

File ID: 2026-01009

6/9/2026

[Contract Amendment] Basin 151 and 153 Storm Drainage Master Plans

File ID: 2026-01009

Location: District 2

Recommendation: Pass a **Motion** authorizing the City Manager or designee to execute Contract Amendment No. 1 to City Agreement 2025-0554 with HDR Engineering, Inc. to convert the existing XPSWMM storm drainage model to a multi-dimensional hybrid model within the FY24 DOU Operating Grant Program (G14240100, Fund 6211), for an amount not to exceed \$143,566, bringing the agreement's total not-to-exceed amount to \$393,188.11, and extend the contract services through December 31, 2026.

Contact: Gary Gulseth, Project Manager, (916) 808-1415, ggulseth@cityofsacramento.org; Sherill Huun, Engineering & Water Resources Division Manager, (916) 808-1455, shuun@cityofsacramento.org; Dalia Fadl, Director, (916) 808-3765, dfadl@cityofsacramento.org; Department of Utilities

Presenter: None

Attachments:

- 1-Description/Analysis
- 2-Contract Amendment

Description/Analysis

Issue Detail: Staff recommends City Council approve Contract Amendment No. 1 with HDR Engineering, Inc. to convert the existing one-dimensional (1D) XPSWMM hydraulic storm drainage model for Basins 151 and 153 to a multi-dimensional (1D/2D) hybrid model. The consultant will use the improved model to identify hydraulic deficiencies in the existing drainage system and evaluate remedial alternatives that will bring the system into compliance with public safety and flood performance standards. The proposed 1D/2D hybrid model will simulate rainfall runoff over the complex two-dimensional surface of the basins. This process will provide better insight into flow patterns and flood accumulation and, thus, allow HDR Engineering, Inc. and staff to better identify, and likely reduce, the need and level of improvement alternatives.

Policy Considerations: The proposed contract amendment exceeds the City Manager's approval

authority, requiring Council approval per City Code 3.04.020.

Economic Impacts: None.

Environmental Considerations: Per the California Environmental Quality Act (CEQA) Guidelines Section 15061(b)(3), approval of the proposed contract amendment is exempt from the CEQA, under the general rule that CEQA only applies to actions with potential to significantly affect the environment. Approval of this contract amendment for additional engineering services will not affect the environment. The modeling and master planning activities are exempt from CEQA pursuant to CEQA Guidelines Section 15306, (Information Collection) which consists of basic data collection, research, experimental management, and resource evaluation activities that do not result in a serious or major disturbance to an environmental resource.

Sustainability: The proposed project is consistent with Goals PFS-3.1 and PFS-A.4 in the 2040 General Plan as it improves infrastructure reliability and implements a stormwater master plan program to guide improvements and ensure that the drainage system meets intended levels of service.

Commission/Committee Action: Not applicable.

Rationale for Recommendation: Conversion of the existing 1D hydraulic model to a 1D/2D hybrid model will provide better insight into the complex flow patterns and flood accumulation within the basins and, thus, allow HDR Engineering, Inc. and staff to better identify, and likely reduce, the need and level of potential remedial alternatives in the final master plan. The result, combined with the results of other master plans performed for basins in the drainage system, will allow staff to better plan and prioritize future capital improvement projects and funding.

Financial Considerations: The original not-to-exceed amount of the agreement was \$249,622.11. The proposed Contract Amendment No. 1, in the amount of \$143,566, would increase the agreement's total not-to-exceed amount to \$393,188.11. Sufficient funds are available within the FY24 DOU Operating Grant Program (G14240100, Fund 6211) to execute the agreement. The City funds will be reimbursed through the Sacramento Area Council of Governments (SACOG) Green-Means-Go grant upon completion of the master plan.

There are no General Funds allocated or planned for this project.

Local Business Enterprise (LBE): Contractor is an LBE.

Background: Drainage master planning is an important tool to help staff better understand the hydraulic and operational deficiencies within a basin so that maintenance and capital project funds are more effectively utilized. The Department of Utilities (DOU) maintains over 140 drainage basins.

Master plans have been completed for 53 of the basins. Of the completed 53 basins, only five master plans are current, having been completed in the past 10 years. The remaining basins have been categorized and ranked based primarily on the historical type and number of “trouble calls” during past severe rain events. The ranking also considered public safety, property damage, street flooding, development, and environmental issues. Basins 151 and 153 ranked high and, thus, were selected for master planning.

In April 1992, a skeletonized hydraulic model and master plan for Basin 153 was completed by Kennedy/Jenks Consultants. In April 1996, a similar hydraulic model and master plan for Basin 151 was completed by West Yost Associates. Finally, in July 2024, a FEMA Letter of Map Revision (LOMR) hydraulic model was developed by MRPE, Inc., based on FEMA criteria and a 100-year/24-hour storm. Since completion of the 1992 and 1996 master plans, there have been several significant developments that have impacted the hydraulics within the basins, and hydraulic and operational requirements have evolved, making the master plans obsolete. The 2024 FEMA model does not address or include City performance standards for master planning. Therefore, in June 2025, HDR Engineering, Inc., was selected using an on-call agreement to expand and update the 2024 model to City drainage standards (10- and 100-year frequency, 24-hour duration design storms) and prepare a new/updated master plan. Following the initial modeling process and during initial preparation of the master plan, it became apparent that additional detail was required to properly identify the need, location and level of potential remedial alternatives. To provide better insight into flow patterns and flood accumulation and, thus, better identify, and likely reduce, the need and level of remedial alternatives, staff requested HDR Engineering, Inc., to provide a proposal to convert the existing XPSWMM model to a 1D/2D hybrid model. The results will then be used to revise the initial master planning work performed and to complete the final report.

Contract Routing Sheet

Payment / Performance Bond Only

General Routing Information

Department: Utilities Department

Contract Coordinator: Jamie McKinley Email: Jmckinley@cityofsacramento.org

Effective Date: _____ Expiration Date: 12/31/2026

Grant/Project Name: Basin 151 and 153 Drainage Master Plan

Other Party: HDR Engineering, Inc.

Original Not to Exceed Amount: \$249,622.11

Assessor's Parcel Number(s): _____

Project Number: G14240104 Bid/RFP/RFP#: Q21141311004 Cat 5

Supplements/Addendums/Change Orders

Adjusted Amount of this Change (+/-): \$143,566.00 New Not to Exceed Amount: \$393,188.11

Change In Scope: Yes

Original Contract Number: 2025-0554 Supplement Number: 01

Council Approval

Original Meeting Date: _____ Council File ID: _____

Supplement Meeting Date: 6/9/26 Council File ID: 2026-01009

Processing Information

- Clerk's Office to Mail for Recording
- Return to Dept for Other Party Signature
- Real Estate
- Return to Dept for Recording
- Construction Related
- Additional Originals Attached – Return to Dept.

Add notes/instructions, including any other contract or council file ID numbers related to this agreement:

Signing Authority - Department Directors up to \$100K; \$100K -\$250K City Manager or Assistant City Manager; \$250K+ Council Approval & Council Appointee or designee.

Department Review and Routing

AB 339 Review Confirmation (if needed) *[Signature]* May 22, 2026

Sign Construction Mgmt: *[Signature]* May 22, 2026

Sign Supervisor: *[Signature]* May 22, 2026

Sign Division Manager: _____

Sign Fiscal: *[Signature]* May 22, 2026 O&M: _____

Sign Director of Utilities: _____

CITY OF SACRAMENTO

**CONTRACT AMENDMENT
CHANGE IN SCOPE AND NOT-TO-EXCEED AMOUNT**

The City of Sacramento ("City") and HDR Consultants, Inc. ("Contractor"), as parties to that certain contract designated as Contract Number 2025-0554, including any and all prior amendments modifying the contract (the contract and all amendments are hereafter collectively referred to as the "Contract"), hereby amend the Contract as follows:

1. The scope set forth in Exhibit A of the Contract is amended as follows:

Additional scope and fee are added as Attachment 2 to Exhibit A, attached hereto and incorporated herein by this reference. Services extended through December 31, 2026 Purchase order associated 83083.

2. The maximum not-to-exceed amount that is specified in the Contract for payment of Contractor's fees and expenses is **increased** by \$143,566, and the Contract's maximum not-to-exceed amount is amended as follows:

Contract's original not-to-exceed amount:	\$249,622.11
Net change by previous amendments:	\$0.00
Not-to-exceed amount prior to this amendment:	\$249,622.11
Increase by this amendment:	\$143,566.00
New not-to exceed amount including all amendments:	\$393,188.11

3. Contractor agrees that the amount specified in section 2 above shall fully compensate Contractor under the Contract, as modified by this amendment, including any and all direct and indirect costs that may be incurred by Contractor in connection with such additional and/or revised services, and costs associated with any changes and/or delays in schedules or in the delivery of other services by Contractor.
4. Contractor warrants and represents that the person or persons executing this contract amendment on behalf of Contractor is duly authorized by Contractor to sign this amendment and bind Contractor to the terms hereof.
5. Except as specifically revised herein, all terms and conditions of the Contract shall remain in full force and effect, and Contractor shall perform as required under the Contract, as modified by this amendment.

[SIGNATURES ON FOLLOWING PAGE]

SUPPLEMENTAL CONTRACT

Approval Recommended By:



May 22, 2026

Project Manager

Approved As To Form By:

City Attorney

Approved By:



May 22, 2026

Elizabeth Mesbah (May 22, 2026 12:13:50 PDT)

Contractor

Approved By:

Ryan Moore, Assistant City Manager
City of Sacramento

Attested To By:

City Clerk



Attachment 2 to Exhibit A

April 24, 2026

Gary Gulseth, PE, GE
Senior Engineer
City of Sacramento, Department of Utilities
1395 35th Ave
Sacramento, CA 95822

Project: Basin 151 and 153 Drainage Master Plan
Subject: Scope of Work for Amendment 1 - Conversion of Existing XPSWMM Model to 1D/2D Hybrid Model

Dear Mr. Gulseth,

HDR Engineering, Inc. (HDR) is pleased to present you with this proposal for Amendment 1: Conversion of Existing XPSWMM Model to 1D/2D Hybrid Model.

Based on discussions with Sacramento Department of Utilities (DOU) on March 3, 2026, this scope of work details model revisions and project prioritization criteria. HDR will convert the existing one-dimensional (1D) XP-SWMM storm drainage model for Sacramento Basins 151 and 153 into a hybrid 1D/ two-dimensional (2D) model. A new 2D domain will be created to represent overland flows that spill into adjacent residential, commercial, and open areas.

TASK 3A.1: MODEL REVISIONS

HDR will construct a 2D hydraulic domain to supplement the simplified surface conveyance previously represented in the XP-SWMM model by 1D nodes and conduits only. This terrain-based domain will be built from the most recent USGS elevation dataset collected in 2019 or more recent LiDAR data provided by DOU, if available. Land use data will be used to assign spatially varying hydraulic roughness values within the 2D mesh to reflect differences in surface resistance between developed, landscaped, and undeveloped areas. Model revisions will include:

- Legacy 1D street conduits and connected nodes will be selectively removed in locations where they do not represent physically meaningful surface conveyance.
- Legacy node spill crest elevations will be revised.



- Conduits that were originally used to represent overland release flow or drainage features that no longer reflect existing ground conditions will be revised or removed. These features will instead be represented within the 2D mesh so that overland flow, ponding, and interaction with terrain are modeled directly based on ground elevations and existing drainage pathways.
- 1D to 2D interface lines will be used in XPSWMM to define the boundaries of detention basins. Interface lines will also be applied along the extents of remaining 1D channels to allow controlled transfer of flow between channel conveyance and the 2D domain.
- Stage-storage relationships at 1D nodes will be removed where they do not represent intentional facilities. Stage-storage will be retained only at detention basins and pump stations where it represents a real physical storage or operational component of the system.

MODEL REVISIONS IDENTIFIED IN TECHNICAL MEMORANDUM (TM) 1

Modifications identified in the Model Fixes/Additional Investigations section of *Draft TM 1 – Model Updates and System Evaluation*, which will be made under this amended scope, include:

1. Auburn Ditch

The overland release conduit which caused significant runoff to flow will be removed and the Auburn Ditch will be represented within the 2D mesh.

2. Sicilia Avenue

The ditch and storage capacity at Sicilia Avenue will be represented with a 2D mesh at this location.

3. Woodlake Detention Basin

Multiple link conduits into the Woodlake Detention Basin representing ditches and street sections will be replaced with the 2D mesh, with Manning's 'n' values varied per land use.

4. SR 160 Ditch

The SR 160 Ditch will be replaced with 2D mesh, which will allow flows to enter the Woodlake Detention Basin.

HDR will document each of the model changes in a table to be included with the Revised TM 1 (see Task 3).



TASK 3A.2: UPDATED SYSTEM EVALUATION

After revisions to the model are finished, HDR will run the model under the ultimate 2040 development conditions for the two pumping scenarios:

1. Summer pump and one of the largest pumps OFF
2. Pumps reduced to 90% capacity

The performance of Basin 151 and 153 drainage systems will be evaluated based on the City's current master planning standards:

Class	Standard Name	Design Storm	Description
A	Public Safety Standard	100-year	Surface flooding conditions are considered unacceptable.
B	Property Flooding Standard	100-year	Water level should not exceed the entry level of structures; garages and storage sheds excluded.
C	Street Flooding Standard	10-year	Water level should not exceed the top of curb elevation.

Unacceptable surface flooding conditions include:

- Depth (D) multiplied by velocity (V) exceeds six ($DV > 6$).
- The depth-velocity product exceeds three in front of schools, day-care centers, children's homes, or ungated playfields with adjacent residences.
- The depth-velocity product exceeds two over bridges and culverts.
- Emergency services disrupted, blocked or inaccessible.
- Open ditch at roadside flowing at or above bank-full depth.

TASK 3A.3: REVISED TM 1

Revised TM 1 will be prepared, summarizing the conversion approach, key assumptions, and the model results for the two pumping scenarios, including inundation maps, a list of parcels impacted by 100-year WSEs, and areas where potential alternatives may be developed. Based on the results of the system evaluation, HDR will investigate and determine the initial locations where conceptual improvement alternatives may be feasible. HDR will prepare a map showing the location of potential improvements for further consideration.

TASK 4: PRELIMINARY ALTERNATIVES ANALYSIS MATRIX AND CONCEPTUAL DESIGN DEVELOPMENT

Based on discussions with Sacramento DOU on March 3, 2026, alternatives to be developed under current scope of work for Task 4 and analyzed in Task 5 will be grouped per the following:

1. No Improvement Alternative
2. Conveyance Only
 - a. Pipes only



- b. Pump Station Only
 - c. Both pipes and pump station
3. Conveyance and Storage Alternatives
- a. Additional Storage Detention Basin only
 - b. Detention Basins and Conveyance
 - c. Alternatives other than Detention and Conveyance

Assumptions:

- This fee proposal is valid for 30 days from the submittal date (April 23, 2026) of this proposal.
- The rates for this amendment are based on the scope of work described herein assumed to occur between May 2026 and December 2026. Fee and rates are subject to change if schedule is prolonged beyond this.
- As-builts, survey data, existing storm drain information, and existing utility information will be provided by others.
- HDR's deliverables will be provided in digital format.

HDR Deliverables:

- Revised TM1 – Model Updates and System Evaluation (Draft and Final, PDF)
- XPSWMM Files

Additional Fee:

The additional fees for Amendment 1 are \$143,566 and are included as Attachment 1.

Please feel free to contact me if you have any questions at 925.465.2743 or email at Chris.Sewell@hdrinc.com.

Sincerely,
HDR Engineering, Inc.

Elizabeth Mesbah, PE
Vice President

Chris Sewell, PE, QSD/QSP
Project Manager

Table 1 - Estimated Work Effort and Cost
 City of Sacramento
 Area 151 and 153 Drainage Master Plan Amendment 1

Task	Task Description	Project Manager	QA/QC	Supervisor	Senior Hydraulic Engineer	Senior Hydrologist	GIS specialist	Civil EIT	Technical Editor	Senior Project Coordinator	Senior Project Accountant	Total HDR Labor Hours	Total HDR Labor (\$)	Total Cost (\$)					
															Rates \$	313.78	\$	263.45	\$
Task 1																			
	Model Revisions	12	20	6	71	34	40	180			8	379	72,690.34	72,690.34					
												0	0.00	0.00					
	Subtotal Task 1	12	20	6	71	34	40	180	0	8	8	379	72,690.34	72,690.34					
Task 2																			
	Updated System Evaluation	24	8	6	60	12	12	50		8	8	188	41,355.31	41,355.31					
												0	0.00	0.00					
	Subtotal Task 2	24	8	6	60	12	12	50	0	8	8	188	41,355.31	41,355.31					
Task 3																			
	Revised TM #1	16	12	6	24	8	20	32	6	8	8	140	29,519.84	29,519.84					
												0	0.00	0.00					
	Subtotal Task 3	16	12	6	24	8	20	32	6	8	8	140	29,519.84	29,519.84					
COLUMN TOTALS												\$	143,565	\$	143,565				