes	0.00	7 flt	5,000.00	35,000		5.53		
C30 Interior Finishes					**2,050,715**		**323.87**	**8.49**
C3010 Wall Finishes	1.60	10,123 m²	65.00	657,995		103.92		
C3020 Floor Finishes	1.05	6,632 m²	110.00	729,520		115.21		
C3030 Ceiling Finishes	1.05	6,632 m²	100.00	663,200		104.74		
D SERVICES					**$ 4,463,096**		**$ 704.85**	**18.48**
D10 Conveying					**170,000**		**26.85**	**0.70**
D1010 Elevators and Lifts	0.00	2 no.	85,000.00	170,000		26.85		
D1020 Escalators and Moving Walks	-	-	-	-		-		
D1090 Other Conveying Systems	-	-	-	-		-		
D20 Plumbing					**474,900**		**75.00**	**1.97**
D2010 Plumbing Fixtures	1.00	6,332 m²	39.00	246,948		39.00		
D2020 Domestic Water Distribution	1.00	6,332 m²	13.00	82,316		13.00		
D2030 Sanitary Waste	1.00	6,332 m²	15.00	94,980		15.00		
D2040 Rain Water Drainage	1.00	6,332 m²	8.00	50,656		8.00		
D2090 Other Plumbing Systems	1.00	6,332 m²	-	-		-		
D30 Heating Ventilating and Air Conditioning (HVAC)					**1,912,264**		**302.00**	**7.92**
D3020 Heat Generation	1.00	6,332 m²	9.00	56,988		9.00		
D3030 Refrigeration	1.00	6,332 m²	38.00	240,616		38.00		
D3040 HVAC Distribution (Distribution Systems)	1.00	6,332 m²	133.00	842,156		133.00		
D3050 Terminal and Packaged Units	1.00	6,332 m²	70.00	443,240		70.00		
D3060 HVAC Instrumentation and Controls	1.00	6,332 m²	39.00	246,948		39.00		
D3070 Testing, Adjusting, and Balancing	1.00	6,332 m²	6.00	37,992		6.00		
D3090 Other Special HVAC Systems & Equipment	1.00	6,332 m²	7.00	44,324		7.00		
D40 Fire Protection					**284,940**		**45.00**	**1.18**
D4010 Sprinklers	1.00	6,332 m²	45.00	284,940		45.00		
D50 Electrical					**1,620,992**		**256.00**	**6.71**
D5010 Electrical Service and Distribution	1.00	6,332 m²	65.00	411,580		65.00		
D5020 Lighting and Branch Wiring	1.00	6,332 m²	110.00	696,520		110.00		
D5030 Communications and Security	1.00	6,332 m²	75.00	474,900		75.00		
D5090 Other Electrical Systems	1.00	6,332 m²	6.00	37,992		6.00		
E EQUIPMENT AND FURNISHINGS					**$ 870,810**		**$ 137.53**	**3.61**
E10 Equipment					**364,250**		**57.53**	**1.51**
E1010 Commercial Equipment	1.05	6,632 m²	25.00	165,800		26.18		
E1020 Institutional Equipment	0.07	441 no.	450.00	198,450		31.34		
E1030 Vehicular Equipment	-		-	-		-		
E1090 Other Equipment	-	-	-	-		-		
E20 Furnishings					**506,560**		**80.00**	**2.10**
E2010 Fixed Furnishings	1.00	6,332 m²	80.00	506,560		80.00		
E2020 Moveable Furnishings	-		-	-		-		

Uniformat Elemental Cost Summary

Project : OKOTOKS THEATRE
Greenfield Site
Location : Okotoks, Alberta

GFA : 6,332 m²
Date : April 20, 2017
Report Status : Concept Cost Report

ELEMENT	Ratio to GFA	Elemental Costs Quantity	Unit Rate	Elemental Amounts Sub-Total	Total	Rate per GFA Sub-Total	Total	% Total
F SPECIAL CONSTRUCTION AND DEMOLITION					**$ -**		**$ -**	**-**
F10 Special Construction					**-**		**-**	**-**
F20 Selective Building Demolition					**-**		**-**	**-**
F2010 Building Elements Demolition	-	-	-	-		-		
F2020 Hazardous Components Abatement	-	-	-	-		-		
G BUILDING SITEWORK					**$ 1,063,430**		**$ 167.95**	**4.40**
G10 Site Preparation					**135,000**		**21.32**	**0.56**
G1010 Site Clearing	0.85	5,400 m²	25.00	135,000		21.32		
G20 Site Improvements					**200,250**	**-**	**31.63**	**0.83**
G2010 Roadways	0.05	300 m²	200.00	60,000		9.48		
G2020 Parking Lots	-		-	-		-		
G2030 Pedestrian Paving	0.02	150 m²	150.00	22,500		3.55		
G2040 Site Development	0.00	1 ls	23,500.00	23,500		3.71		
G2050 Landscaping	0.30	1,885 m²	50.00	94,250		14.88		
G30 Site Civil / Mechanical Utilities					**411,580**		**65.00**	**1.70**
G3010 Water Supply	1.00	6,332 m²	10.00	63,320		10.00		
G3020 Sanitary Sewer	1.00	6,332 m²	8.00	50,656		8.00		
G3030 Storm Sewer	1.00	6,332 m²	42.00	265,944		42.00		
G3090 Other Site Mechanical Utilities	1.00	6,332 m²	5.00	31,660		5.00		
G40 Site Electrical Utilities					**316,600**		**50.00**	**1.31**
G4010 Electrical Distribution	1.00	6,332 m²	20.00	126,640		20.00		
G4020 Site Lighting	1.00	6,332 m²	10.00	63,320		10.00		
G4030 Site Communications & Security	1.00	6,332 m²	15.00	94,980		15.00		
G4090 Other Site Electrical Utilities	1.00	6,332 m²	5.00	31,660		5.00		
G50 Other Site Construction					**-**		**-**	**-**
NET CONSTRUCTION COST				**$19,204,546**	**$ 19,204,546**		**$ 3,032.94**	**79.51**
Z GENERAL REQUIREMENTS & ALLOWANCES					**$ 2,752,011**		**$ 434.62**	**11.39**
Z10 General Requirements					**2,112,500**		**333.62**	**8.75**
Z1010 Supervision & Labour Expenses	5.0%			960,227		151.65		
Z1020 Temporary Conditions	4.0%			768,182		121.32		
Z1030 Permits, Insurance & Bonds	2.0%			384,091		60.66		
Z20 Fee					**639,511**		**101.00**	**2.65**
Z2010 Fee	3.0%			639,511		101.00		
ESTIMATED CONSTRUCTION COST (Excluding Allowances)					**$ 21,956,557**		**$ 3,467.55**	**90.91**
Z30 Allowances					**2,195,656**		**346.76**	**9.09**
Z3010 Design Allowance	10.0%			2,195,656		346.76		
Z3020 Cash Allowance	0.0%			-		-		
ESTIMATED TENDER COST (Excluding Construction Allowance)					**$ 24,152,213**		**$ 3,814.31**	**100.00**
Z3030 Construction Allowance	5.0%			1,207,611	$ 1,207,611	190.72		
ESTIMATED CONSTRUCTION COST (Excluding GST)					**$ 25,359,824**		**$ 4,005.03**	
GST (if applicable)	0.0%			-	$ -		$ -	
ESTIMATED CONSTRUCTION COST (Including GST)				**$25,359,824**	**$ 25,360,000**		**$ 4,005.05**	

Uniformat Elemental Cost Summary

Project : OKOTOKS THEATRE
Floodway
Location : Okotoks, Alberta

GFA : 6,332 m²
Date : April 20, 2017
Report Status : Concept Cost Report

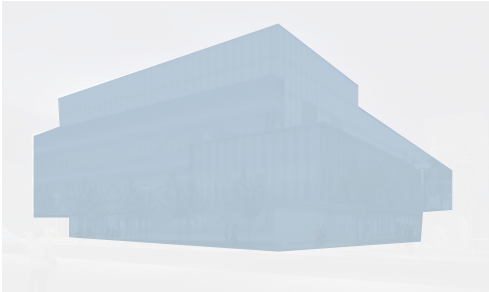
ELEMENT	Ratio to GFA	Elemental Costs Quantity	Unit Rate	Elemental Amounts Sub-Total	Total	Rate per GFA Sub-Total	Total	% Total
A SUBSTRUCTURE					**$ 2,340,295**		**$ 369.60**	**8.91**
A10 Foundations					**1,258,610**		**198.77**	**4.79**
A1010 Standard Foundations	0.46	2,927 m²	270.00	790,290		124.81		
A1020 Special Foundations	-	-	-	-		-		
A1030 Slab on Grade	0.46	2,927 m²	160.00	468,320		73.96		
A20 Basement Construction					**1,081,685**		**170.83**	**4.12**
A2010 Basement Excavation	1.97	12,467 m³	55.00	685,685		108.29		
A2020 Basement Walls	0.14	880 m²	450.00	396,000		62.54		
B SHELL					**$ 7,066,695**		**$ 1,116.03**	**26.92**
B10 Superstructure					**3,484,995**		**550.38**	**13.27**
B1010 Floor Construction	0.54	3,405 m²	625.00	2,128,125		336.09		
B1020 Roof Construction	0.46	2,918 m²	465.00	1,356,870		214.29		
B20 Exterior Enclosures					**2,779,250**		**438.92**	**10.59**
B2010 Exterior Walls	0.32	2,010 m²	950.00	1,909,500		301.56		
B2020 Exterior Windows	0.11	665 m²	1,150.00	764,750		120.78		
B2030 Exterior Doors	0.00	14 no.	7,500.00	105,000		16.58		
B30 Roofing					**802,450**		**126.73**	**3.06**
B3010 Roof Coverings	0.46	2,918 m²	275.00	802,450		126.73		
C INTERIORS					**$ 3,732,935**		**$ 589.53**	**14.22**
C10 Interior Construction					**1,559,720**		**246.32**	**5.94**
C1010 Partitions	0.62	3,933 m²	280.00	1,101,240		173.92		
C1020 Interior Doors	0.02	108 no.	1,900.00	205,200		32.41		
C1030 Fittings	1.00	6,332 m²	40.00	253,280		40.00		
C20 Stairs					**122,500**		**19.35**	**0.47**
C2010 Stair Construction	0.00	7 flt	12,500.00	87,500		13.82		
C2020 Stair Finishes	0.00	7 flt	5,000.00	35,000		5.53		
C30 Interior Finishes					**2,050,715**		**323.87**	**7.81**
C3010 Wall Finishes	1.60	10,123 m²	65.00	657,995		103.92		
C3020 Floor Finishes	1.05	6,632 m²	110.00	729,520		115.21		
C3030 Ceiling Finishes	1.05	6,632 m²	100.00	663,200		104.74		
D SERVICES					**$ 4,767,032**		**$ 752.85**	**18.16**
D10 Conveying					**170,000**		**26.85**	**0.65**
D1010 Elevators and Lifts	0.00	2 no.	85,000.00	170,000		26.85		
D1020 Escalators and Moving Walks	-	-	-	-		-		
D1090 Other Conveying Systems	-	-	-	-		-		
D20 Plumbing					**576,212**		**91.00**	**2.19**
D2010 Plumbing Fixtures	1.00	6,332 m²	55.00	348,260		55.00		
D2020 Domestic Water Distribution	1.00	6,332 m²	13.00	82,316		13.00		
D2030 Sanitary Waste	1.00	6,332 m²	15.00	94,980		15.00		
D2040 Rain Water Drainage	1.00	6,332 m²	8.00	50,656		8.00		
D2090 Other Plumbing Systems	1.00	6,332 m²	-	-		-		
D30 Heating Ventilating and Air Conditioning (HVAC)					**1,912,264**		**302.00**	**7.28**
D3020 Heat Generation	1.00	6,332 m²	9.00	56,988		9.00		
D3030 Refrigeration	1.00	6,332 m²	38.00	240,616		38.00		
D3040 HVAC Distribution (Distribution Systems)	1.00	6,332 m²	133.00	842,156		133.00		
D3050 Terminal and Packaged Units	1.00	6,332 m²	70.00	443,240		70.00		
D3060 HVAC Instrumentation and Controls	1.00	6,332 m²	39.00	246,948		39.00		
D3070 Testing, Adjusting, and Balancing	1.00	6,332 m²	6.00	37,992		6.00		
D3090 Other Special HVAC Systems & Equipment	1.00	6,332 m²	7.00	44,324		7.00		
D40 Fire Protection					**284,940**		**45.00**	**1.09**
D4010 Sprinklers	1.00	6,332 m²	45.00	284,940		45.00		
D50 Electrical					**1,823,616**		**288.00**	**6.95**
D5010 Electrical Service and Distribution	1.00	6,332 m²	75.00	474,900		75.00		
D5020 Lighting and Branch Wiring	1.00	6,332 m²	110.00	696,520		110.00		
D5030 Communications and Security	1.00	6,332 m²	75.00	474,900		75.00		
D5090 Other Electrical Systems	1.00	6,332 m²	28.00	177,296		28.00		
E EQUIPMENT AND FURNISHINGS					**$ 870,810**		**$ 137.53**	**3.32**
E10 Equipment					**364,250**		**57.53**	**1.39**
E1010 Commercial Equipment	1.05	6,632 m²	25.00	165,800		26.18		
E1020 Institutional Equipment	0.07	441 no.	450.00	198,450		31.34		
E1030 Vehicular Equipment	-		-	-		-		
E1090 Other Equipment	-	-	-	-		-		
E20 Furnishings					**506,560**		**80.00**	**1.93**
E2010 Fixed Furnishings	1.00	6,332 m²	80.00	506,560		80.00		
E2020 Moveable Furnishings	-		-	-		-		
F SPECIAL CONSTRUCTION AND DEMOLITION					**$ -**		**$ -**	**-**
F10 Special Construction					**-**		**-**	**-**
F20 Selective Building Demolition					**-**		**-**	**-**
F2010 Building Elements Demolition	-	-	-	-		-		

Uniformat Elemental Cost Summary

Project : OKOTOKS THEATRE
Floodway
Location : Okotoks, Alberta

GFA : 6,332 m²
Date : April 20, 2017
Report Status : Concept Cost Report

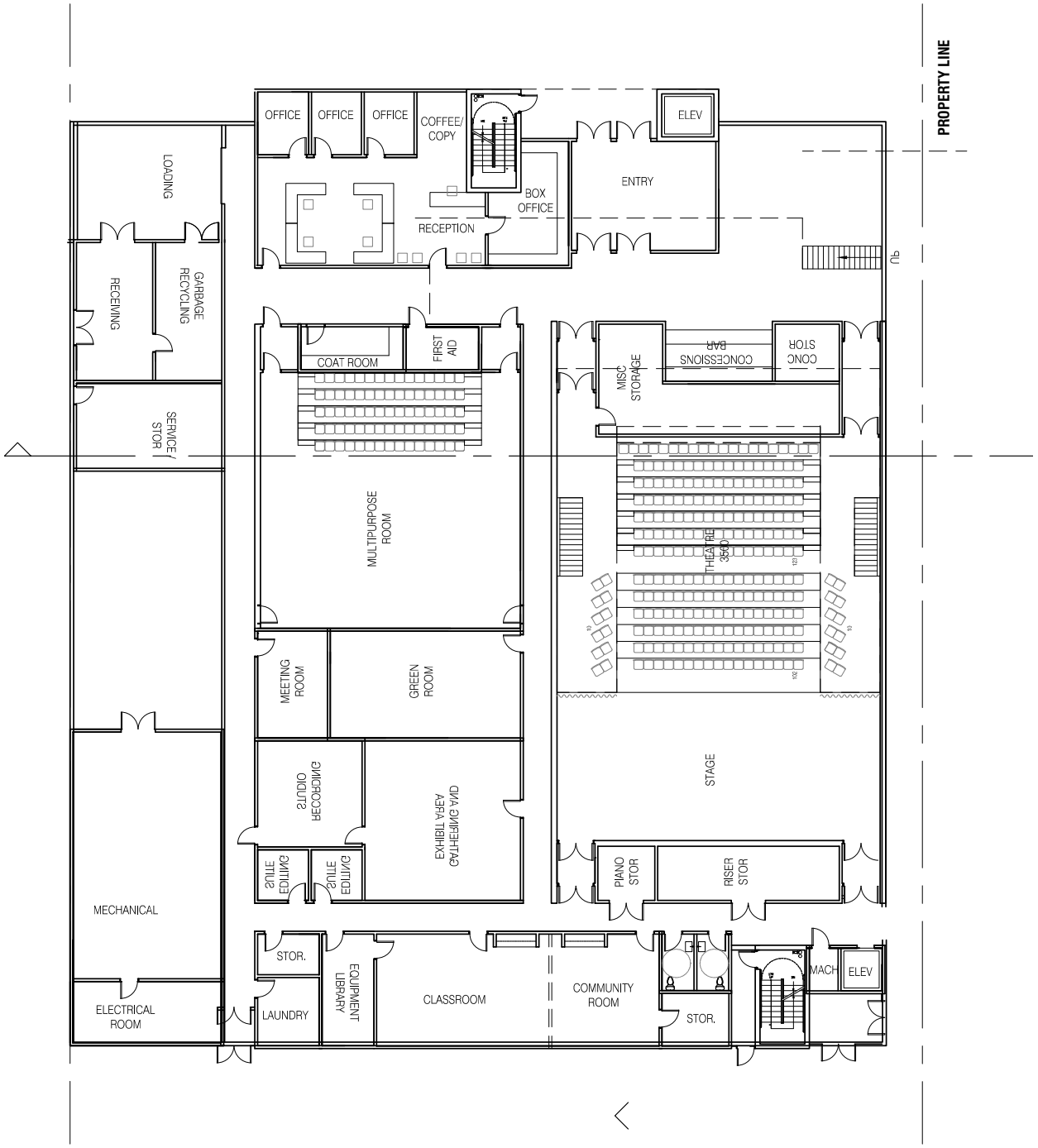
ELEMENT	Ratio to GFA	Elemental Costs Quantity	Unit	Unit Rate	Elemental Amounts Sub-Total	Total	Rate per GFA Sub-Total	Total	% Total
F2020 Hazardous Components Abatement	-	-		-	-		-		
G BUILDING SITEWORK						**$ 1,189,930**		**$ 187.92**	**4.53**
G10 Site Preparation						**135,000**		**21.32**	**0.51**
G1010 Site Clearing	0.85	5,400	m²	25.00	135,000		21.32		
G20 Site Improvements						**326,750**	**-**	**51.60**	**1.24**
G2010 Roadways	0.05	300	m²	200.00	60,000		9.48		
G2020 Parking Lots	-			-	-		-		
G2030 Pedestrian Paving	0.02	150	m²	150.00	22,500		3.55		
G2040 Site Development	0.00	1	ls	150,000.00	150,000		23.69		
G2050 Landscaping	0.30	1,885	m²	50.00	94,250		14.88		
G30 Site Civil / Mechanical Utilities						**411,580**		**65.00**	**1.57**
G3010 Water Supply	1.00	6,332	m²	10.00	63,320		10.00		
G3020 Sanitary Sewer	1.00	6,332	m²	8.00	50,656		8.00		
G3030 Storm Sewer	1.00	6,332	m²	42.00	265,944		42.00		
G3090 Other Site Mechanical Utilities	1.00	6,332	m²	5.00	31,660		5.00		
G40 Site Electrical Utilities						**316,600**		**50.00**	**1.21**
G4010 Electrical Distribution	1.00	6,332	m²	20.00	126,640		20.00		
G4020 Site Lighting	1.00	6,332	m²	10.00	63,320		10.00		
G4030 Site Communications & Security	1.00	6,332	m²	15.00	94,980		15.00		
G4090 Other Site Electrical Utilities	1.00	6,332	m²	5.00	31,660		5.00		
G50 Other Site Construction						**-**		**-**	**-**
NET CONSTRUCTION COST					**$19,967,697**	**$ 19,967,697**		**$ 3,153.46**	**76.06**
Z GENERAL REQUIREMENTS & ALLOWANCES						**$ 2,861,371**		**$ 451.89**	**10.90**
Z10 General Requirements						**2,196,447**		**346.88**	**8.37**
Z1010 Supervision & Labour Expenses	5.0%				998,385		157.67		
Z1020 Temporary Conditions	4.0%				798,708		126.14		
Z1030 Permits, Insurance & Bonds	2.0%				399,354		63.07		
Z20 Fee						**664,924**		**105.01**	**2.53**
Z2010 Fee	3.0%				664,924		105.01		
ESTIMATED CONSTRUCTION COST (Excluding Allowances)						**$ 22,829,068**		**$ 3,605.35**	**86.96**
Z30 Allowances						**3,424,360**		**540.80**	**13.04**
Z3010 Design Allowance	15.0%				3,424,360		540.80		
Z3020 Cash Allowance	0.0%				-		-		
ESTIMATED TENDER COST (Excluding Construction Allowance)						**$ 26,253,428**		**$ 4,146.15**	**100.00**
Z3030 Construction Allowance	5.0%				1,312,671	$ 1,312,671	207.31		
ESTIMATED CONSTRUCTION COST (Excluding GST)						**$ 27,566,100**		**$ 4,353.46**	
GST (if applicable)	0.0%				-	$ -		$ -	
ESTIMATED CONSTRUCTION COST (Including GST)					**$27,566,100**	**$ 27,566,000**		**$ 4,353.44**	



Performing Arts Centre Feasibility Study

Conclusions

- The 300 seat Performing Arts Centre program developed for the 2012 Okotoks Performing Arts Centre Feasibility Study can be accomodated on the combined properties of 35 and 31 Riverside Drive W.
- With proximity to the park, river and library beyond the proposed location offers interesting and compelling opportunities for arts programming, partnerships and shared uses. Thoughtful building and site planning could create a mutually synergistic relationship.
- The requirement of setting the main floor of the PAC 0.5m above the 1% flood event elevation can be achieved without dramatic or negative impact on the design or function of the building.
- The conceptual building plan and massing can be achieved within all required site setbacks and height restrictions.
- To meet the Town of Okotoks requirement to provide all required parking on site while achieving all required setbacks, a below grade parking structure is required. The conceptual design planning indicates a capacity of approximately 94 stalls in one level of parking which exceeds the minimum requirement of 1 stall for every 5 seats. Access to the parking level could be controlled during the 1% flood event.
- Specific design strategies and construction measures must be taken to isolate the facility from site vibration, parking noise and vibration and building envelope isolation from external airborne noise.
- The premium to construct the PAC on the Riverside Drive W property over a green field site is approximately $2.2m which equates to an additional 8.7% or $348 per m2 of construction cost.
- The cost of the below grade parking structure is approximately $2.53m. The cost of a 94 stall surface parking lot is approximately $380k (not including the cost of land aquisition). The net savings of removing the below grade parking structure and placing the 94 parking stalls on grade would be approximately $2.15m. Further cost savings could be found if a shared parking agreement could we established with the adjacent Public Library by expanding their existing surface parking lot.
- The 300 seat Performing Arts Centre program may be challenged to fit comfortably on the 35 Riverside Drive W property alone. Further design analysis would need to be done to confirm what the exact impacts would be, but at a high level the site would become much narrower and would push many of the supporting spaces on along the west side of the floor plan to the north, south or second floor of the building further increasing construction costs. An alternate scheme of relocating the lobby space to the north facing Riverside Drive may need to be considered but the concept of the north south lobby connecting patrons to the site through the building would be lost as would the possibility of connecting to the park space to the east at 23 Riverside Drive W.



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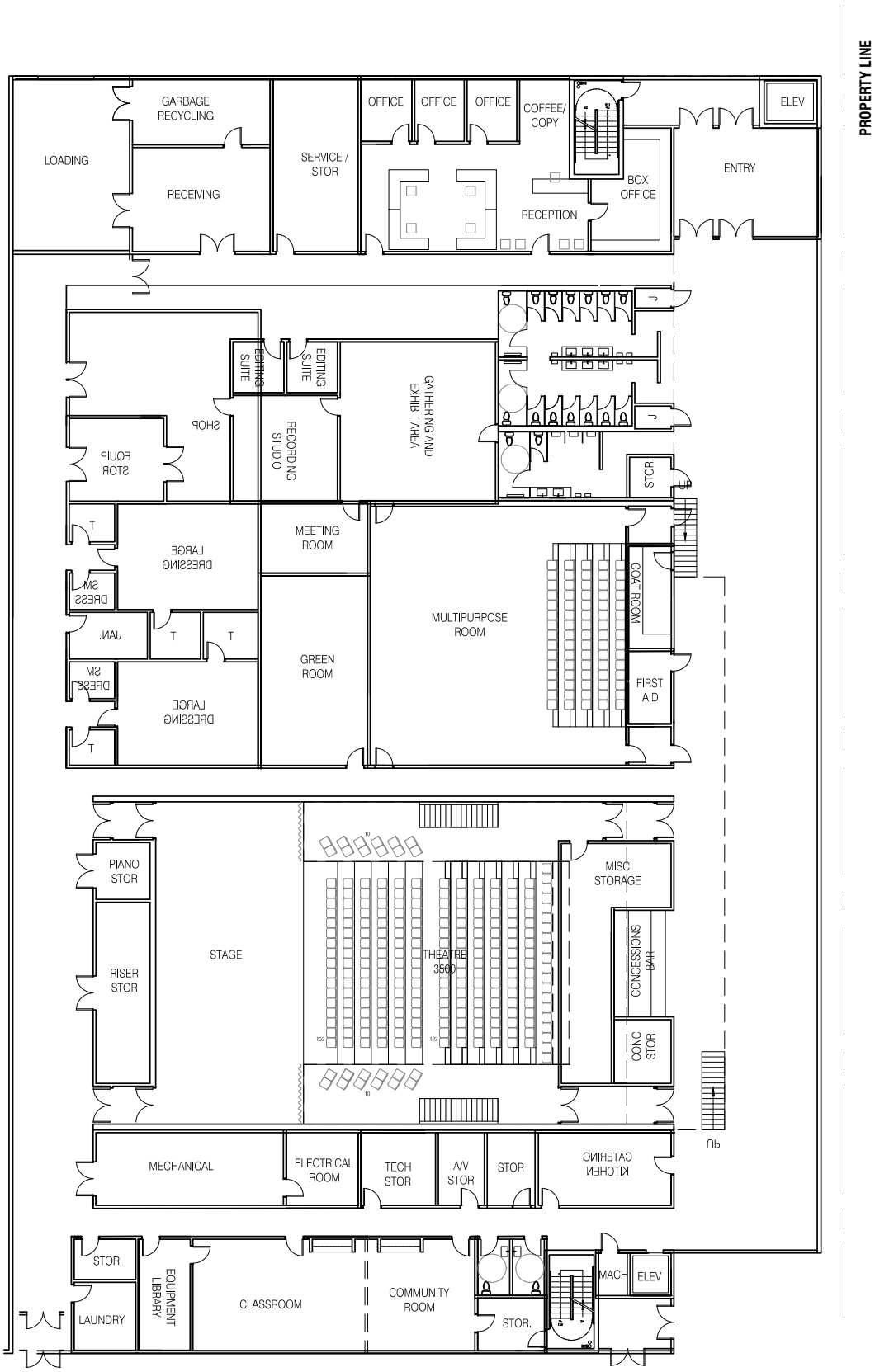
OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

ALTERNATE FLOOR PLAN

NYHOFF ARCHITECTURE
MAY 8TH, 2017
1:300

nyhoff
architecture



OKOTOKS PERFORMING ARTS CENTRE
FEASIBILITY STUDY

ALTERNATE FLOOR PLAN

NYHOFF ARCHITECTURE
MAY 8TH, 2017
1:300

nyhoff architecture