

Habitat Management Plan Addendum 1

Proposed Riverfront Park Improvements
Spokane, Washington

for

City of Spokane Parks and Recreation

August 15, 2016



GEOENGINEERS 
Earth Science + Technology

Habitat Management Plan Addendum 1

Proposed Riverfront Park Improvements
Spokane, Washington

for

City of Spokane Parks and Recreation

August 15, 2016



523 East Second Avenue
Spokane, Washington 99202
509.363.3125

Habitat Management Plan Addendum 1
Proposed Riverfront Park Improvements
Spokane, Washington

File No. 00110-148-05

August 15, 2016

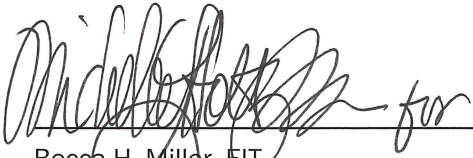
Prepared for:


City of Spokane Parks and Recreation
808 West Spokane Falls Boulevard
Spokane, Washington 99201

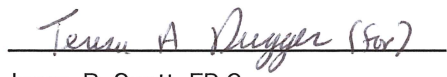
Attention: Jo-Lynn Brown

Prepared by:

GeoEngineers, Inc.
523 East Second Avenue
Spokane, Washington 99202
509.363.3125


Becca H. Miller, EIT
Staff Environmental Scientist


Jason E. Poulsen, PWS
Senior Environmental Scientist


Jason R. Scott, FP-C
Associate

BHM:JEP:JRS:mlh

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Table of Contents

LIST OF ACRONYMS	iii
INTRODUCTION	1
Project Location	1
Regulatory Background	1
Results from the June 17, 2015 Habitat Management Plan.....	2
Addendum Scope.....	2
METHODS	2
Review of Design Plans	2
Field Reconnaissance.....	3
RECREATIONAL RINK AND SKYRIDE.....	3
Proposed Action	3
Change Over Existing Conditions	3
Disturbance Area	3
Vegetation and Habitat.....	3
Site Drainage.....	4
Shoreline Setbacks	4
Operation, Noise, Light, and Aesthetics.....	5
HOWARD STREET SOUTH CHANNEL BRIDGE AND SOUTH THEME STREAM BRIDGE	5
Proposed Action	5
Change Over Existing Conditions	5
In-Water Work.....	5
Disturbance Area	6
Temporary Construction Access and Theme Stream Crossing	6
Vegetation and Habitat.....	7
Shoreline Setbacks	7
Operation, Noise, Light, and Aesthetics.....	8
HABITAT MANAGEMENT PLAN.....	8
No Net Loss and Protect Existing Species.....	8
Operational Activities	9
Enhancement Opportunities	9
CONCLUSIONS	10
REFERENCES	11

LIST OF FIGURES

Figure 1. Vicinity Map

Figure 2. Recreational Rink and Skyride Existing Site Layout

Figure 3. Recreational Rink and Skyride Proposed Conditions Site Layout

Figure 4. Howard Street Bridge and Theme Stream Crossing Existing Site Layout

Figure 5. Howard Street Bridge and Theme Stream Crossing Proposed Site Layout

Figure 6. Howard Street Bridge Existing and Proposed Plan and Profile

Figure 7. Temporary In-water Obstructions

Figure 8. Temporary Theme Stream Crossing—Plan

Figure 9. Temporary Theme Stream Crossing—Sections

APPENDICES

Appendix A. Site Photographs

Figures A-1 through A-3—Site Photographs

LIST OF ACRONYMS

ADA—Americans with Disabilities Act

BMP—best management practices

ESA—Endangered Species Act

ESC—Erosion and Sediment Control

HMP—Habitat Management Plan

JARPA—Joint Aquatic Resources Permit Application

NOAA—National Oceanic and Atmospheric Administration

NWI—National Wetlands Inventory

OHWM—ordinary high water mark

PHS—Priority Habitat and Species

RHA—Riparian Habitat Areas

SMC—Spokane Municipal Code

SPCC—Spill Prevention, Control and Countermeasure

SWPPP—Stormwater Pollution Prevention Plan

T&E—threatened and endangered

UFC—Urban Forestry Commission

USACE U.S. Army Corp of Engineers

USFWS—U.S. Fish and Wildlife Services

USGS—U.S. Geological Survey

WAC—Washington Administrative Code

WDFW—Washington Department of Fish and Wildlife

WDNR—Washington Department of Natural Resources

WRIA—Water Resource Inventory Area

INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) completed a Habitat Management Plan (HMP) on June 17, 2015 for the City of Spokane (City) for the proposed Riverfront Park (Park) redevelopment project. That HMP was completed based on the 2014 Conceptual Master Plan, prior to the development of specific site design plans. The June 17, 2015 HMP was developed to provide a background context; describe the general existing habitat conditions; and list the potential presence of priority species and habitat. However, because specific designs plans had not been developed at the time of the HMP report, specific habitat impacts could not be determined. Throughout the development of the initial HMP, GeoEngineers, the City, Washington Department of Fish and Wildlife (WDFW) and Washington Department of Ecology (Ecology) understood that unavoidable habitat impacts could potentially occur and addendums to the HMP were expected as specific designs were developed for the overall park project.

Design plans have recently been completed for the proposed Recreational Rink and Skyride Facility and the replacement of the Howard Street South Channel Bridge, which also includes the Theme Stream Bridge for construction access purposes. This HMP addendum provides a review of the specific design details that could potentially impact habitat as a result of this development.

Project Location

Riverfront Park is located in downtown Spokane, Washington and is roughly bordered by West Cataldo Avenue on the north; West Spokane Falls Boulevard on the south; North Division Street on the east; and Post Street on the west. The 100-acre park is owned and managed by the City who is also the lead regulatory review authority for this project. It encompasses approximately 56 acres of land, approximately 44 acres of water, and includes Havermale Island, Canada Island and portions of the north and south banks of both channels of the Spokane River.

Please note, this addendum focusses specifically on the Recreational Rink and Skyride, and the Howard Street South Channel Bridge replacement that are located within the southwest corner of the larger park site described above and approximately shown in Figure 1, Vicinity Map. Reference to the “project” or “project site,” within this addendum, will pertain only to the smaller parcels related to the three projects described in this addendum and not to the entire 100-acre park unless specifically called out.

Regulatory Background

Spokane Municipal Code (SMC) 17E.020.090 requires the preparation of an HMP for proposed uses or activities that are: (1) located within fish and wildlife habitat conservation areas; or (2) that would impact priority species or habitat (including Shoreline Management Areas [SMA] and Riparian Habitat Areas [RHA]). The City is further required to use the HMP to evaluate use or activities impacts for the purpose of determining mitigation measures (if needed) and/or developing management plan recommendations (SMC 17E.020.050).

Shoreline jurisdiction across the Park (larger 100-acre park) is established at 200 feet from the ordinary high water mark (OHWM); however, the area in which the Park is located is also classified as a “Downtown” district with an “Urban Intensive Environment” designation. Under this designation and with appropriate justification, the City allows uses or activities to occur within 50 feet of the OHWM with an additional 25-foot building setback. The City, in consultation with WDFW, has also established a RHA buffer that includes the

outer edge of the 100-year floodplain or 130 feet from the OHWM (whichever is greater). Similar to the 50-foot buffer, the City allows uses or activities to occur within the 130-foot buffer (with appropriate justification). The majority of existing building structures, located on site, fall within one or more of these shoreline jurisdictions, buffers or setbacks.

Results from the June 17, 2015 Habitat Management Plan

Site observations from the June 17, 2015 HMP (GeoEngineers 2015) verified that the larger 100-acre park is located in a heavily used urban setting with very little riparian habitat. Although marginal riparian habitat is found within Park boundaries, it is located on steep, rocky terrain with sparse native vegetation and provides little to no ecological function relative to assumed natural habitat conditions.

Results from the June 17, 2015 HMP indicate no threatened and/or endangered (T&E) plant, wildlife or aquatic species are mapped within a 1-mile radius of the 100-acre park. Additionally, the Park does not contain critical habitat for T&E species (GeoEngineers 2015). State priority species that have the potential to occur within the 100-acre park boundaries, and to some degree the smaller project site, likely include rainbow trout, Peregrine falcons and Townsend's big-eared bats (GeoEngineers 2015). However, the report concludes that redevelopment activities proposed for the 100-acres park are not likely to impact existing habitat or populations of these species within the general area.

Addendum Scope

The primary focus of this addendum is to evaluate potential redevelopment impacts on priority species and/or habitat within the specific project boundary designs described above. Background information for the overall park area is contained in GeoEngineers initial HMP (2015). Therefore, it is not necessary to reproduce it under this addendum. This addendum will only quantify and map existing habitat conditions within the site-specific footprint of the proposed park improvement designs and discuss potential impacts from the following proposed actions:

- Recreational Rink and Skyride Facility
- Howard Street South Channel Bridge and Theme Stream Crossing

Specific mitigation concepts are not developed within this addendum. The mitigation for all impacted park elements will occur after park improvements are completed in 2019. Mitigation needs, specific to the proposed park improvements identified in this addendum, will be addressed in a separate HMP mitigation plan at a later date, as necessary and appropriate.

METHODS

Review of Design Plans

GeoEngineers reviewed design plans provided by the City for each of the proposed actions. Potential impacts to habitat were quantified based on these plans. We assumed the level of detail provided in the design plans is sufficient to quantify potential foreseeable impacts.

Field Reconnaissance

A field reconnaissance was completed by a GeoEngineers biologist to verify maps created in the June 17, 2015 HMP and to photograph existing conditions and habitat types within the footprint of, and generally adjacent to, each proposed action. Site photographs are presented in Appendix A, Site Photographs.

RECREATIONAL RINK AND SKYRIDE

Proposed Action

Proposed Recreational Rink and Skyride construction will occur in the southwest corner of the Park and is illustrated in Figure 2, Recreational Rink and Skyride Existing Site Layout. Redevelopment activities include a new facilities building with concessions, ice skate rentals, locker rooms and storage/workshop areas. Figure 3, Recreational Rink and Skyride Proposed Site Layout, show the new facility that will also support Skyride controls, access, ticketing, and queuing.

Change Over Existing Conditions

Disturbance Area

The proposed disturbance area of the Recreational Rink and Skyride is approximately 3 acres. Within this area several structures will be demolished, including an existing restroom facility and the existing Skyride ticket booth, deck and canopy. However, the Skyride will remain in place. The existing landscape and pavement will be modified to provide space for updated paving, landscaping, and the proposed ice rink and new facilities building.

Vegetation and Habitat

Within the disturbance area of the Recreational Rink and Skyride, approximately 44 trees will be removed and 22 new trees will be planted (City of Spokane Parks and Recreation 2016). There will be a net loss in landscaped area between the existing and proposed conditions. Existing landscaped areas comprise approximately 64 percent of the disturbance area while hardscape comprises the remaining 36 percent. After construction, landscaping and hardscaping will make up approximately 44 and 56 percent of the site, respectively, resulting in an approximate 20 percent reduction in landscape and an increase of an approximate 20 percent in hardscape. This includes a loss of approximately 16 percent landscape area (grass) outside of the 50-foot shoreline buffer and a loss of approximately 4 percent landscape area (grass) within the 50-foot shoreline buffer.

Vegetation type will change between the existing and proposed conditions. Existing landscape contains several large maintained lawn areas. Mature, predominately deciduous horticultural trees are near the river and throughout the site. The overall number of trees will remain similar between existing and proposed conditions, but the variety and placement will change. Portions of the lawn will be replaced with a rain garden and a manicured landscape containing a variety of trees and shrubs. Refer to Table 1 below for groundcover, tree and shrub species that will be incorporated.

TABLE 1. ICE RINK AND SKYRIDE PROPOSED PLANT SCHEDULE

Plant Type	Common Name
Trees	Sub-Alpine Fir October Glory Maple Heritage River Birch Vanderwolf's Pyramid Limber Pine
Shrubs	Autumn Brilliance Serviceberry Redosier Dogwood Kelsey Dogwood Coral Beauty Cottoneaster Compact Inkberry Hidcote Lavender Mugho Pine Sherwood Compact Mugho Pine
Grasses / Groundcover	Foerster's Reed Grass Bowles Golden Sedge Elijah Blue Fescue Massachusetts Kinnickinnik Icicle Spike Speedwell

Neither the existing nor proposed landscapes mimic natural habitat conditions. They are typical of urban park settings and the species supported by these areas include those common to anthropogenically disturbed environments such as songbirds, waterfowl, squirrels and other rodents, and various terrestrial macroinvertebrates.

Site Drainage

Impervious surfaces within the disturbance area will increase over existing conditions. Approximately 56 percent of the site will be covered with impervious surfaces including buildings, pavement, and an ice rink. Management of runoff generated on site will remain similar to existing conditions and are expected to include drainage in the final designs. On-site treatment is also expected to include bio-retention swales and a rain garden.

Shoreline Setbacks

Shoreline jurisdiction within the site falls under the City of Spokane Downtown district Urban Intensive Environment designation. The 50-foot shoreline buffer is identified Figure 3, Recreational Rink and Skyride Proposed Conditions Site Layout. Recreational rink and facility building construction will occur outside of the 50-foot buffer and 25-foot building setback (total of 75 feet from OHWM); however, general landscaping and paving will occur within the 50-foot buffer. This area was previously developed and proposed conditions will be similar to existing conditions. In the area of the project site, new paving within the shoreline buffer will increase impervious surfaces by approximately 7 percent. Currently, the northeast corner of the existing Skyride ticket booth lies within the Downtown District 75-foot construction setback. Although this building will be removed from the setback during construction, the new building will still encroach on the 130-foot RHA buffer by 50 feet (approximately 80 feet from the designated shoreline boundary).

Operation, Noise, Light, and Aesthetics

Public use of this area is anticipated to increase after project completion as people are drawn to the new and updated facilities. This foot traffic increase is also attributed to the change in location of the ice rink, since it is moving from the center of the Park to the southwest corner of the Park. The new building and ice rink will be a source of increased noise and light during operating hours, which will occur year-round. Light and noise levels generated during operation of these facilities will be typical of a downtown city park environment and are not expected to have a significant impact to species and/or their habitats. The development will incorporate landscaping and public art that will contribute to the Park's overall aesthetic appeal as identified in the original Master Plan (City of Spokane 2014).

HOWARD STREET SOUTH CHANNEL BRIDGE AND SOUTH THEME STREAM BRIDGE

Proposed Action

The proposed Howard Street South Channel Bridge will replace the existing bridge over the south channel of the Spokane River, as shown in Figure 4, Howard Street Bridge and Theme Stream Crossing Existing Site Layout. The Howard Street South Channel Bridge is part of the pedestrian transportation network within the Park. Structural deficiencies in the existing bridge have limited pedestrian traffic to only portions of the existing bridge surface. The proposed bridge will be placed in the same location as the original and will have two piers—a deck width of 58.7 feet and a span of 180 feet (CH2MHill 2015). The proposed bridge and temporary construction access details are shown in Figure 5, Howard Street Bridge and Theme Stream Crossing Proposed Site Layout.

Change Over Existing Conditions

In-Water Work

Construction activities and heavy construction equipment use will occur above and below the OHWM on-shore and within the channel. All work that will take place below the OHWM will occur within a designated in-water work window. The in-water work window is defined in the Hydraulic Project Approval (HPA) as June 15 2016 to October 31, 2017 (WDFW 2016/HPA permit no. 2016-1-43+01). CH2MHill's, "Howard Street South Channel Bridge Replacement, Anticipated Bridge Construction Procedures, Technical Memorandum (Technical Memorandum)" describes work that will occur within the OHWM. Figure 6, Howard Street Bridge Existing and Proposed Plan and Profile, and Figure 7, Temporary In-water Obstructions, are excerpted from the Technical Memorandum and depict in-water work areas.

During demolition, the existing bridge superstructure, piers, abutments and parts of the existing retaining wall will be removed. A barge will be used to catch and contain demolition debris and prevent debris and dust from falling into the river. Turbidity curtains will be used around in-water rock pads if they are needed for in-water work. Demolition activities will be monitored throughout the demolition process to confirm efficacy of the debris containment systems to prevent releases into the channel.

Foundation construction will require site dewatering with coffer dams and/or concrete seals. Water pumped from the site will be collected in settling ponds or tanks prior to being returned to the Theme Stream. During construction of piers, drilled shafts will be founded 10 to 20 feet below existing ground surface (CH2MHill 2015). Excess drilling water and slurry generated during pier construction will be pumped out of the casing and collected in settling ponds or temporary holding tanks for off-site disposal.

Near-shore work, including work within and outside of the OHWM, will include grading and filling to provide access to work pads, existing bridge demolition, concrete bridge abutment construction and minor grading and planting to restore disturbed conditions.

Disturbance Area

Site disturbance limits encompass approximately 4 acres and contain the immediate vicinity of the existing Howard Street Bridge and areas required for construction access and staging. Part of the construction staging will occur within the future Sister Cities Garden. Vegetation removal and construction activities impacts within this area were initially addressed in the Sister Cities Garden Shoreline Permit (City of Spokane 2011 / Shoreline Permit Application no. Z1400017SSDP). Anticipated impacts within the Sister Cities Garden are quantified within this addendum. However, site disturbance will be mitigated through the construction of the Sister Cities Garden as outlined in the Shoreline Permit.

Within the disturbance area, two temporary settling ponds will be constructed to receive water during in-water work (Figure 5). Treated water from the settling ponds will drain to Theme Stream; areas containing these ponds will be restored to original conditions after construction.

The size of the new and existing bridges is described in CH2MHill's Technical Memorandum (2015). The proposed bridge replaces a 70-foot wide 4-span cast-in-place reinforced concrete bridge. The new bridge will use two piers, one less than the existing bridge, resulting in an in-river cross-sectional area of obstruction equal to approximately 100-square feet (50-square feet less than the existing bridge). Excavated and placed material volumes are provided in the Technical Memorandum and are summarized in Table 2 below.

TABLE 2. HOWARD STREET SOUTH CHANNEL BRIDGE CONSTRUCTION VOLUMES

Construction Activity	Volume (cubic yards)
Excavation/demolition/removal of existing bridge piers and footings	148
Excavation for new abutments and drilled shafts	1,351

Notes:

Construction volumes are reported in: CH2MHill. 2015. Howard Street South Channel Bridge Replacement Anticipated Bridge Construction Procedures. Technical Memorandum dated December 9, 2015.

Temporary Construction Access

Prior to construction, a temporary asphalt driveway will connect Post Street to the temporary laydown area on the north bank of the South Channel. A temporary asphalt and gravel road will provide access to the south bank of the South Channel from Spokane Falls Boulevard. A temporary prefabricated bridge will be placed over the existing South Theme Stream Bridge deck to support heavy equipment.

Construction of temporary access routes will require the removal of pavement, lawn and several trees. Following completion of this and other improvements, all temporary access routes will be removed and all pavement and lawns will be restored. Rehabilitated pavement and lawns are not expected to be substantially different than existing conditions. The Theme Stream Bridge may be replaced in a new location consistent with the Historic Preservation Plan. Rehabilitation of the Theme Stream Bridge will meet

requirements described in the Memorandum of Agreement approved by the U.S. Army corps of Engineers, the Washington State Historic Preservation Officer, and the City of Spokane (MOA 2016, Reference No. NWS-2015-0914).

Vegetation and Habitat

Vegetation removal will occur during construction. Approximately 74 trees within the South Howard Street Bridge, Sister Cities Garden and Theme Stream disturbance limits will be removed to provide space for construction access and staging (City of Spokane Parks and Recreation 2016). Approximately 50 of the trees to be removed are located within the future Sister Cities Garden. Development of the Sister Cities Garden will restore vegetation and habitat to that typical of a park setting as outline in the Sister Cities Shoreline Permit (City of Spokane 2011/Shoreline Permit Application no. Z1400017SSDP).

The south and north banks of the South Channel adjacent to Howard Street Bridge will be replanted after construction; plant species and quantities for the proposed areas are listed in Table 3 below. No planting will occur under the new bridge, as this area does not currently support vegetation and is not suitable for new plantings (CH2MHill 2015).

TABLE 3. HOWARD STREET SOUTH CHANNEL BRIDGE PROPOSED PLANT SCHEDULE

Location	Common Name	Quantity
South Bank	Kelsey red-twig dogwood	26
	Feather reed grass	13
North Bank	Indian Ricegrass	70
	Arrowleaf	70
	Water Birch	5
	Red Twig Dogwood	70
	Mountain Rush	70
	Basin Wildrye	70
	Tall Oregon Grape	70
	Coyote Willow	70

Shoreline Setbacks

Replacement of the Howard Street South Channel Bridge will require temporary construction of access routes and temporary work pads within the 50-foot shoreline buffer. Activities associated with access, staging and work zones are temporary and impacts to the shoreline buffer are anticipated to be negligible. The development footprint within the 50-foot shoreline buffer will decrease because the replacement Howard Street Bridge is smaller than the original bridge and includes one fewer pier. Hydraulic modeling results described in the CH2MHill Technical Memorandum indicate that the new bridge will have an insignificant impact on channel flow capacity and water surface elevations (2015).

Under the provisions that the proposed activities will be normal maintenance to prevent a decline, lapse or cessation of lawfully established condition and will not adversely affect shoreline resources or environment, the City of Spokane Planning and Development determined the replacement of the Howard Street South Channel Bridge and Theme Stream Crossing access are exempt from a shoreline substantial development

permit (City of Spokane Planning and Development, 2016/Exemption from Shoreline Substantial Development File No. Z16-050SDET). Planning and Development issued a Determination of Non-Significance on Feb 8, 2016.

Operation, Noise, Light, and Aesthetics

Land use within the project vicinity will not change as a result of the bridge replacement. The bridge will continue to facilitate pedestrian traffic and will be equipped with lighting, similar to the existing bridge. Therefore, light, noise and aesthetics are not expected to change over existing conditions.

HABITAT MANAGEMENT

The objective of this HMP addendum is to identify potential impacts to existing habitat conditions. The June 17, 2015 HMP developed the following specific objectives:

- Provide no-net loss of species and habitat within the park
- Develop design details in redevelopment areas that ensure operational activities do not negatively impact on-site species or critical areas
- Provide enhancement opportunities where possible to increase buffer functions
- Provide mitigation as needed, to mitigate for unavoidable impacts to the Spokane River habitat and/or buffers/setbacks

No Net Loss and Protect Existing Species

As described within GeoEngineers initial HMP (2015), within the proposed disturbance area there are no mapped terrestrial critical habitats or plant and/or animal species likely to utilize the surrounding terrestrial habitat. Vegetation composition consists of ornamental trees, shrubs and maintained lawn and will not change substantially between existing and proposed conditions. Wildlife that may utilize this environment include synanthropic species, those adapted to live near or associate with human environments, as well as waterfowl, squirrels, and songbirds. Temporary impacts to these species may occur during construction; however, these impacts are anticipated to be relatively short in duration and self-mitigating following completion of development.

The June 17, 2015 HMP identified rainbow trout, Peregrine falcons and Townsend's big-eared bats as a potential species that may be in the area. Consultation with WDFW during previous site visits concluded that these species may be temporarily deterred from accessing the channel during construction; however, no net loss of habitat or species is anticipated from redevelopment activities discussed in this addendum.

The proposed Park redevelopment concepts for the Recreational Rink and Skyride are not expected to negatively impact the size, function and/or value of the existing buffer habitat. All new facilities will occur outside the 75-foot shoreline buffer (50-foot plus 25-foot construction setback). Further, redevelopment includes removal of a building that partially occurs within the 75-foot shoreline buffer. Paved walkways will slightly increase within the 50-foot buffer; however, this area is already heavily paved and therefore additional impacts are anticipated to be negligible.

Similarly, the proposed Park redevelopment concepts for the Howard Street South Channel Bridge and temporary Theme Stream crossing are anticipated to minimally impact the shoreline buffer during temporary construction activities. After construction, this will result in a net decrease in structures located within the 50-foot shoreline buffer.

Operational Activities

Noise levels will temporarily increase during redevelopment activities but are expected to return to current Park operation levels after construction is complete. A temporary increase in construction noise is expected because of heavy equipment use and potential increase of traffic volumes by contractors. Conservation measures should be incorporated to reduce noise impacts to adjacent neighbors and wildlife. Typical noise conservation measures may include minimizing and consolidating heavy equipment use as much as possible and/or using equipment within approved work hours typically between 7:00 AM to 6:00 PM. After construction, redevelopment activities associated with human use are not expected to impact the Spokane River or associated buffer habitats.

Temporary disturbances and negative impacts to aquatic habitats may be caused by use of heavy construction vehicles around water and increased turbidity during bridge replacement. These impacts are temporary, short in duration, and will be minimized through use of best management practices (BMPs), including a silt fence, debris containment enclosures, settling ponds and off-site disposal of slurry material. An Erosion Sediment Control (ESC) Plan and a Spill Prevention, Control and Counter Measure (SPCC) Plan will be required for construction activities occurring adjacent to waterways and should be designed and monitored by a Certified Erosion and Sediment Control Lead. During construction activities, the contractor will be required to monitor water quality for pH and turbidity upstream and downstream of installed turbidity curtains. As a result of these erosion control efforts, turbidity resulting from construction activities is not anticipated to result in substantial negative impacts to water quality and/or aquatic environments.

There is potential for accidental releases to occur from contaminants such as fuel or hydraulic fluids from on-site construction, maintenance or refueling activities. BMPs should be implemented as part of the Park's temporary construction and regular maintenance and operation activities and included as part of the contractor's Stormwater Pollution Prevention Plan (SWPPP). If appropriate BMPs are installed and are properly maintained, the risk for impacts can be attenuated.

Enhancement Opportunities

Enhancement opportunities, as a result of the proposed projects discussed in this addendum, include decreasing the size of structures located within the 50-foot shoreline buffer and increasing native riparian species. Both of these enhancement opportunities are included in the redevelopment plans. Vegetation proposed for the banks adjacent to the Howard Street South Channel Bridge includes native riparian species. The development footprint within the shoreline buffer will decrease after the replacement of the existing Howard Street South Channel Bridge with a smaller structure and the removal of the existing Skyride ticket booth, which is currently partially located within the shoreline buffer construction setback.

CONCLUSIONS

Anticipated Impacts

Unavoidable impacts that result from the proposed redevelopment activities discussed in this addendum are expected to include:

- Loss of approximately 118 park trees
- Loss of approximately 16 percent landscape area (grass) outside of the 50 foot shoreline buffer within the Recreational Rink and Skyride project limits
- Loss of approximately 4 percent landscape area (grass) within the 50 foot shoreline buffer within the Recreational Rink and Skyride project limits
- Skyride Building encroachment of 50 feet into the 130 RHA buffer (approximately 80 feet from the designated shoreline boundary)
- Temporary increases in noise during the construction period
- Temporary increase in potential erosion and impermeable areas during construction
- Temporary disturbance of landscape areas within the construction access and staging areas
- Temporary in-water obstruction to flow in the Theme Stream
- Construction of temporary work pads to provide access for in-river construction activities if necessary for in-water work
- Temporary impacts to channel flow velocities (increase from 1.6 feet per second to 1.9 feet per second) during construction of the temporary work pads which are anticipated to obstruct approximately 50 percent of the channel
- Dewatering areas within the south channel using coffer dams and/or concrete seals for the construction of bridge support

Anticipated Enhancement

Enhancement/self-mitigating actions that will result from the proposed redevelopment activities discussed in this addendum are expected to include:

- Planting of approximately 22 trees
- Shoreline riparian plantings consisting of ten native plant species of varying quantities (see Table 3) totaling approximately 534 plants
- Portions of the lawn area will be replaced with a rain garden and a manicured landscape containing a variety of trees and shrubs (see Table 1 for a list of groundcover, tree and shrub species that will be incorporated)
- Removal of existing sky ride buildings from the 50-foot buffer and 75-foot setback (construction of the ice rink and facility building will occur outside of the 50-foot buffer and 75-foot setback)
- Howard Street South Channel Bridge deck width will be reduced from approximately 70 feet to 58.7 feet wide

- The new bridge will use two piers, one less than the existing bridge, resulting in an in-river cross-sectional area of obstruction equal to approximately 100-square feet (50-square feet less than the existing bridge)
- All temporary access routes will be removed and all pavement and lawns will be restored
- The area containing temporary construction staging for the Howard Street Bridge will be restored and revegetated according to future Sister Cities Garden plans and Shoreline Permit (City of Spokane 2011/Shoreline Permit Application no. Z1400017SSDP).

Summary

Based on design information obtained from the City and as understood/presented in this addendum, the proposed Park redevelopment concepts for the Recreational Rink and Skyride are not expected to negatively impact the size, function and/or value of the existing site habitat. All new facilities will occur outside the 75-foot shoreline buffer (50-foot plus 25-foot construction setback). Furthermore, the redevelopment includes removal of a building that partially occurs within the 75-foot shoreline buffer. Paved walkways will slightly increase within the 50-foot buffer; however, this area is already heavily paved and therefore additional impacts are anticipated to be negligible.

Similarly, the proposed Park redevelopment concepts for the Howard Street South Channel Bridge and temporary Theme Stream crossing are anticipated to minimally impact shoreline and aquatic habitat during temporary construction activities and, after construction, will result in a net decrease in structures located within the 50-foot shoreline buffer.

All construction activities associated with the proposed projects are considered to be temporary and self-mitigating through proper BMPs. Mitigation of vegetation removal is included in the proposed landscaping plans. Additional mitigation for these projects is not anticipated to be necessary if the projects are constructed as planned.

REFERENCES

- GeoEngineers, Inc. 2015. Habitat Management Plan. Proposed Riverfront Park Improvements. Spokane, Washington. Prepared for City of Spokane Department of Parks and Recreation. June 17, 2015.
- CH2MHill. 2015. Howard Street South Channel Bridge Replacement, Anticipated Bridge Construction Procedures. Technical Memorandum. December 9, 2015.
- CH2MHill. 2016. Howard Street South Channel Bridge. Prepared for City of Spokane Department of Parks and Recreation. May 31, 2016.
- City of Spokane. 2011. Sister Cities Garden Shoreline Permit Application. Last Updated March 16, 2011. Application/Permit Number: Z1400017SSDP. Available at: <https://static.spokanecity.org/documents/projects/sistercitiesgarden/sister-cities-garden-shoreline-permit.pdf>.
- City of Spokane. 2014. Riverfront Park Master Plan 2014. Available at: http://riverfrontparknow.com/wp-content/uploads/2015/03/rfp_mp_draft_030315.pdf.

City of Spokane Planning and Development. 2016. Exemption from Shoreline Substantial Development Permit. File no. Z16-050SDET. February 29, 2016.

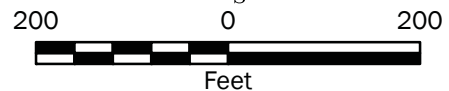
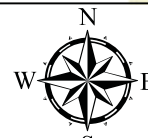
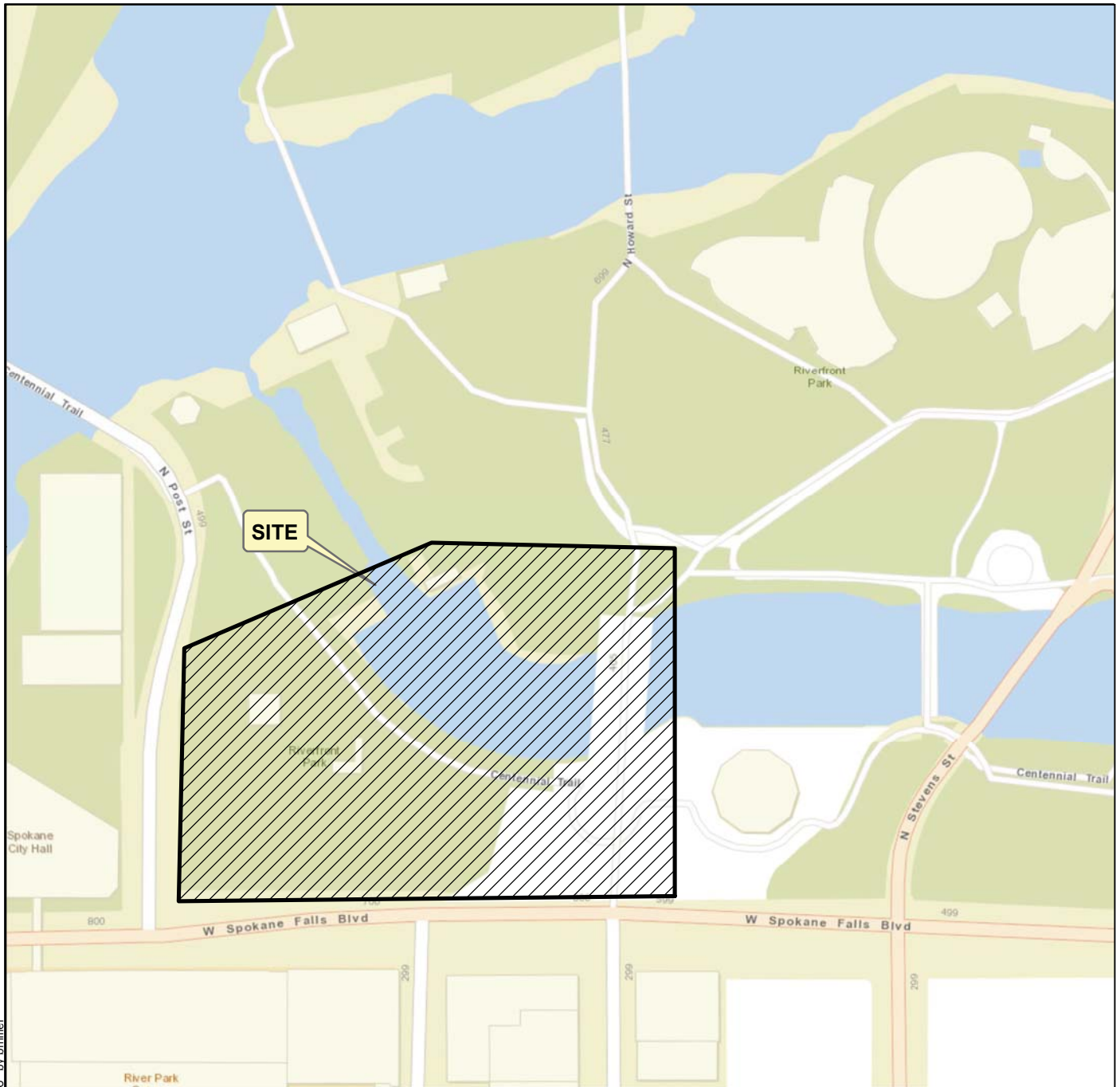
City of Spokane Parks and Recreation. 2016. Urban Forestry Public Tree Permit Application. Permit File no. 16-073-A Amended. July 6, 2016.

Ellison, B (City of Spokane). 2016. Personal Communication regarding replacement of Theme Stream Bridge. June 8, 2016.

SPVV. 2016. South Bank West Riverfront Park Recreational Rink and Skyride Facility. Coordination Set Landscape Plan. Prepared for City of Spokane Department of Parks and Recreation. May 25, 2016.

Washington Department of Fish and Wildlife (WDFW). 2016. Hydraulic Project Approval. Howard Street South Channel Bridge Replacement Project. Permit no. 2016-1-43+01. Issued April 21, 2016.

U.S. Army Corps of Engineers, Washington State Historic Preservation Officer, and the City of Spokane. 2016. Memorandum of Agreement for Resolution of Adverse Effects to the Howard Street South Channel Bridge, Riverfront Park, Spokane, Spokane County, Washington. U.S. Army Corps of Engineers, Corps Reference no. NWS-2015-0914.



Vicinity Map

Habitat Management Plan Addendum 1 Riverfront Park, Spokane, Washington



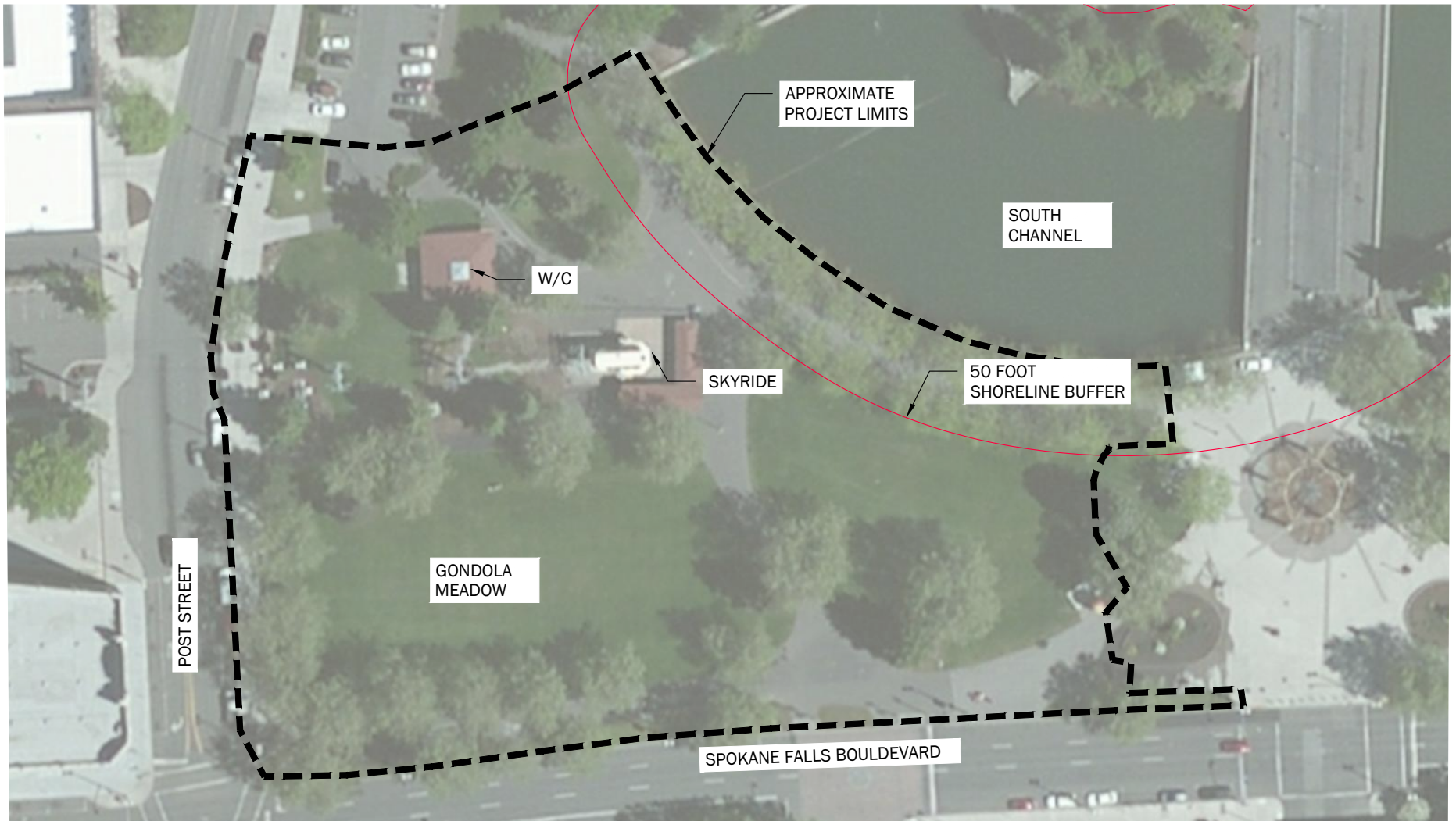
Figure 1

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2015

Projection: NAD 1983 UTM Zone 11N



Notes:

1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
- GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
- Aerial from ESRI online data, dated June 28, 2013



NOT-TO-SCALE

**Recreation Rink and Skyride
Existing Site Layout**

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



Figure 2



Notes:

1. Figures are reproduced from figures included in the City of Spokane Riverfront Park South Bank West Recreational Ice Rink & Skyride, dated May 25, 2016.
2. The location of all features shown is approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: City of Spokane, Washington
Riverfront Park South Bank West Recreational Ice Rink & Skyride
Coordination Set Landscape Plan
May 25, 2016



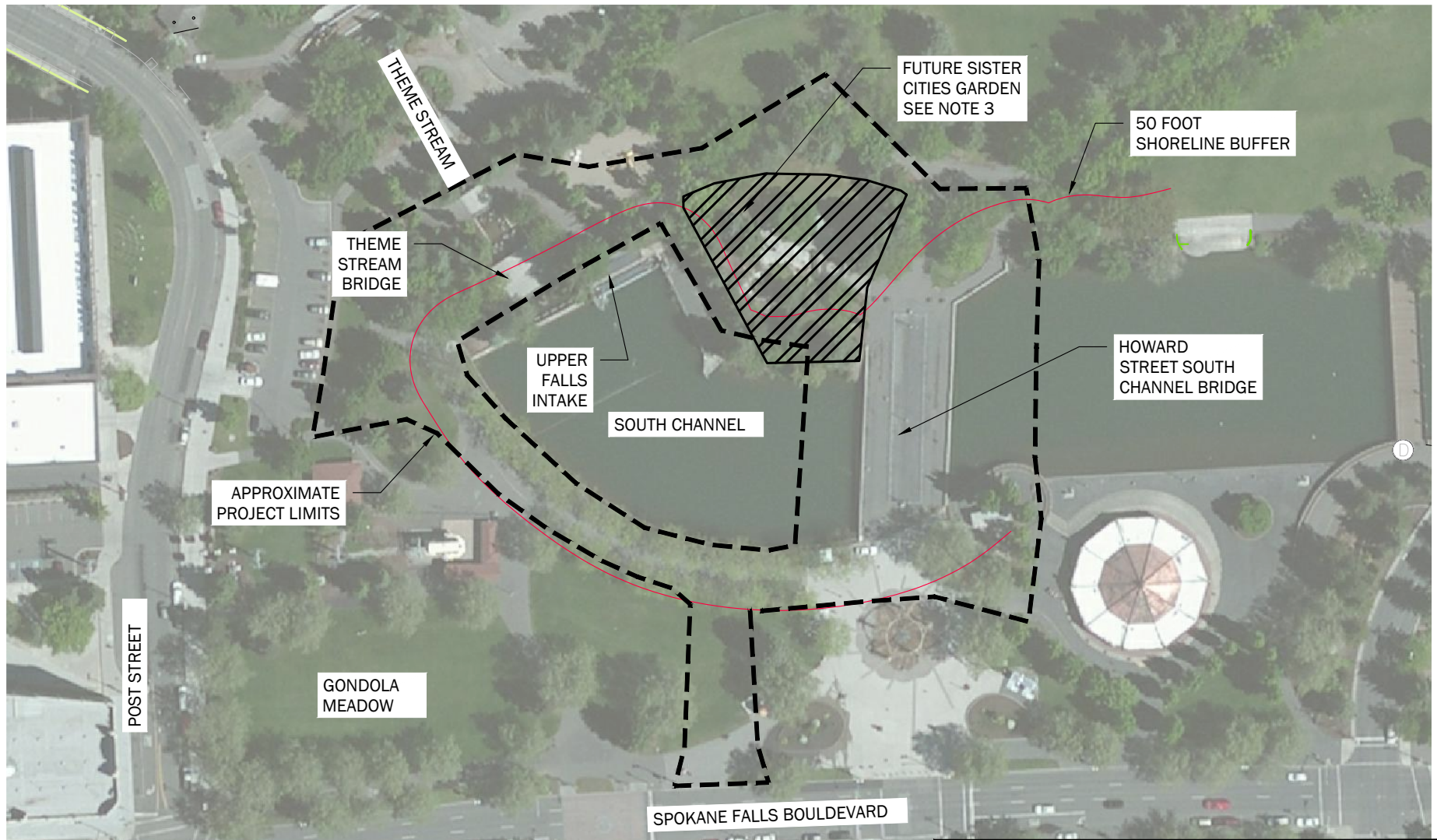
NOT-TO-SCALE

Recreation Rink and Skyride Proposed Conditions Site Layout

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington

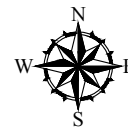


Figure 3



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication. Aerial from ESRI online data, dated June 28, 2013
3. Impacts from vegetation removal within the area delineated for future Sister Cities Garden are covered under the Sister Cities Garden Shoreline Permit Application dated March 16, 2011.



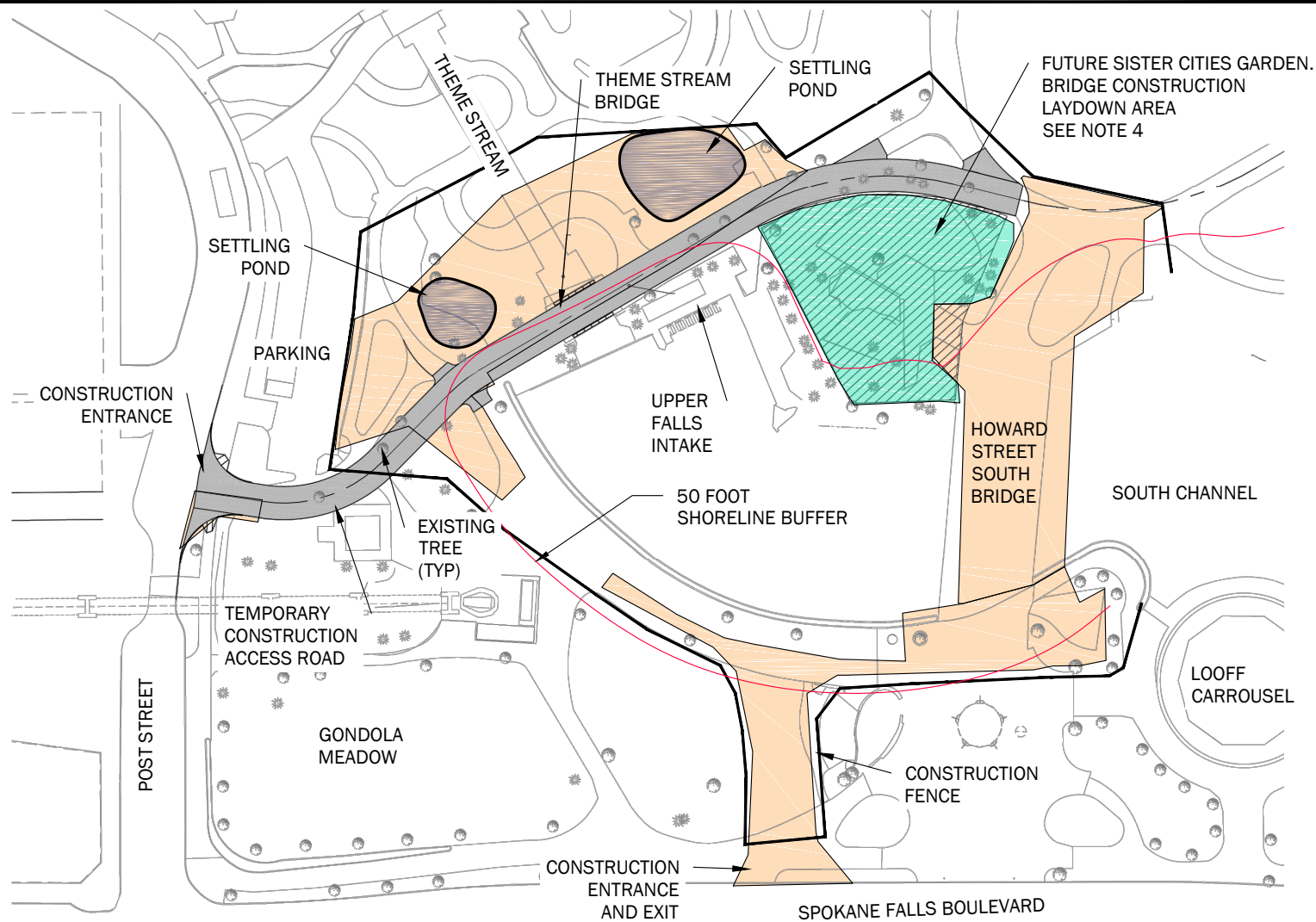
NOT-TO-SCALE

Howard Street Bridge and Theme Stream Crossing Existing Site Layout

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



Figure 4



Notes:

1. Figures are reproduced from City of Spokane Howard Street South Channel Bridge Plans. Prepared by CH2MHill. Dated May 31, 2016. The location of all features shown is approximate.
2. Figures are not to scale and are not assigned a coordinate system.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
4. Impacts from vegetation removal within the area delineated for future Sister Cities Garden are covered under the Sister Cities Garden Shoreline Permit Application dated March 16, 2011.

Data Source: City of Spokane/CH2MHill
Howard Street Bridge South Channel Bridge
May 31, 2016



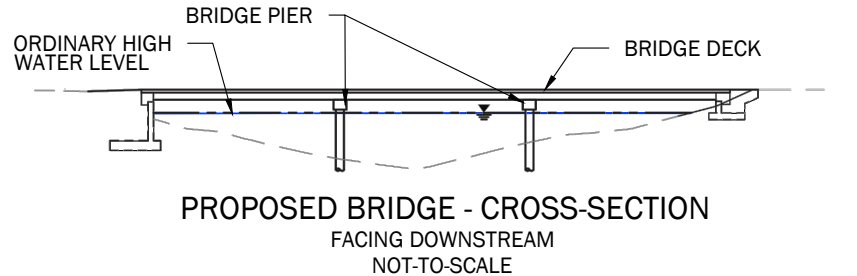
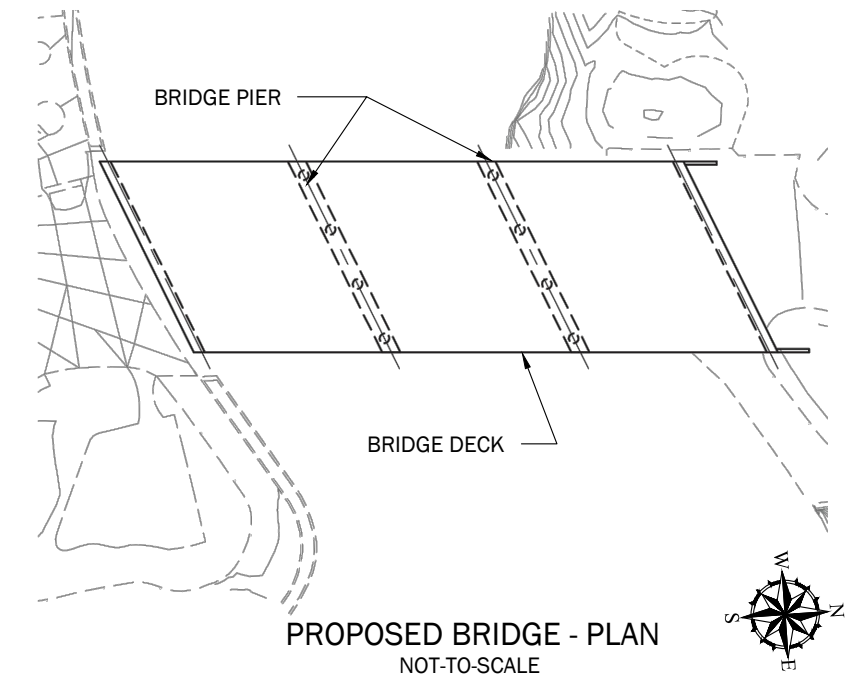
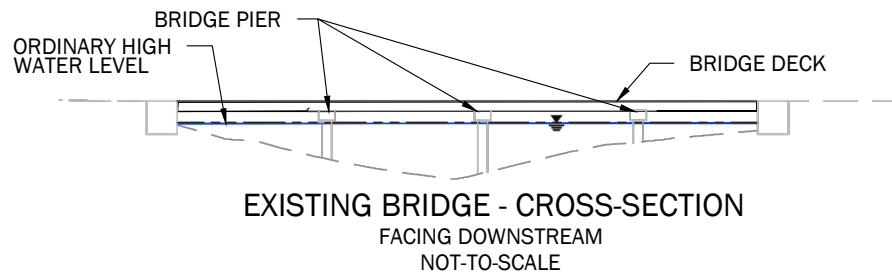
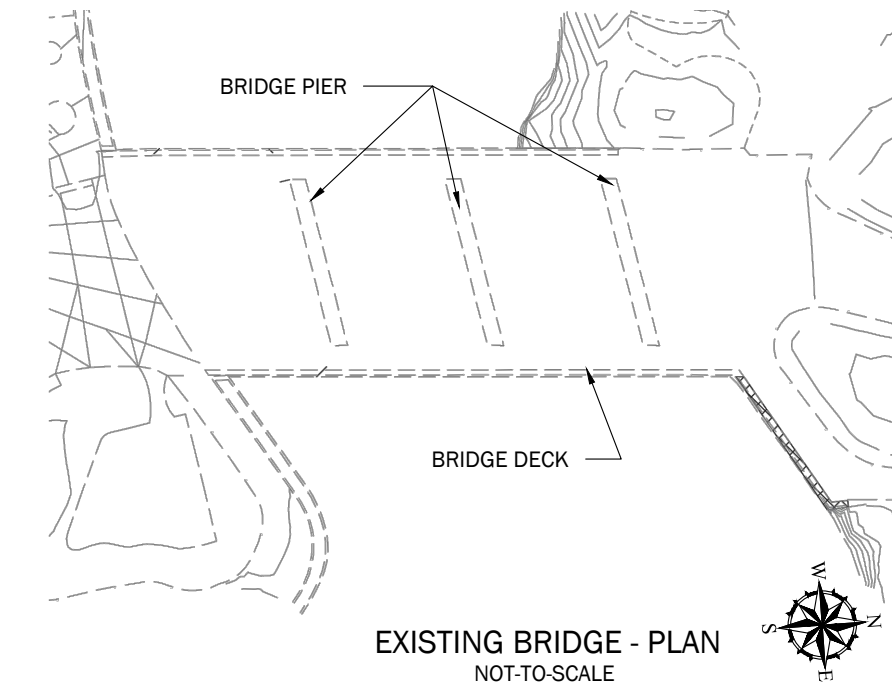
NOT-TO-SCALE

Howard Street Bridge and Theme Stream Crossing Proposed Site Layout

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



Figure 5



Notes:

1. Figures are reproduced from figures included in the CH2MHill Technical Memorandum, Howard Street South Channel Bridge Replacement Anticipated Bridge Construction Procedures, dated December 9, 2015.
2. The location of all features shown is approximate.
3. Figures are not to scale and are not assigned a coordinate system.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

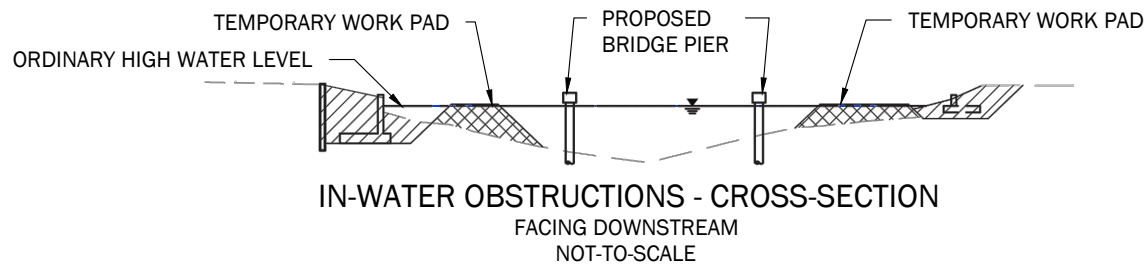
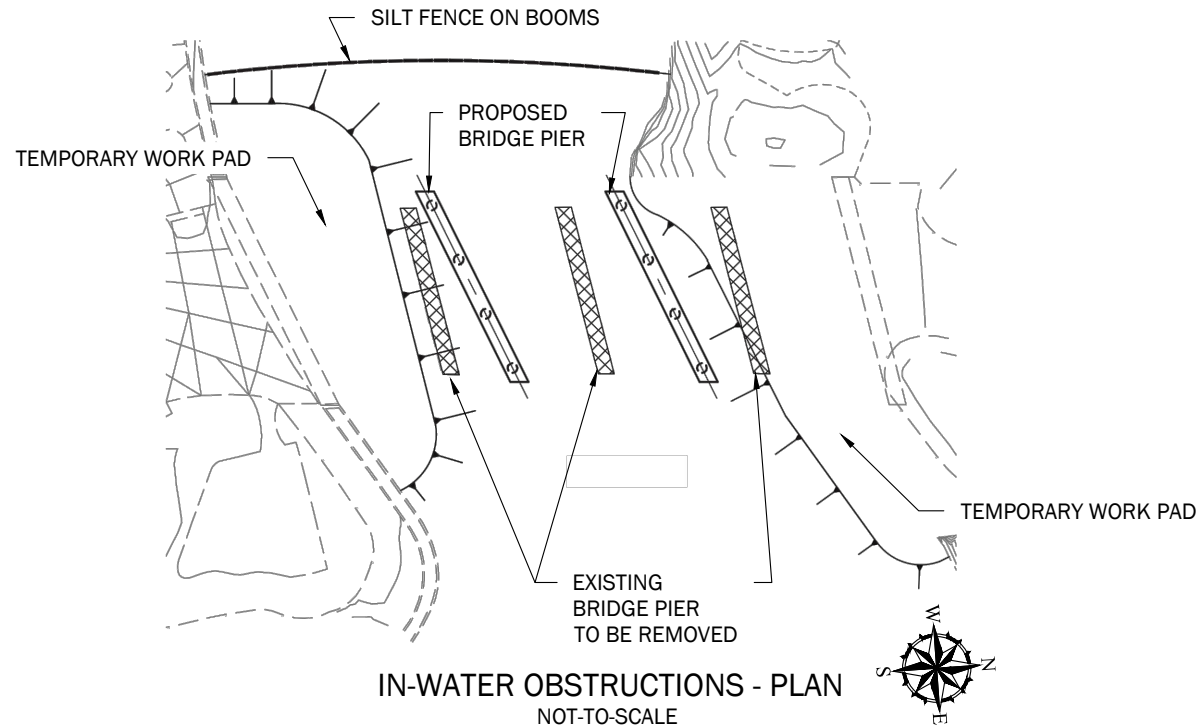
Data Source: CH2MHill Technical Memorandum
Howard Street Bridge South Channel Bridge Replacement Anticipated Bridge Construction Procedures
December 9, 2015

Howard Street Bridge Existing and Proposed Plan and Profile

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



Figure 6



Notes:

1. Figures are reproduced from figures included in the CH2MHill Technical Memorandum, Howard Street South Channel Bridge Replacement Anticipated Bridge Construction Procedures, dated December 9, 2015.
2. The location of all features shown is approximate.
3. Figures are not to scale and are not assigned a coordinate system.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

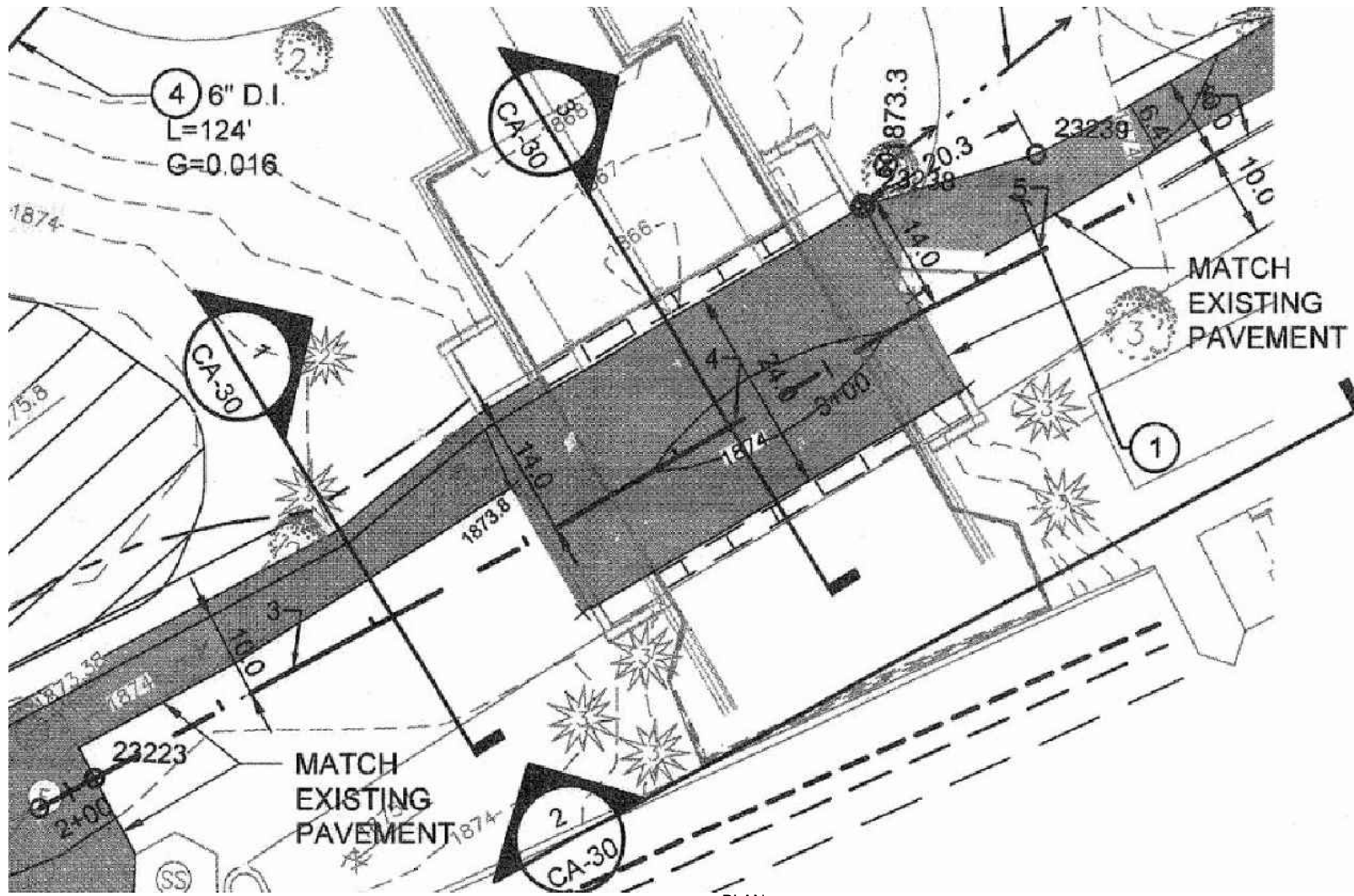
Data Source: CH2MHill Technical Memorandum
Howard Street Bridge South Channel Bridge Replacement Anticipated Bridge Construction Procedures
December 9, 2015

Temporary In-Water Obstructions

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



Figure 7

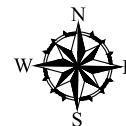


Notes:

1. Figures are reproduced from City of Spokane Howard Street South Channel Bridge Plans. Prepared by CH2MHill. Dated May 31, 2016. The location of all features shown is approximate.
2. Figures are not to scale and are not assigned a coordinate system.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: City of Spokane/CH2MHill
Howard Street Bridge South Channel Bridge
May 31, 2016

PLAN
NOT-TO-SCALE

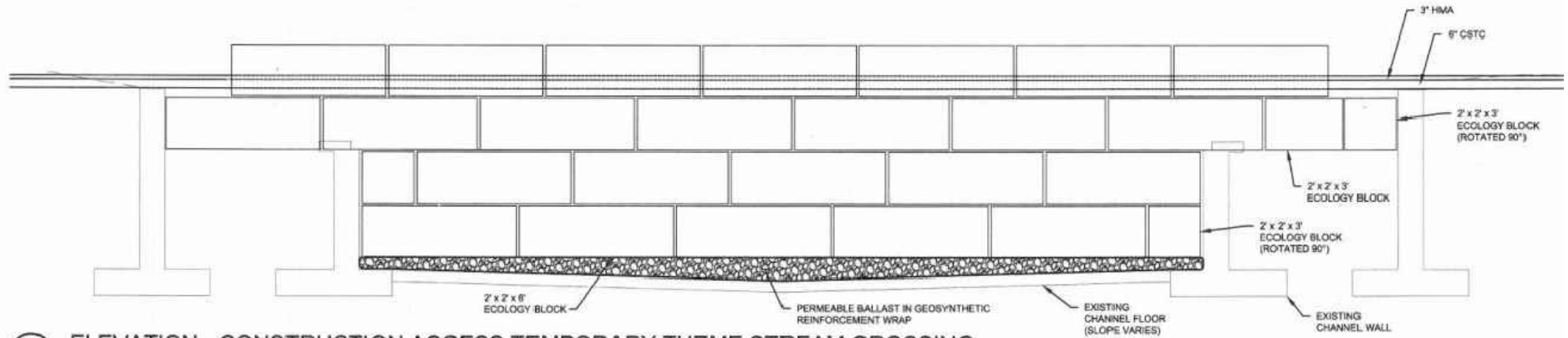


Temporary Theme Stream Crossing - Plan

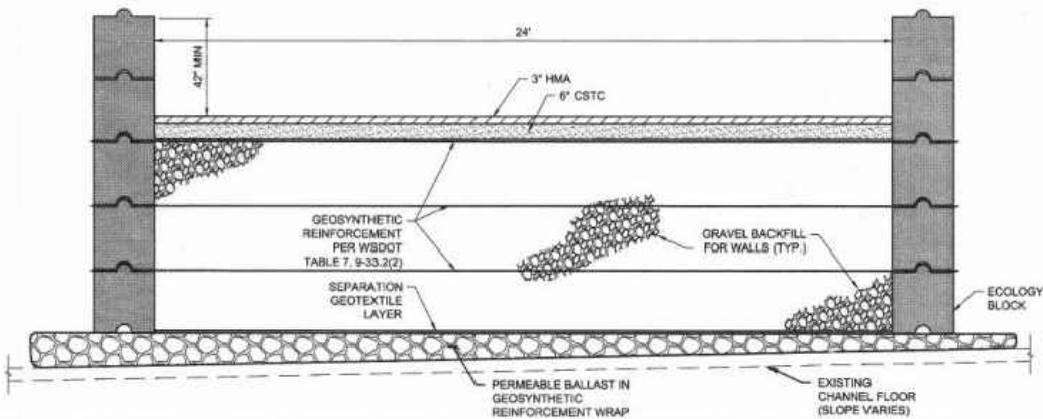
Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



Figure 8



2 ELEVATION - CONSTRUCTION ACCESS TEMPORARY THEME STREAM CROSSING
SCALE: 3/8" = 1'-0"



3 SECTION - CONSTRUCTION ACCESS TEMPORARY THEME STREAM CROSSING
SCALE: 3/8" = 1'-0"

SECTIONS
NOT-TO-SCALE

Notes:

- Figures are reproduced from City of Spokane Howard Street South Channel Bridge Plans. Prepared by CH2MHill. Dated May 31, 2016. The location of all features shown is approximate.
- Figures are not to scale and are not assigned a coordinate system.
- This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: City of Spokane/CH2MHill
Howard Street Bridge South Channel Bridge
May 31, 2016



Temporary Theme Stream Crossing - Sections

Habitat Management Plan Addendum
Riverfront Park, Spokane, Washington



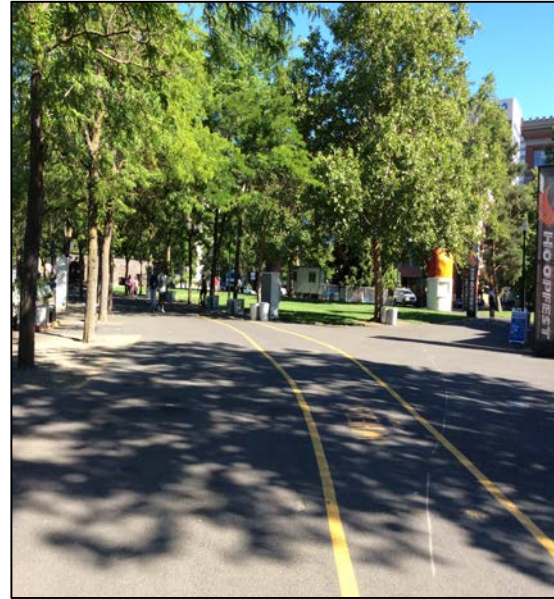
Figure 9

APPENDIX A

Site Photographs



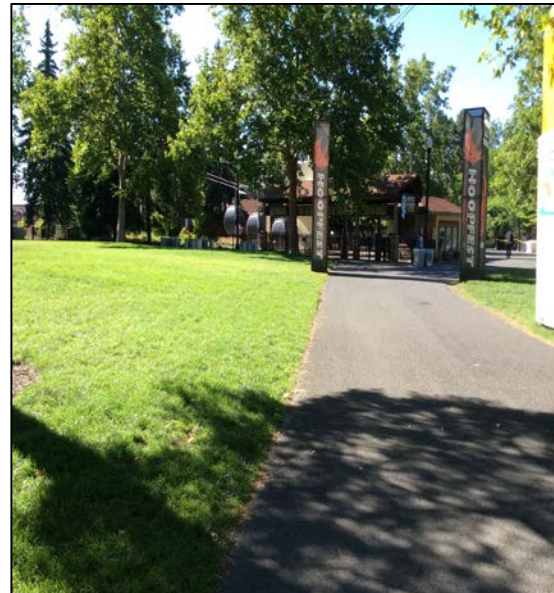
Photograph A-1. Existing Skyride facing southwest



Photograph A-2. Walkway impacted by Skyride and Recreational Rink development



Photograph A-3. Location of proposed Recreational Rink



Photograph A-4. Existing Skyride facing northwest

Site Photographs Skyride and Recreational Rink

Habitat Management Plan Addendum 1
Riverfront Park, Spokane, Washington

GEOENGINEERS

Figure A-1



Photograph A-5. Howard Street Bridge facing east



Photograph A-6. Howard Street Bridge facing west



Photograph A-7. Vegetation impacted by Howard Street Bridge replacement



Photograph A-8. Vegetation impacted by Howard Street Bridge replacement

Site Photographs Howard Street Bridge

Habitat Management Plan Addendum 1
Riverfront Park, Spokane, Washington

GEOENGINEERS 

Figure A-2



Photograph A-9. Theme Stream Crossing facing northeast



Photograph A-10. Theme Stream Crossing facing east

**Site Photographs
Theme Stream Crossing**

Habitat Management Plan Addendum 1
Riverfront Park, Spokane, Washington

Have we delivered World Class Client Service?

Please let us know by visiting [**www.geoengineers.com/feedback**](http://www.geoengineers.com/feedback).

