

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: September 28, 2017
TO: Chairman and Members, Northern Nevada Water Planning Commission (“NNWPC”)
FROM: Jim Smitherman, NNWPC Water Resources Program Manager
SUBJECT: Authorize the Program Manager to execute an interlocal agreement with the Truckee Meadows Water Authority (“TMWA”), in an amount not to exceed \$40,000 from the Regional Water Management Fund (“RWMF”), for the Bedell Flat Rapid Infiltration Basin (“RIB”) Investigation. (A State of Nevada grant will reimburse the RWMF.)

SUMMARY

An interlocal agreement with TMWA is necessary to provide for reimbursement not to exceed \$40,000 in expenses associated with the Bedell Flat RIB Investigation. A State of Nevada Subgrant Agreement is in place and will reimburse the RWMF for up to the same amount.

BACKGROUND

On May 4, 2016, the NNWPC recommended that the Western Regional Water Commission (“WRWC”) apply for and accept a \$40,000 grant from the State to partially fund the Bedell Flat RIB Investigation proposed by TMWA. The WRWC approved the recommendation and the grant was awarded on July 7, 2016. TMWA and its consultants will conduct the project, the WRWC will reimburse TMWA by way of an interlocal agreement, and the State grant will in turn reimburse the RWMF. The investigation includes infiltration testing to determine the potential for use of RIBs as part of an integrated water resource aquifer storage and recovery (“ASR”) program.

RECOMMENDATION

Staff recommends that the NNWPC authorize the Program Manager to execute an interlocal agreement with TMWA, in an amount not to exceed \$40,000 from the RWMF, for the Bedell Flat RIB Investigation.

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Attachment

Attachment A - Scope of Work

Bedell Flat RIB Investigation

Introduction

The 2007 Washoe County 208 Water Quality Management Plan contemplates a small number of long term regional alternatives for the management of treated wastewater effluent. Alternatives include new and innovative treatment technology and aquifer recharge using highly treated effluent. A 2010 report entitled "Regional Integrated Wastewater System Planning", funded in part by the Nevada Division of Environmental Protection's ("NDEP") 604(b) Water Quality Planning fund, identifies Bedell Flat as an area for possible aquifer storage or aquifer recharge using highly treated wastewater effluent. This concept also appears in the 2011-2030 Comprehensive Regional Water Management Plan, and more recently in the Truckee Meadows Water Authority's ("TMWA") draft 2016-2035 Water Resource Plan, as a potential site for an integrated water resource aquifer storage and recovery ("ASR") program. The program would provide for the management of treated wastewater effluent from one or more water reclamation facilities and enhance drought and/or emergency water reserves. The Western Regional Water Commission ("WRWC") proposes to partner with the City of Reno, Washoe County and TMWA to accomplish permitting and testing tasks as part of a larger feasibility effort for such a program.

Proposal

Integrated water resource management alternatives in Bedell Flat include infiltration of highly treated wastewater effluent through a proposed rapid infiltration basin ("RIB"), infiltration of highly treated wastewater effluent along a natural drainage referred to as Bird Spring Wash, injection of potable water using ASR wells and North Valleys Importation Project ("NVIP") water or a combination of these. Geologic/hydrogeologic feasibility investigations and environmental clearance and permitting work are proposed to gain an understanding of the feasibility, scope and cost of an integrated water resources program in Bedell Flat. This proposal is for infiltration testing and environmental clearance and permitting work to determine the potential for use of RIBs. Subsequent phases may include RIB pilot testing, potential use of dry wells for infiltration (to access more permeable materials beneath less permeable surficial soils), vadose zone and groundwater characterization activities (i.e., borehole drilling to collect samples for geotechnical and geochemical tests) and groundwater monitoring (well installation) and assessing the infiltration capacity of an identified surface water reservoir site within the Bird Spring drainage (adjacent to Bedell Flat). A related objective will be to determine the acreage to be permitted with the Bureau of Land Management ("BLM"), which would be assessed by cultural and ecological resource subcontractors. The infiltration testing method recommended for the Bedell Flat area consists of a larger modified pilot infiltration test ("PIT") procedure, documented by the State of Washington Department of Ecology ("WDOE"). This approach will reduce some of the scale errors associated with relatively small-scale double ring infiltrometer or "stove-pipe" infiltration tests, and will better approximate infiltration rates for potential facility design. This method will use a track-hoe (or backhoe) to excavate to depths of 6 to 8 feet below ground surface, producing a flat

base with an area of approximately 5-10 square feet. Although this is not a standard infiltration test, this approach is a practical field procedure that has been widely used in the western U.S.

The PIT procedure, documented by the WDOE, involves the following steps:

- Excavate the test pit to the depth of the bottom of the proposed infiltration facility. Lay back the slopes sufficiently to avoid caving and erosion during the test.
- Log the excavated soils as a function of depth using the SCS (soil classification system; ASTM D2487).
- Collect soil samples for potential grain size analyses for select or all PIT locations.
- The horizontal surface area of the bottom of the test pit should be approximately 10 square feet.
- Accurately document the size and geometry of the test pit.
- Install a vertical measuring rod (staff gauge) of sufficient length marked in half-inch increments in the center of the pit bottom.
- Use a rigid 6-inch diameter pipe with a splash plate on the bottom (or equivalent system) to convey water to the pit and reduce side-wall erosion or excessive disturbance of the pond bottom (excessive erosion and bottom disturbance will likely yield lower than actual infiltration rates).
- Add water to the pit at a rate that will maintain a water level between 3 and 4 feet above the bottom of the pit, and continuously record water levels and discharge rates during the early testing period to maintain a water level of 3 to 4 feet.
- Add water to the pit until one hour after the flow rate into the pit has stabilized (constant flow rate) while maintaining the same pond water level (this steady-state condition should be maintained for at least one hour).
- After the flow rate has stabilized, turn off the water and record the rate of infiltration in inches per hour from the measuring rod data, until the pit has drained.

After each test pit has drained, the trench will be backfilled with the excavated materials to approximate the surrounding land surface. This proposal assumes that the backfilling would satisfy BLM requirements, but some additional reclamation efforts may be required by the BLM. Reclamation efforts would be determined during the permitting process. Work will be completed by December 31, 2016.

Deliverables

Draft and Final Technical Memoranda will be submitted to the Nevada Division of Environmental Protection as available.

Estimated Project Budget

The total project costs are estimated at \$78,705 for tasks that include: 1) site visit and data review; 2) field testing plan development; 3) BLM permitting; 4) field testing plan implementation; and 5) draft and final technical memoranda. The 604(b) grant funds will cover \$40,000 of the total costs.

The cost estimate assumes 10 infiltration test locations with one location completed per day, 10 acres of BLM land subject to both cultural and ecological resource surveys and 30 laboratory grain-size analyses. The preliminary budget includes sub-consultant costs and the costs associated with a local construction company providing a track-hoe and water truck.

The WRWC proposes to enter into an interlocal agreement with TMWA which will serve as the lead agency for the project. A primary consulting firm retained by TMWA will be responsible for completing the work and submitting invoices to TMWA. TMWA will then submit invoices to WRWC for reimbursement up to \$40,000. Following this, WRWC will submit an invoice and other required documentation to NDEP for reimbursement.

Table 1. Budget Summary

Item	Total Project	604(b) Contribution	Local Contribution
Contractors	\$78,705	\$40,000	\$38,705
TOTAL	\$78,705	\$40,000	\$38,705