## Exhibit A – Scope of Work

### Introduction and Background

This water activity addresses non-consumptive needs and interests of multiple basins by finalizing design of recreation and habitat improvement concepts presented in the community-based, multi-stakeholder vision documents - the RISO Master Plan and South Platte RVIP. The proposed project will help sustain environmental and recreational needs of statewide significance. The project is also identified in the Metro Basin Needs Assessment Report (March 2011) as addressing non-consumptive needs, specifically targeting habitat restoration and recreation improvements.

This Water Supply Reserve Account (WSRA) grant will progress the South Platte River Recreation and Habitat Improvements Preliminary Design effort through final design. The design effort will focus on preparing final design drawings and specifications for bidding and securing required permits for river improvements targeting non-consumptive needs including boating, tubing, fishing and wildlife enhancements in this urban environment.

Within the Project Area, non-native and invasive vegetation species will be removed and replaced with representative native vegetation within the South Platte River watershed. The vegetation will be monitored and maintained for a minimum of three years to allow them to establish the new plants and to out-compete the return of non-native and invasive vegetation. New trees (e.g. plains cottonwood, narrowleaf cottonwood, peach leaf willow), new shrubs (e.g. willows, chokecherry, snowberry) and native grasses will be planted and established.

This project will result in significantly improved access for recreation, including boat launch ramps and jetties, access trails and trailheads (within the immediate vicinity of the south Platte River) and new trail segments affected by grading and re-vegetation work as well as bank re-grading/wetlands/native vegetation restoration to allow users to engage in a variety of recreational activities.

Proposed improvements at Grant Frontier Park and Pasquinel's Landing include laying back a portion of the east bank of the River, establishing emergent benches, and design of in-channel habitat structures for native fish species and macroinvertabrates. Laying back the slope and establishing an emergent bench will reconnect the River to a floodplain, providing additional habitat for riparian and avian wildlife. Several bank areas will require boulder retaining walls to help retain the grade to establish these bench areas. The drop structure near West Evans Avenue will be modified to promote fish movement (upstream and downstream) and develop additional foraging and spawning areas in addition to providing enhanced boating opportunity.

Proposed improvements at Overland Park include establishing a series of pools and riffles to provide aquatic habitat (resting, foraging and spawning). The pools and riffles will be established by lowering the existing drop structure near Florida Avenue and distributing the elevation upstream; essentially the single drop structure at Florida Avenue will be split into a series of habitat-friendly riffles and pools; this will also improve boating, because the existing drop structure is dangerous to navigate.

Proposed in-channel habitat structures throughout the Project Area include bendway weirs, jetties, and large woody debris. These structures will promote variation in river flow depth and velocity and provide protective cover for fish. A concept plan figure is provided with this Water Supply Reserve Account Grant Application showing the proposed improvements. Please note that the design of the two playgrounds shown in the concept plan figure is not included in this scope of work, but it is shown on the concept plan for completeness; the two playgrounds will be designed under a separate agreement.

Summarized below is the proposed Scope of Work.

**Task 1 – Project Management and Meetings**

Upon Notice to Proceed, The Greenway Foundation and it's consultants (hereafter referred to as the Team) will conduct/participate in a project kick-off meeting with stakeholders. The kick-off meeting will address the following:

- Project and scope overview
- Schedule
- Communications procedures
- Review of information currently available
- Requests for Additional Information
- Goals and expectations

The kick-off meeting will include a visit to the project site by The Team and interested stakeholders to assess and confirm site conditions and further identify project issues.

The Team will update the Preliminary Design Project Management Plan (PMP). The updated PMP will include the detailed scope, schedule including key milestones and deliverables, project team, and budget. As part of the PMP update, the Team will work with the stakeholders to define project expectations. The PMP will also include updated summaries of anticipated coordination between stakeholders and permitting agencies. Updates will also be provided to reflect final design quality assurance and quality control, including names of technical reviewers and technical review milestones.

A detailed project schedule will be developed and updated on an as needed basis to reflect any substantive changes in the plan.

Funding for construction has been committed through grants and stakeholder matching funds. Because of the significant contributions from numerous stakeholders, coordination and progress meetings will be required for a variety of agencies; all attempts will be made to minimize the number of meetings and maximize agency participation. The Team will conduct up to 24 meetings/workshops with the River Vision Coordination Committee (RVCC), Urban Drainage and Flood Control District (UDFCD), and/or the City and County of Denver (CCD) throughout the duration of the project to review progress, discuss key issues, exchange ideas, and make decisions. The scope of these meetings will generally include a discussion of work completed, budget and schedule status, potential problem areas and solutions, and technical matters. The Team will prepare agenda and minutes for each meeting and distribute to the UDFCD's and CCD's Project Manager electronically. Key decisions will be prepared by the Team and tracked in a decision log.

The Team will maintain a project eRoom to facilitate scheduling, project documents, and related coordination. Members will be added to the e-Room at the stakeholders' request. The Team will hold biweekly internal conference calls to update project progress, schedule, and specific design issues. Summaries from these meetings will be posted to the eRoom.

The Team will provide monthly progress reports which will accompany invoices and include task status, critical decisions, planned activities, an updated schedule and changes to the PMP. In addition, the Team will submit monthly invoices for review and approval. Invoices will include the monthly progress report and a schedule update.

**Assumptions**
- Up to 2 meetings per months for 12 months with RVCC
- Up to 2 meetings per months for 12 months with CCD/UDFCD
- Up to 4 meetings with CDOT

**Deliverables**
- Kick-off meeting summary
- Project Management Plan Update
- eRoom start-up and maintenance
- Monthly progress reports (12 assumed)
- Bi-weekly progress meetings and summaries

**Task 2 – Data Acquisition and Field Investigations**
The Team will obtain updated information regarding the project and project site, as available. The Team will contact City and County of Denver (CCD) staff and Urban Drainage and Flood Control District (UDFCD) to discuss updated hydrologic information and/or hydraulic modeling as well as review invasive species eradication techniques as per CCD and UDFCD. All information and pertinent data will be incorporated into the project on an as-needed basis.

As part of this task, the Team will perform additional site investigations, including obtaining additional field survey and geotechnical parameters, as required for final design. Surveying and mapping will be conducted in a manner that conforms to applicable UDFCD and CCD requirements.

The Team will further evaluate specific geotechnical and groundwater conditions at critical structures, as required for final design. Samples obtained from the exploration program will be tested to determine pertinent index and engineering properties.

In addition, the Team will coordinate grading, schedules, assist with permitting efforts, and coordinate with other tree thinning and tree removal efforts.

**Assumptions**
- The Team will identify right-of-way and easement information from the Denver County Assessor's Office and information provided by project stakeholders (e.g. CCD and UDFCD).

**Deliverables**
- The Team will provide updated project mapping developed in this task.
- Geotechnical related design considerations will be included in an updated geotechnical report.

**Tasks 3 through 5 – Final Design Development (60-, 90-, and 100-percent design documents)**
Final design development, which includes preparation of 60-percent (Task 3), 90-percent (Task 4), and 100-percent (task 5) design drawings, will build upon the 30-percent design previously developed. Technical specifications and cost opinions will also be developed for each final design milestone. The design will incorporate final hydraulic modeling results (see Task 6) and additional site investigations (see Task 2), as required for final design. The design review process will be in accordance with UDFCD and CCD requirements and will include internal QA/QC of design drawings, project specifications, and cost opinions at 60-percent, 90-percent and 100-percent completion milestones.

**Task 6 – Floodplain Analysis and Hydraulic Modeling**
The Team will develop and provide the necessary hydraulic data for the Floodplain Development Permit and CLOMR associated with this scope of work. The Team will update the 30-percent design HEC-RAS hydraulic model based on updated information collected in Task 2 and associated design refinements. This model shall use the update base mapping data to finalize cross-sections at specific locations within the project area that will be used to quantify low and flood flow characteristics through the project area.

The Team will utilize the current conditions hydraulic model to assess the impacts of improvements on regulatory (100-year) and low (bankfull) flows. This "proposed conditions" model will be updated regularly as the design progresses. A sediment transport analysis will also be performed to confirm channel stability. Based on discussions with UDFCD, the Team assumes UDFCD will prepare and submit the CLOMR for the proposed project, although the Team will assist UDFCD and/or CCD in the preparation of a CLOMR by providing the hydraulic models prepared under this task.

**Assumptions**
- Regulatory model will be provided by UDFCD
- CLOMR prepared by UDFCD with information provided by the Team under this scope of work

**Deliverables**
- Hydraulic models and results, as required, to support the CLOMR effort

**Task 7 – Permitting**
The Team will assist UDFCD and CCD in obtaining necessary regulatory approval for implementation of the proposed improvements. This task will include providing the necessary exhibits and documentation to support the permitting process.

As part of this task, the Team will develop and provide necessary material required to secure permits associated with the improvements described in this scope of work. Anticipated permits include the 404 permit, floodplain development permit, Denver Project Controls Office review and approvals, and other Right-of Way permits. Material to be provided by the Team could include site plans, development plans, project descriptions, erosion and sedimentation control plans (i.e., Stormwater Management Plan), and hydraulic and sediment transport analysis data. Based on discussions with UDFCD, the Team assumes that UDFCD will prepare the Section 404 permit application. Preparation of the 404 permit application is not included in this task (to be completed under a separate contract), but the Team will provide technical information associated with this scope of work required to complete the 404 permit application.

**Exhibit A - Proposed Schedule for Denver South Platte River Implementation Project – Grant Frontier/Overland Final Design**

| Task | Date | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | Jul-13 | Aug-13 | Sep-13 | Oct-13 | Nov-13 |
| Task 1 - Project Management and Meetings[1] | | | | | | | | | | | | |
| Task 2 - Additional Data Acquisition and Field Investigations | | | | | | | | | | | | |
| Task 3 - 60% Design | | | | | | | | | | | | |
| Task 4 - 90% Design | | | | | | | | | | | | |
| Task 5 - 100% Design | | | | | | | | | | | | |
| Task 6 - Floodplain Analysis and Hydraulic Modeling | | | | | | | | | | | | |
| Task 7 - Permitting | | | | | | | | | | | | |

1. Assumed notice to proceed December 1, 2012

**Final Design for South Platte River: Grant Frontier/Overland Pond**
**1/7/2013 (Revision 1)**

**Labor**

| | Senior Project Manager Shoemaker | Technical Director Johnson | Project Manager Bogan | Engineer/ Scientist 6 Murphy | Engineer/ Scientist 5 Eom | Engineer/ Scientist 3 Mugele | Designer/ Drafter Simpson | Cost Estimator Laakso | Principal Landscape Architect Shenks | Landscape Architect 6 Wilson | Landscape Architect 3 | Landscape Architect 1 | Admin/ Word Processing | | Total Hours | Total Labor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $225.00 | $200.00 | $155.00 | $145.00 | $135.00 | $100.00 | $90.00 | $175.00 | $140.00 | $110.00 | $85.00 | $70.00 | $85.00 | | | Cost |
| **Task 1 - Project Management and Meetings** | 99 | 0 | 60 | 120 | 0 | 0 | 0 | 0 | 40 | 304 | 28 | 0 | 24 | | 675 | $92,435.00 |
| **Task 2 - Data Acquisition and Field Investigations** | 70 | 0 | 0 | 16 | 0 | 0 | 8 | 0 | 4 | 108 | 84 | 40 | 6 | | 336 | $41,680.00 |
| **Task 3 - 60% Design Development (60% P&S, OPCC)** | 40 | 68 | 16 | 96 | 0 | 148 | 128 | 24 | 76 | 184 | 240 | 240 | 44 | | 1304 | $141,340.00 |
| **Task 4 - 90% Design Development (90% P&S, OPCC)** | 40 | 36 | 12 | 64 | 0 | 128 | 108 | 16 | 8 | 128 | 48 | 12 | 28 | | 628 | $75,160.00 |
| **Task 5 - 100% Design Development (100% P&S, OPCC)** | 40 | 10 | 8 | 38 | 16 | 84 | 80 | 16 | 6 | 112 | 44 | 24 | 12 | | 490 | $57,910.00 |
| **Task 6 - Floodplain Analysis and Hydraulic Modeling** | 0 | 12 | 4 | 32 | 52 | 100 | 24 | 0 | 0 | 0 | 0 | 0 | 4 | | 228 | $27,180.00 |
| **Task 7 - Permitting** | 0 | 12 | 12 | 56 | 24 | 80 | 16 | 0 | 0 | 0 | 0 | 0 | 16 | | 216 | $26,420.00 |
| | | | | | | | | | | | | | | | | |
| Total Hours | 289 | 138 | 112 | 422 | 92 | 540 | 364 | 56 | 134 | 836 | 444 | 316 | 134 | | 3877 | |
| Cost | $65,025.00 | $27,600.00 | $17,360.00 | $61,190.00 | $12,420.00 | $54,000.00 | $32,760.00 | $9,800.00 | $18,760.00 | $91,960.00 | $37,740.00 | $22,120.00 | $11,390.00 | | | $462,125.00 |

**Other Direct Costs**

| Task | Copies No. $ 0.25 | Mileage Miles 0.555 | | Total |
|---|---|---|---|---|
| Task 1 - Project Management and Meetings | 502 | 500 | | $ 403.00 |
| Task 2 - Data Acquisition and Field Investigations | 500 | 200 | | $ 236.00 |
| Task 3 - 60% Design Development (60% P&S, OPCC) | 2500 | 0 | | $ 625.00 |
| Task 4 - 90% Design Development (90% P&S, OPCC) | 2500 | 0 | | $ 625.00 |
| Task 5 - 100% Design Development (100% P&S, OPCC) | 2500 | 0 | | $ 625.00 |
| Task 6 - Floodplain Analysis and Hydraulic Modeling | 500 | 100 | | $ 180.50 |
| Task 7 - Permitting | 500 | 100 | | $ 180.50 |
| | | | | |
| Total Units | 9502 | 900 | | |
| Costs | $2,400.00 | $500.00 | | $2,875.00 |

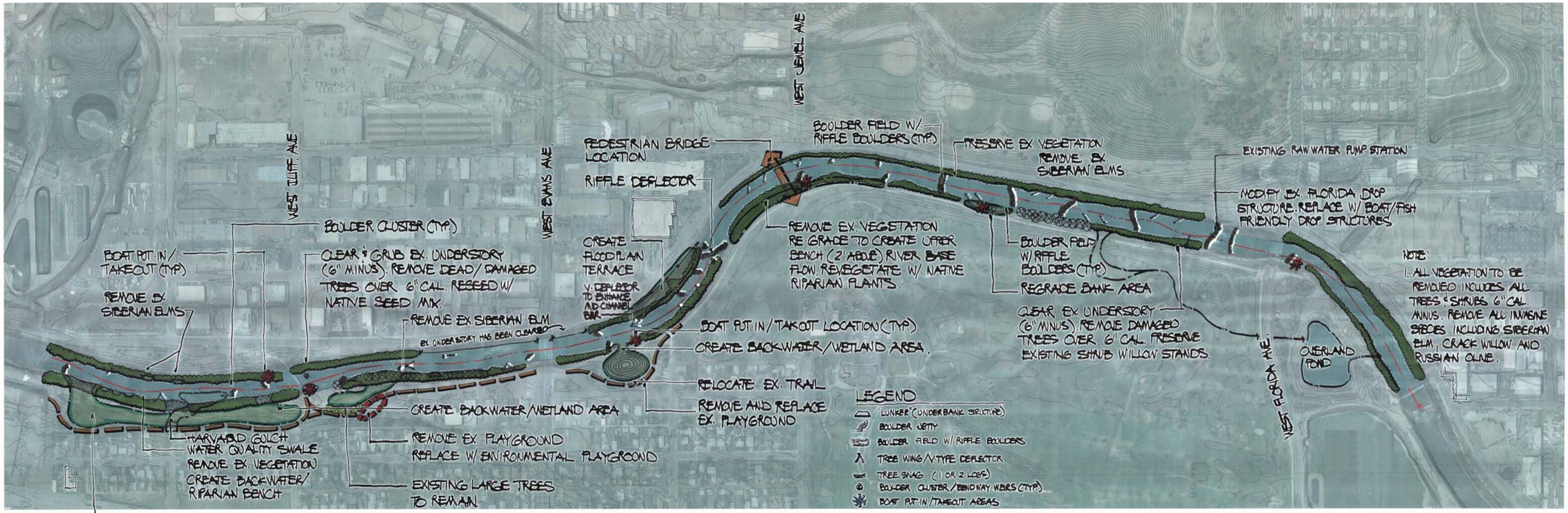
**Subcontractors**

| Task | Survey/ Easements | Utility Locates | Geotechnical Investigation | | Total |
|---|---|---|---|---|---|
| Task 1 - Project Management and Meetings | $ - | $ - | $ - | | $ - |
| Task 2 - Data Acquisition and Field Investigations | $ 20,000.00 | $ 7,500.00 | $ 7,500.00 | | $ 35,000.00 |
| Task 3 - 60% Design Development (60% P&S, OPCC) | $ - | $ - | $ - | | $ - |
| Task 4 - 90% Design Development (90% P&S, OPCC) | $ - | $ - | $ - | | $ - |
| Task 5 - 100% Design Development (100% P&S, OPCC) | $ - | $ - | $ - | | $ - |
| Task 6 - Floodplain Analysis and Hydraulic Modeling | $ - | $ - | $ - | | $ - |
| Task 7 - Permitting | $ - | $ - | $ - | | $ - |
| | | | | | |
| Costs | $ 20,000.00 | $ 7,500.00 | $ 7,500.00 | | $ 35,000.00 |

**Total Costs**

| Task | Labor | Subcontract | Other Direct Costs | | Total |
|---|---|---|---|---|---|
| Task 1 - Project Management and Meetings | $ 92,435.00 | $ - | $ 403.00 | | $ 92,838.00 |
| Task 2 - Data Acquisition and Field Investigations | $ 41,680.00 | $ 35,000.00 | $ 236.00 | | $ 76,916.00 |
| Task 3 - 60% Design Development (60% P&S, OPCC) | $ 141,340.00 | $ - | $ 625.00 | | $ 141,965.00 |
| Task 4 - 90% Design Development (90% P&S, OPCC) | $ 75,160.00 | $ - | $ 625.00 | | $ 75,785.00 |
| Task 5 - 100% Design Development (100% P&S, OPCC) | $ 57,910.00 | $ - | $ 625.00 | | $ 58,535.00 |
| Task 6 - Floodplain Analysis and Hydraulic Modeling | $ 27,180.00 | $ - | $ 180.50 | | $ 27,360.50 |
| Task 7 - Permitting | $ 26,420.00 | $ - | $ 180.50 | | $ 26,600.50 |
| | | | | | |
| | $ 462,125.00 | $ 35,000.00 | $ 2,875.00 | | $ 500,000.00 |

Exhibit B - WSRA Grant Application Concept Plan




# GRANT FRONTIER / OVERLAND POND PARK AREAS CONCEPTUAL PLAN

CDM Smith

HK associates inc.

Scale: 1"=100'

April 26, 2012

North