

Staff Report

TO: Board of Directors

FROM: Greg Jones, Assistant General Manager
John Ortiz, IT Administrator

DATE: March 27, 2024

SUBJECT: Resolution & Contract Approval – IT/OT Master Planning

ADMINISTRATION

RECOMMENDATION:

Adopt a resolution authorizing a budget amendment of \$105,000 to Fund 70 for consulting services and approve a contract in the amount of \$393,961.00 to HDR Engineering, Inc. for the development of the District's Information Technology / Operational Technology Master Plan and authorize the General Manager or designee to execute appropriate documents.

BACKGROUND:

On December 5, 2023, NID released a Request for Proposal to 12 perspective consulting firms to deliver an assessment, recommendation and development proposal of a District-wide comprehensive Information Technology / Operational Technology Master Plan (IT/OT Master Plan or Plan).

The IT/OT Master Plan is intended to serve as the District's road map for addressing short, mid and long-term organizational opportunities to improve internal services while balancing demands for new and emerging technologies and available resources. The assessment and final Plan will include an analysis of staffing capabilities & capacities, technology & data governance, security considerations, and capital expenses and operating processes.

NID has sought a tailored Plan balancing industry-leading best practices, efficiency maximization, and addressing our unique needs. The purpose of the IT/OT Master Plan is to lay out a technology-driven strategy and vision for the District while helping to ensure that organization-wide technology services offer innovative and progressive improvements in order to provide effective, efficient and high-quality service for all departments. The consultant will collaborate with NID staff to develop the Master Plan.

On January 10, 2024, staff conducted an RFP question & answer Microsoft Teams call for perspective consultants. Based on feedback and requests from this meeting, staff extended the RFP proposal deadline from February 1st to March 1, 2024. On

March 1st, NID received suitable proposals from five consulting firms. One firm dropped their bid for the project and on March 5th, four of the firms (identified in the table below) gave formal presentations of their proposal to a panel of seven NID staff representing the IT, Water Operations, Hydroelectric and Administrative departments.

Firm Name	Bid Total Cost	Staff Ranking
HDR Inc	\$393,961	1
West Yost	\$454,433	2
Launch, Inc.	\$510,672	3
Cultivate Technology Group	\$1,214,710	4

HDR was the unanimous choice for the project based on an assessment of the firms' approach, cyber security/NERC experience, organizational strength, and cost.

HDR Engineering, Inc. (HDR) is recognized as a national leader in IT/OT planning for organizations such as NID and has developed a cost-effective approach to our needs with an experienced and locally based team of experts. HDR will be expected to work closely with NID leadership, managers, and key staff, in developing a phased and scalable Plan with a short-, mid-, and long-term actions which will deliver ongoing value to NID. HDR's full-service controls, data integration, digital advisory, and cybersecurity teams have significant experience partnering with utilities, such as NID, to develop, manage, and self-perform the implementation of IT/OT MP and improvement programs.

The approach to the Plan includes a resources analysis that aligns skills and capabilities with a roadmap for near-term and long-term planned technology investment recommendations as well as staffing resources needed to implement such recommendations. Additionally, the plan will provide a multiyear budget and capital plan that aligns with NID's financial plan for successful implementation.

First, HDR will begin with an audit and evaluation of existing IT/OT infrastructure and conditions. HDR will review the existing IT and OT environment and establish the current baseline. The review will be focused on the existing IT and OT network architecture, configurations, and design, as well as the NID staffing, roles, and responsibilities and structure to support and protect the OT and IT networks.

HDR will lead a workshop with NID staff to review the results of the IT and OT infrastructure and conditions review. During the workshop, HDR subject matter experts for IT, network, and cybersecurity will lead a discussion on data flow and data management requirements for the NID future IT/OT network infrastructure and applications based upon NID needs and applicable industry standards and best practices.

Next, HDR will develop recommendations for improvement. Based on the results of the prior task, HDR will develop a preliminary list of recommendations to bridge the gap between the current state and the desired future state. The list of

recommendations will focus on the technical, organizational and process opportunities for the IT and OT networks. The list of recommendations will be initially presented independently of each other but will include financial and operational estimates to assist NID in prioritization.

HDR will lead a workshop with NID staff to review the recommendation list and phasing required to implement identified IT/OT network improvements. A prioritization exercise will assist to gain consensus on priority for each identified recommendation.

Finally, HDR will deliver an IT/OT Master Plan. HDR will prepare a Plan that will act as NID's improvement roadmap and will show the sequence of key activities for achieving the desired future state. The Plan will delineate expected NID and external resource requirements. Additionally, the Plan will develop planning level cost estimates for the improvement efforts, which can be used in recommendations for funding for the implementation efforts.

Further, the Plan will include a prioritized and phased implementation to meet the needs and expectations of a multi-year programmatic implementation. Specifically, the project phasing will be aligned with the short-term, mid-term, and long-term goals to show each individual project is completed within the 1-3 year, 3-6 year, and 7-10 year periods, respectively.

In addition to the above tasks, HDR's proposal offered additional and suggested "Optional Services" for the successful completion of the Plan. These optional services address the Human Machine Interface (HMI) application layer security, detailed OT equipment vulnerability analysis, change management plans, equipment standardization, and detailed data historization analysis. Specifically, the options include:

- HMI Architecture and Role Based Security Review and Recommendations
- Vulnerability Assessment and Recommendations
- ICS Programming Revision Control Policy Review and Recommendations
- ICS Control Panel Equipment and Design Standards Review and Recommendations
- HMI Data Historization Architecture Review and Recommendations
- Network Mapping of OT Networks

During the initial kick-off meeting with HDR, staff will determine the need for some or all of the suggested optional services. In anticipation, however, staff recommends the approval of the total proposal cost, inclusive of all optional services.

BUDGETARY IMPACT:

For this project, NID budgeted \$150,000 in the 2024 fiscal year. In recent discussions with HDR, an updated project timeline by task has been amended to reflect a 2024 project cost estimate of \$255,000. NID's procurement process requires a budget amendment of an additional \$105,000 to Fund 70 (IT Department), identified in the attached resolution.

The total cost of the Plan inclusive of all seven optional services is \$393,961. The remaining balance to the project will be identified in the 2025 fiscal year budget.

Attachments (4)

- IT/OT Master Plan Request for Proposals
- Excerpt from the HDR Proposal - Scope of Work
- Project Timeline Gantt Chart
- Resolution No. 2023-12 - Contract Approval and Budget Amendment for IT/OT Master Plan

REQUEST FOR PROPOSALS
Information Technology/Operational Technology
Master Plan

NEVADA IRRIGATION DISTRICT

1036 W. Main St.

Grass Valley, Ca 95949



Primary Contact:

John Ortiz, IT Administrator

(530) 271-6831

ortizj@nidwater.com

Submission Deadline:

February 1, 2024

Contents

INTRODUCTION	3
BACKGROUND	3
CURRENT INFORMATION TECHNOLOGY LANDSCAPE	3
PROPOSAL SUBMISSION	5
PROPOSAL CONTENTS	5
I. Introductory Materials	5
II. Overview and Approach	6
III. Cost Proposal for Scope of Services	6
IV. Qualifications	6
SELECTION PROCESS	6
SCOPE OF SERVICES	7
Task 1: Audit and Evaluate Existing IT/OT Infrastructure & Conditions:.....	7
Task 2: Develop Recommendations for Improvement	7
Task 3: Develop IT/OT Master Plan.....	8
Deliverables.....	8
Attachments	8

INTRODUCTION

The request for proposal (RFP) is an invitation by the Nevada Irrigation District (NID) to perspective consulting firms to submit a proposal to conduct and deliver a three-part assessment, recommendation and development of a District-wide comprehensive Information Technology / Operational Technology Master Plan (IT/OT Master Plan or Master Plan or Plan).

The IT/OT Master Plan will serve as the District's road map for addressing short, mid and long-term organizational opportunities for NID to improve internal services while balancing demands for new and emerging technologies and available resources. The assessment and final deliverable will include the analysis of staffing capabilities & capacities, technology & data governance, security considerations, and capital expenses and operating processes.

NID desires an attainable IT/OT Master Plan tailored to a balance of industry-leading best practices, efficiency maximization, and our unique needs. The purpose of the IT/OT Master Plan is to lay out a technology-driven strategy and vision for the District. The consultant will collaborate with NID staff to develop the Master Plan. The Plan will help to ensure that District-wide technology services offer industry-leading innovative and progressive improvements in order to provide effective, efficient and high-quality service for all departments.

BACKGROUND

Grass Valley, CA is the home of the Nevada Irrigation District. Grass Valley is in Nevada County, California at roughly 2,500ft in elevation in the western foothills of the Sierra Nevada Mountains. This Gold Country city is 60 miles north/east of Sacramento.

In the early 1900s, the Grass Valley community began to petition for a district to bring irrigation water to their farms and fields. In 1921, a public election was held with voters favoring the new district. Through the years, what began as a reservoir and canal system built during the Gold Rush has been transformed into a modern public water system.

Today, NID Water delivers treated and raw water to three counties (Nevada, Placer and portions of Yuba), provides recreational services to over 300,000 visitors a year, and generates 82.2MW of clean renewable energy with its owned and operated hydroelectric plants.

NID is a public agency, governed by a five-member Board of Directors elected to four-year terms by the District's voters. The Board is the District's policy-making body. The District is has approximately 200 full and part-time employees.

CURRENT INFORMATION TECHNOLOGY LANDSCAPE

NID has three physically separated networks: Enterprise (IT), Water (OT) & Hydroelectric (OT). An Information Technology staff of 3.5 full-time equivalent is responsible for the Enterprise IT network. Hydroelectric and Water Operations Departments are responsible for OT in each of their respective departments and are responsible for separate Supervisory Control and Data Acquisition (SCADA) servers, operational application systems, network maintenance and network & data security for their network.

NID IT Enterprise Overview

The Enterprise network is wired and wireless, connecting 24 remote sites using IPSEC in a hub and spoke environment. NID IT runs a Windows LDAP environment with DCs spread across two

locations. The Grass Valley data center is our primary server and storage location. NID IT has ten physical servers, thirty virtual servers, and over 100TB of data storage spread across five JBOD black boxes. NID IT manages over 300 devices (Workstations, Laptops & Mobile) and over 200 users at the edge.

Primary enterprise applications and hardware supported by the Enterprise IT department are:

- Network infrastructure, management and security
- VPN Remote Access
- Office365 tenant
- Finance / Community billing software
- Mitel VoIP phone system
- Physical access application and server
- SQL server and a custom SSRS report environment
- Computerized Maintenance Management System (CMMS)
- ESRI GIS hardware environment (Internal/External)
- Telemetry reporting
- Cohesity Enterprise backup

NID Water OT Overview

Water Operations network consist of private and leased fiber optic lines with hardwired and cellular internet connections. It has several hub and spoke configurations connecting 23 VPN points. Most data is between 46 PLC's and 14 SCADA servers with historians. 33 telemetry sites are also monitored. The Main Office has one server, one firewall, one core router, a VPN concentrator with 2 internet connections. Remote access is controlled by the firewall. The network is designed to be used only with process data.

NID Hydroelectric OT Overview

The Hydroelectric Network is a mixed fiber/copper wired network that connects 4 powerhouses and Hydroelectric Headquarters to our SCADA system. There are many different paths of connection, including microwave, T1, and private copper cable with DSL extenders. Each powerhouse is on it's own subnet, with it's own Fortinet firewall and switches. The systems it connects together are:

- Generator, Line and Transformer Protective Relays
- Programmable Logic Controllers
- Excitation System Controllers
- Real-time Automation Controllers
- Remote Telemetry Units
- Powerhouse Meters
- Operator Interface Terminals
- SCADA Servers and Workstations
- Water reporting data via serial radios
- Connections to PG&E via private copper and FSK modems.

The only interface with the Enterprise IT network is at the SCADA Historian, where they collect data from the SQL database and present it to operators and other users.

PROPOSAL SUBMISSION

NID will endeavor to administer the proposal and selection process according to the below schedule. NID reserves the right to modify activities, timeline or any other aspect if necessary.

Timeline

Release of RFP by NID	December 5, 2023
Deadline for Questions & Statement of Interest to Propose	January 5, 2024 – 5:00PM pst
Proposals Due to NID	February 1, 2024 – 5:00PM pst
Award of Contract	February 28, 2024

1. Inquiries/Questions concerning this RFP should be directed by email or phone to John Ortiz, IT Administrator at ortizj@nidwater.com or by phone at 530-273-6185 x 1231. All inquiries/questions must be received by 5:00pm on January 5, 2024. A copy of all inquiries/questions and the response from NID shall be forwarded to all firms who have submitted a Statement of Interest to Propose by the date indicated above.
2. Proposals should be received no later than 5:00pm on February 1, 2024, as indicated above. Proposals shall not be longer than fifteen (15) pages (excluding references and cover letter). A rate schedule and cost proposal shall be submitted in a separate file and included with the proposal package. All submissions will be accepted in the form of a PDF document and sent by email to ortizj@nidwater.com or by hard copy with the subject line “NID IT/OT Master Plan” to:

John Ortiz, Information Technology Administrator
 Nevada Irrigation District
 1036 West Main Street
 Grass Valley, CA 95945

3. Responsive proposals shall address all items outlined in Section 2 of this RFP instruction packet. Failure to do so may disqualify a proposal.

PROPOSAL CONTENTS

The Proposal shall contain the sections shown below.

- I. **Introductory Materials**
 - i. **Cover Letter:** The proposal must be accompanied by a cover letter, signed by an individual authorized to bind the proposing entity. An unsigned proposal is grounds for rejection.
 - ii. **Company Data:** Please submit the following information:
 - Official Name and address of the Firm

- Name, title, address, email address, and telephone number of the authorized contact
- Federal Employer I.D. Number of the Firm.
- Number of years of experience the Firm has had in providing required, equivalent, or related services to those described in the scope of services above.

II. Overview and Approach

Describe your understanding and approach for the project. Detail the proposed scope of work and staffing assignments by task to complete the project. Provide an organization chart listing the specific personnel assigned to the project and tasks. Provide a detailed schedule for the scope of work with all assumptions listed including milestones by tasks and subtasks, based on the day of the notice-to-proceed as Day one.

III. Cost Proposal for Scope of Services

- Provide a detailed cost proposal to complete the scope of work, separated into the Project Tasks described in this RFP.
- Cost proposals must be submitted as a separate file in a bidder's proposal package.
- Cost proposals must use a time and materials, not to exceed pricing basis to provide the proposed services.
- Provide a separate cost estimate for site visits and onsite activities necessary to complete the scope of services described above. This should include travel costs and mileage to be reimbursed at the published IRS rate. The District will pay travel expenses as a part of the proposal costs per Article XIV, Section B in the attached Standard Agreement (Attachment A). Travel expenses will be charged with no markups.
- Proposals must include hourly rates for all types of personnel required to provide the services described in this RFP. The hourly rates must include all expenses as outlined in Article XIV in the attached Standard Agreement (Attachment A). The proposed rate schedule must be guaranteed for a minimum of one year.

IV. Qualifications

Provide project descriptions for at least two similar projects in the water and/or power industry completed by the firm and core project team members with one reference for each project. If the firm's proposed project manager was not involved in the reference projects above, then provide a third project description for a project of similar complexity led by the firm's proposed project manager. Provide resumes for all proposed team members.

SELECTION PROCESS

The criteria upon which the proposal will be evaluated consists of the following:

Item	Criteria	Percent
A	Approach and scope of work	30%
B	Cost of Services	30%
C	Experience and qualifications for firm and project team	40%
	Total	100%

SCOPE OF SERVICES

The successful consultant will complete the following services:

Task 1: Audit and Evaluate Existing IT/OT Infrastructure & Conditions:

Perform and report on an in-depth audit and analysis of the District’s existing IT/OT environment, infrastructure, and operational conditions through interviews with staff, department heads, and other key staff stakeholders. The analysis will, among other aspects, look at current staffing capacity & capabilities, system integration & design, processes & procedures, change management protocols, security configurations and network integrity.

Under this task consultant shall at a minimum complete a District-wide audit and evaluation/analysis of the following areas:

- Analyze all existing IT/OT infrastructure and application technology used throughout the organization and its departments;
- Analyze IT/OT staffing resources including positions, roles, skills and organizational structure through discussions with Department Directors and key District staff;
- Identify vulnerabilities in accessing the three network systems, including permissions, cyber security and remote access;
- Identify risk of system failure including hardware and software redundancy, Disaster Recovery, and Business Continuity;
- Evaluate redundancy in IT/OT programs and applications;
- Analyze the inoperability of existing legacy systems;
- Evaluate existing IT/OT policies and procedures;
- Conduct a financial resources assessment for IT/OT operational and capital expenses.

Task 2: Develop Recommendations for Improvement

Perform and report on an in-depth needs analysis and provide recommendations for improvement, reflecting industry best practices for all networks in support of efficiencies and effectiveness of District services. Under this task consultant shall at a minimum develop recommendations for improvement in the following areas that will be included in the Master Plan developed under Task 3:

- Network/Server Infrastructure and application technology improvement recommendations for efficiency and cost effectiveness;
- Staffing needs and recommendations to support the Master Plan including organizational and financial resource needs (eg. capital and operating expenses);

- System failure risk mitigation recommendations in hardware and software redundancy, Disaster Recovery and Business Continuity;
- Cyber security risk recommendations across all platforms;
- Hardware and applications redundancy recommendations;
- Legacy system augmentation and improvement recommendations;
- Identify updates to District IT/OT policies and procedures and provide recommendations;
- Evaluate and recommend how similar agencies integrate IT/OT to provide a secure IP network environment
- Complete a high-level analysis of enterprise architecture integration opportunities for key applications

Task 3: Develop IT/OT Master Plan

Develop Short (1-3 year), Mid (3-6 year) and Long-Term (7-10 year) IT/OT Master Plan that provides a summary of the findings under Task 1 and Task 2. The Plan will be utilized as a road map of activities guiding NID's successful and efficient delivery of services. The Plan will estimate implementation costs, staffing and skills requirements, and timeframes for recommended changes. The plan will include a staffing plan, capital requirements and budget analysis based on suggested recommendations.

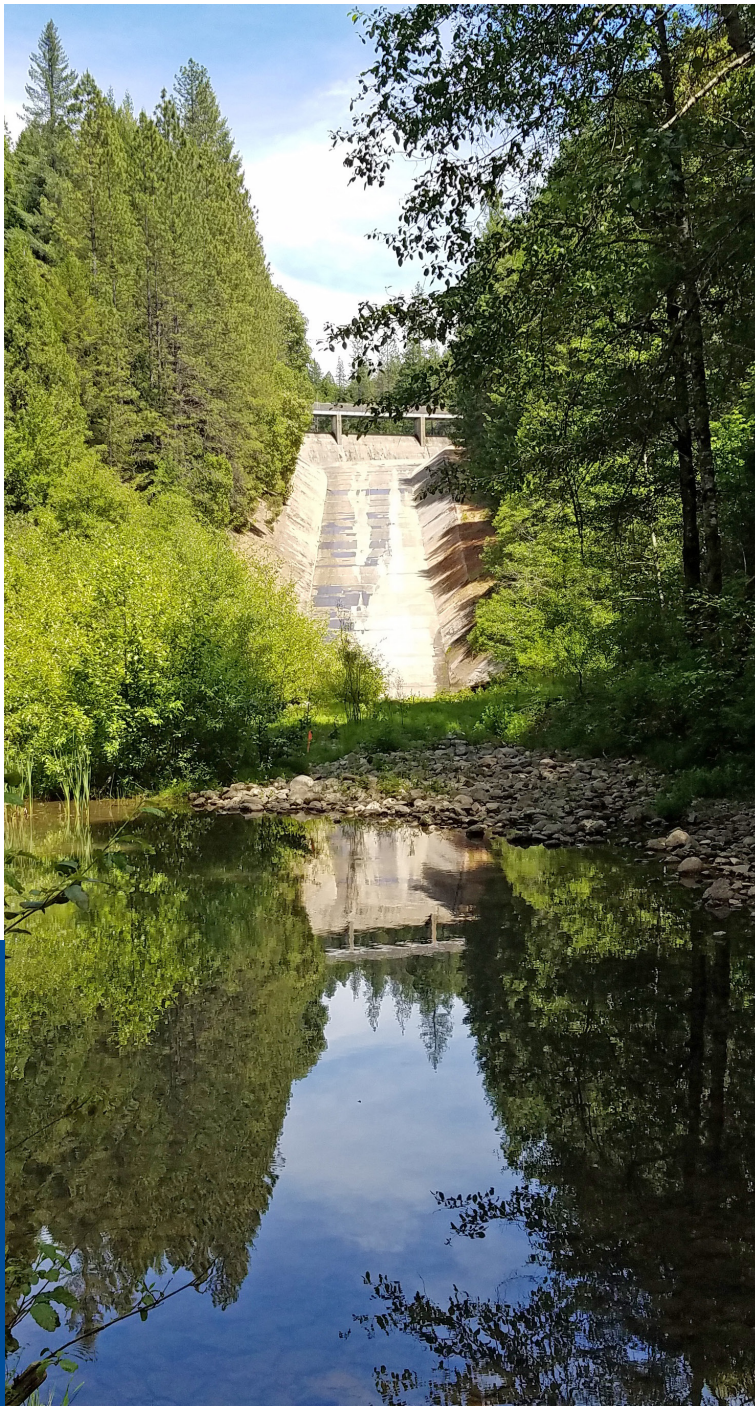
Deliverables

The successful consultant is expected to:

1. Provide an audit report on NID's existing IT/OT environment, infrastructure, conditions and staffing resources.
2. Provide a report on IT/OT needs assessment and recommendations for improvement of the IT/OT environment, infrastructure, conditions and staffing resources.
3. Provide a Short (1-3 year), Mid (3-6 year) and Long-Term (7-10 year) IT/OT Master Plan for future improvements, estimated budgets, plans and/or upgrades of the IT/OT staffing, environment, infrastructure, conditions and staffing resources.
4. Provide a presentation to the Board of Directors including methodologies utilized in the development of the Master Plan.

Attachments

- Attachment A: Consultant Services Agreement
- Attachment B: NID Organizational Chart



Proposal for
**Information Technology/
Operational Technology
Master Plan**



Nevada
Irrigation
District



March 1,
2024



Firm Name & Address

HDR Engineering, Inc.
1917 S 67th Street, Omaha, NE 68106

Authorized Contact

Randy Olden, Project Manager
One Capitol Mall, Suite 500
Sacramento, CA 95814
916.679.8749, Randall.Olden@hdrinc.com

FEIN

47-0680568

of Years of Experience Providing Similar Services

47 years

March 1, 2024

Nevada Irrigation District
1036 W. Main Street
Grass Valley, CA 95949
Email: ortizj@nidwater.com

RE: Proposal for Information Technology (IT)/Operational Technology (OT) Master Plan (MP)

Dear Mr. Ortiz,

HDR Engineering, Inc. (HDR) is recognized as a national leader in IT/OT master planning, and we have developed a cost-effective approach with an experienced locally based team. An effective IT/OT Plan will provide a phased roadmap for Nevada Irrigation District (NID) to improve reliability, knowledge sharing, and system security while managing costs, increasing production, and ultimately improving value and service to your employees and customers. Working closely with NID leadership, managers, and key staff, we will develop your IT/OT Plan to enable phased and scalable outcomes with a short-, mid-, and long-term action plan that delivers ongoing value to NID. The plan will include a resources analysis that aligns skills and capabilities with the roadmap for near-term and long-term planned technology investments and staffing resources needed to implement the recommendations. Additionally, the plan will provide multi-year budget and capital planning needs that align with NID's financial plan for successful implementation. To support you in fulfilling NID's strategic priority of developing an IT/OT Master Plan, we offer:

An experienced and accessible team you can trust. Our team will be led by Project Manager Randy Olden in HDR's Sacramento office. Randy has 21 years of experience managing professional geographic information systems (GIS) staff, tasks, and data/application development for a variety of water clients and facilities. Randy is a data solutions section manager with extensive experience as the project manager and data management lead for a wide variety of projects. Supporting Randy are seasoned professionals who focus solely on IT/OT systems, including David Brearley, Michael Cook, Brandon Erndt, and Keyur Shah, who all bring directly relevant experience partnering with water utility clients on similar planning projects. Additionally, as principal-in-charge, Elizabeth Dawson will help to make sure Randy has all of the resources needed to deliver NID an IT/OT Master Plan that meets your goals. Elizabeth's 27-year career includes 19 years as El Dorado Irrigation District's (EID) Engineering Manager. At EID, she oversaw all planning, design, and construction activities and collaborated closely with the IT and operations directors and staff.

A Master Plan that increases system redundancy and resilience. Throughout the planning process, HDR will build consensus with your internal stakeholders/operators to develop a resilient and scalable network and telemetry topology. In today's environment, a water utility must anticipate potential disruptions resulting from both natural and human-caused events. Currently, HDR's Northern California team is providing condition assessment, asset management, capital planning and development, and

risk management for water clients throughout California and Nevada. We will apply our industry experience and lessons learned with your staff’s knowledge to create a resilient, forward-thinking IT/OT Master Plan.

Unrivaled water industry cybersecurity expertise. HDR has performed more than 75 cybersecurity assessments for water utilities across the country utilizing the *American Water Works Association (AWWA) Cybersecurity Guidance and Tool*, which consolidates the relevant National Institute of Science and Technology (NIST), International Society of Automation (ISA), and the International Organization for Standardization (ISO) recommendations for the various aspects of water utility operations. David Brearley, HDR’s National Cybersecurity Director, will be evaluating the cybersecurity aspects of the project.

A commitment to Nevada Irrigation District. Above all, we are committed to partnering with you in the delivery of successful projects. We have worked on a broad range of projects with various members of your organization and look forward to the opportunity to continue our relationship with you. Meeting NID’s needs and expectations is vital to our continued success, and we are committing our teams and resources to provide you with quality services.

If you have questions about our proposal, please contact Randy at 916.679.8749 or Randall.Olden@hdrinc.com.

HDR does request to negotiate some minor modifications to the NID Standard Agreement, as we have done successfully on other agreements with NID. Our requests for modifications are contained in Appendix C.

Sincerely,
HDR Engineering, Inc.



Holly L.L. Kennedy, PE (CA 74682)
Senior Vice President



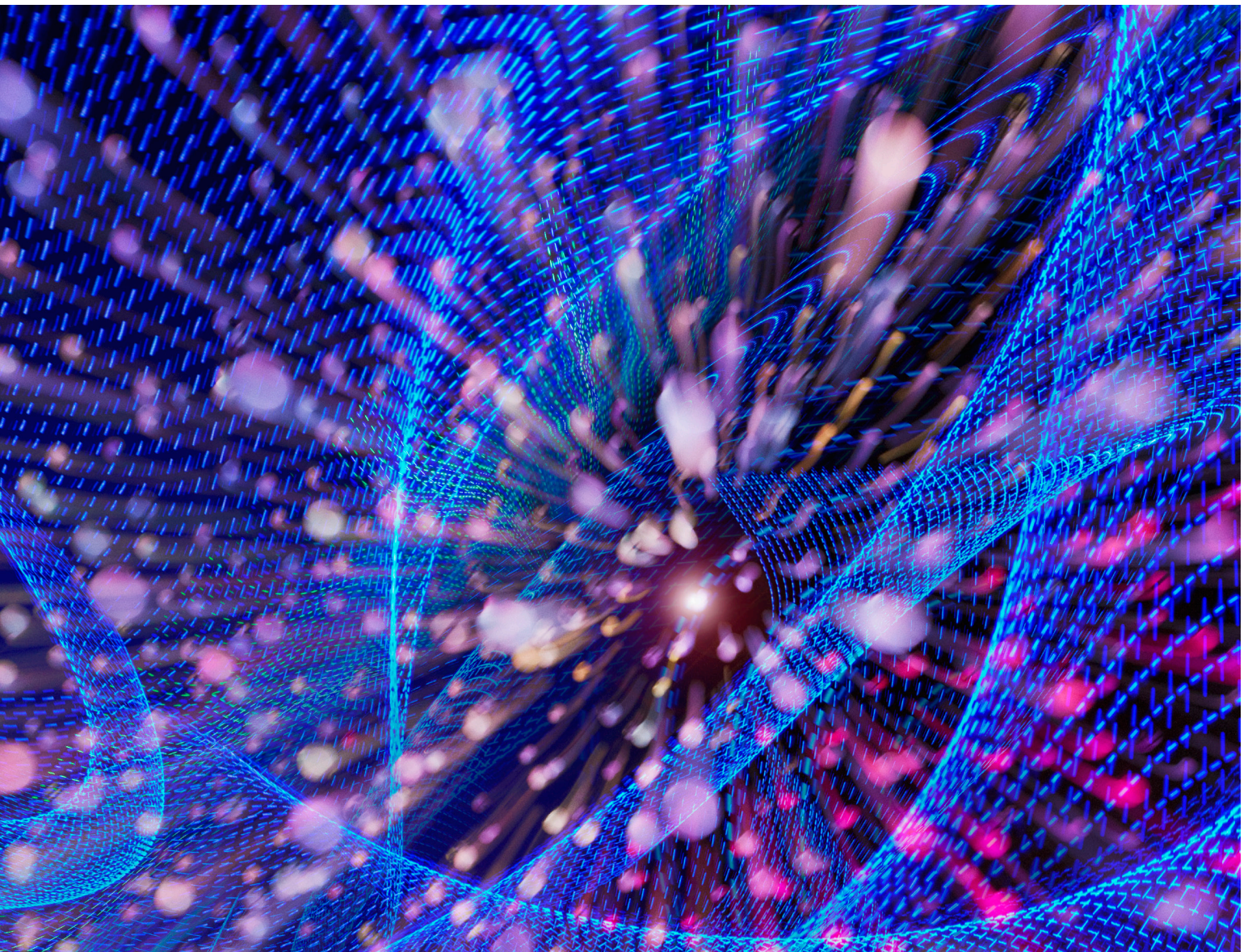
Randy Olden
Project Manager

10391266/RO/jah

Table of Contents

A. Overview & Approach.....	1
B. Qualifications & Experience	6
C. Proposed Cost and Rates.....	(Provided as a separate file per the RFQ)
Appendix A. References	
Appendix B. Resumes	
Appendix C. Exceptions to Agreement	

Section A. Overview & Approach



A. Overview & Approach

Founded in 1917, HDR is an employee-owned company with more than 13,000 employee-owners in more than 200 offices around the globe. As a service-oriented organization, we realize that our success is entirely dependent on your satisfaction. This obligation and attitude toward client satisfaction results in a corporate philosophy of client service and technical excellence.

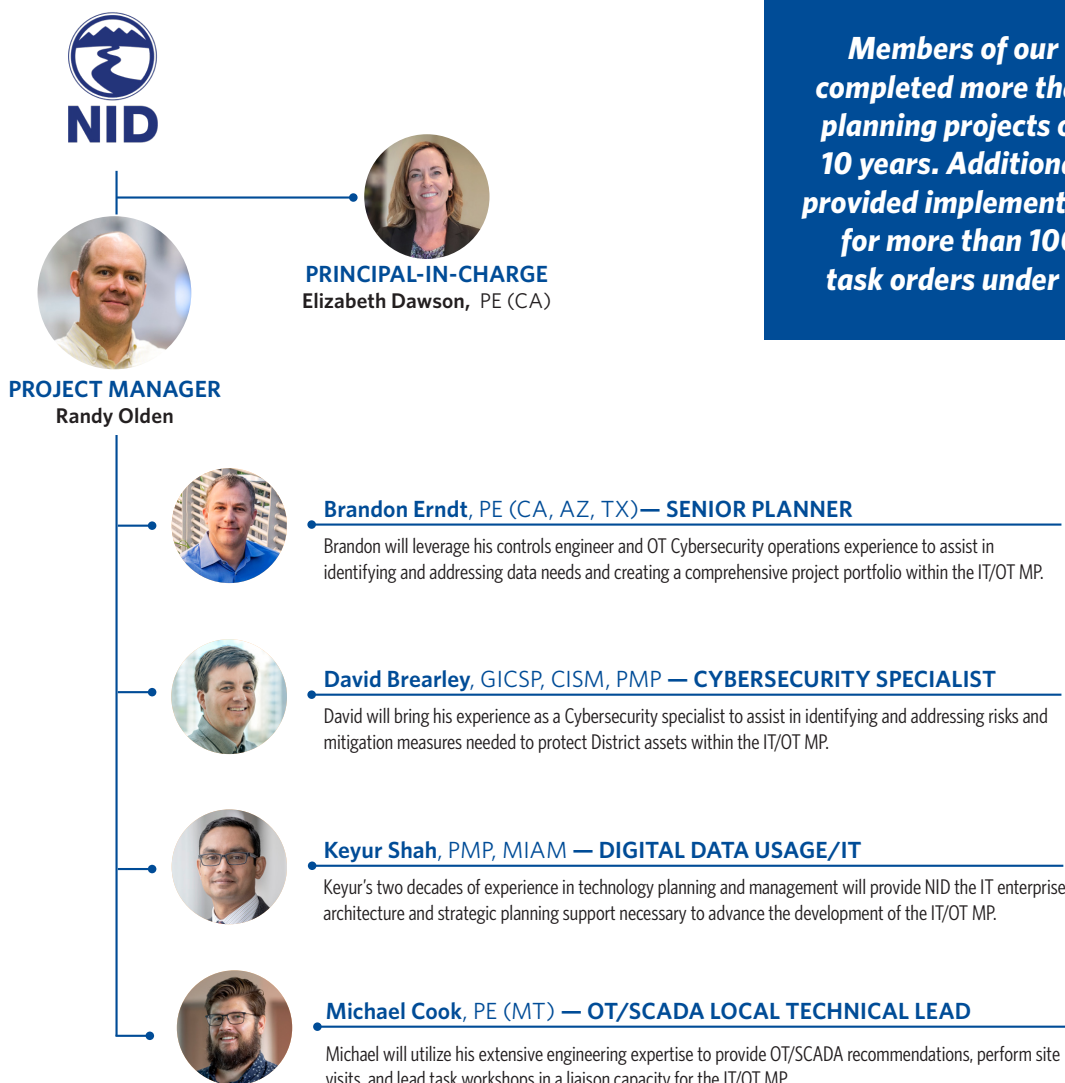
We believe that when a client retains a consulting firm, it is the dedication and abilities of specific individuals assigned to the project that determine its level of success. For this reason, we propose Randy Olden as

our project manager and primary point-of-contact for this contract. He has more than 20 years of project management experience and focused expertise in GIS and data management systems.

Additionally, our team includes several specialists in data usage and cyber networks, as shown in the organizational chart below (Figure A-1). Biographies for key personnel can be found in *Section C. Qualifications & Experience*. Resumes are provided in the *Appendices*.

Our project approach is described on the following pages.

Figure A-1. Project Team Organization Chart



Members of our team have completed more than 25 similar planning projects over the past 10 years. Additionally, we have provided implementation services for more than 100 projects/task orders under these plans.

Project Approach

HDR will partner with NID to create an IT/OT Master Plan that will define a roadmap for the implementation of the identified IT/OT improvements for the short-term (1-3 years), mid-term (3-6 years), and long-term (7-10 years). HDR understands that this IT/OT MP is not only important on its own but supports NID’s larger vision to ensure prudent management of its water resources for the next 50 years through its Plan for Water. Specifically, the IT/OT MP should create a roadmap that is flexible enough to provide the network infrastructure to support the NID’s upcoming master plans:

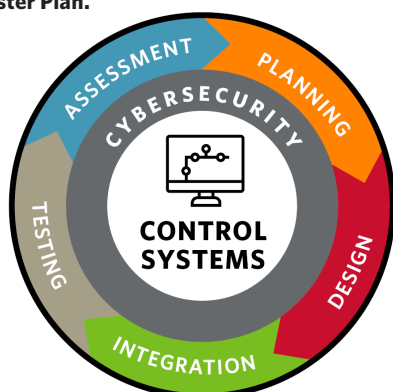
1. Raw Water Master Plan
2. Treated Water Master Plan
3. Watershed Management and Master Plan
4. System Operation Plan

Our core project team can bring in our local water planning engineers and professionals, many of whom have worked with NID on previous projects, as needed during the course of this project.

HDR’s full-service controls, data integration, digital advisory, and cybersecurity teams have significant experience partnering with utilities, such as NID, to develop, manage, and self-perform the implementation of IT/OT MP and improvement programs. Our proposed team of subject matter experts, backed by our North American team of more than 100 controls systems, cybersecurity, and IT advisory professionals, brings a unique skill set and perspective to help NID proactively mitigate risks that threaten the successful implementation of programmatic IT/OT network improvements.

HDR’s proposed approach is based on The Open Group Architecture Framework (TOGAF) 9.2 methodology and the TOGAF Architecture Development Method (ADM), combined with the Prosci change management principles (incorporating the Prosci Change Triangle and ADKAR principles).

Our team maintains a focus on Cybersecurity throughout the project life cycle with dedicated Cybersecurity professionals on our team to verify that Cybersecurity is not an afterthought, but an integral component of every stage of your project starting with the Master Plan.



The TOGAF framework is based on obtaining a clear understanding of the business requirements, the business architecture, or desired state operating model, and then defining the processes, governance, technologies, and other elements to support the specific needs of the business. We have successfully utilized this approach to develop roadmaps for multiple clients such as the Department of Defense, Union County, Northeast Ohio Regional Sewer District, Arizona DOT, Montana DOT, and others. The Prosci change management principles emphasize the integration of technical change and people change, to reach a successful outcome. The plan will lay the foundation for consistent delivery of the improvements identified for your system.

Our approach promotes collaboration with NID stakeholders while maintaining focus on the following objectives:

1. Establish NID vision/requirements
2. Determine current state
3. Complete gap analysis between vision and current state
4. Develop a Master Plan with short-, mid-, and long-term projects in a phased approach

Proposed Master Plan Approach

Task 1: Audit and Evaluate Existing IT/OT Infrastructure and Conditions

HDR will review the existing IT and OT environment record information that establishes the current state baseline. The review will be focused on the existing IT and OT network architecture, configurations, and design, as well as the NID staffing, roles, and responsibilities and structure to support and protect the OT and IT networks, with particular emphasis on how the networks share data.

We will conduct the following activities as a part of this task:

- Study and analyze existing documentation and application technologies used throughout the NID Enterprise IT, Water OT, and Hydroelectric OT networks, including on-site visits.
- Perform interviews with key stakeholders from IT, OT, and Operations and Management to understand NID’s existing IT/OT environment and staffing resources, as well as future vision/requirements for the NID IT/OT network.
- Evaluate the existing IT/OT network equipment to complete an evaluation of the equipment’s position in the product lifecycle and identify components that are obsolete, near obsolete, or require updates and maintenance.
- Identify improvements that may require alternatives analysis or recommendations based upon existing vulnerabilities, system risks, or redundancies.
- Review NID’s existing policies and procedures that serve as the existing guidelines for installation, operations, and maintenance of the NID IT/OT networks.

- Review staffing levels required to operate and maintain the IT/OT infrastructure.
- Review NID's existing IT/OT financial operational budget and capital investment plan.
- For planning purposes, we estimate that we will conduct up to eight 2-hour interviews with NID management and staff.

The deliverable for this task will be a current state and future state technical memorandum. We will conduct a workshop with NID to review the results of HDR's evaluation to verify and prioritize identified gaps between desired state and current state.

Evaluation Verification and Prioritization Workshop

HDR will lead a workshop with NID staff to review the results of the IT and OT Infrastructure and Conditions review. During the workshop, HDR subject matter experts for IT, network, and cybersecurity will lead a discussion on data flow and data management requirements for the NID future IT/OT network infrastructure and applications based upon business needs and applicable industry standards and best practices.

The final deliverable for this task will be an updated technical memorandum with an IT and OT conceptual architecture for the Enterprise, Water OT, and Hydro OT networks that will serve as a base of future improvements and a visual representation for the MP implementation phases. The conceptual architecture will show different software applications and technologies in use and the data flows between them. The future state conceptual architecture will incorporate the improvement opportunities and visually present how the technologies and applications will integrate in the future and share data between each other. We typically utilize The Open Group Architecture Framework (TOGAF) 9.2 methodology and the TOGAF Architecture Development Method (ADM) for reviewing and documenting the IT architecture, and the Purdue Enterprise Reference Architecture for OT architecture (which is based upon the commonly used architectural reference model for control systems).

Task 2: Develop Recommendations for Improvement

Based on the results of the prior task, HDR will develop a preliminary list of recommendations to bridge the gap between the current state and the desired future state. The list of recommendations will focus on the technical, organizational and process opportunities for the IT and OT networks. The list of recommendations will be initially presented independently of each other but will include financial and operational estimates to assist stakeholders in prioritization.

The recommendations list will include the following:

- Infrastructure (both IT and OT) life cycle, cybersecurity posture, and effectiveness improvements.
- NID staff roles and responsibilities needed to support future IT/OT network implementation initiatives.

- Relevant process improvements/changes to improve integration and security (both physical and cybersecurity).
- Policy and procedures required to support current and future IT/OT networks.
- Improvements to network risk reduction through redundancies, upgrades, user access permission changes, remote access improvements, disaster recovery, and business continuity planning.
- Industry standards and best practices already in place to support IT/OT networks and NID.
- Operational budget requirements and priorities around recommendations for improvement.

HDR will lead a workshop with NID stakeholders to review the recommendation list and phasing required to implement identified IT/OT network improvements. We will then conduct a prioritization exercise to gain consensus on priority for each identified recommendation. An initial list of prioritized categories that will be considered include:

- **Critical:** The recommendation is essential to the operational mission of NID.
- **Moderate:** Important recommendation that does not directly impact operational mission but may have operational or management benefits.
- **Low:** Not required, but "nice to have" features which may not be operationally or managerially critical.
- **Pass/Fail:** The recommendation is not critical enough to be worth the financial or operational output and therefore no longer considered.

The deliverable from this workshop will be an updated, prioritized list of recommendations that will be used in the final task to develop the IT/OT MP.

Task 3: Develop IT/OT Master Plan

HDR will prepare a draft IT/OT MP that will act as NID's improvement roadmap and will show the sequence of key activities for achieving the desired future state. It will also delineate expected NID and external resource requirements. Additionally, we will develop planning level cost estimates for the improvement efforts, which can be used to request funding for the implementation efforts. The MP also will include an Executive Summary summarizing the recommended improvements to the existing IT/OT networks, as well as a schedule for implementation and estimated program cost.

The IT/OT MP will include a prioritized and phased implementation plan to meet the needs and expectations of a multi-year programmatic implementation. Specifically, the project phasing will be aligned with the short-term, mid-term, and long-term goals to show each individual project is completed within the 1-3 year, 3-6 year, and 7-10 year periods, respectively. Specific attention will be applied to the continuity of operations, while avoiding "throw-away work" or unnecessary rework.

The IT/OT MP deliverable will include:

- Listing of short-term, mid-term, and long-term projects with draft scopes and planning level cost opinions.
- Improvement priorities and project interdependencies and pre-requisites.
- Schedule of projects to achieve overall improvement implementation.
- 10-year CIP budget estimates based on the projects and schedule.

A draft of the IT/OT MP will be submitted for NID review and will be followed by a workshop with stakeholders to review the summary and discuss modifications needed to the project summaries, estimates, or schedules. Following the workshop, the final IT/OT MP will be provided for use by NID in executing the identified projects.

Optional Services

Based on similar projects for other clients, we have identified the following optional services may be of interest to NID to supplement the IT/OT MP. These optional services address the Human Machine Interface (HMI) application layer security, detailed OT equipment vulnerability analysis, change management plans, equipment standardization, and detailed data historization analysis. If NID is interested in pursuing one or more of the optional tasks described below, HDR will meet with NID to confirm optional task scope and budget details prior to executing the task.

Optional Service 1: HMI Architecture and Role Based Security Review and Recommendations

HDR will review NID's HMIs current architecture and security for review and provide recommendations of potential improvements that can be considered for better alignment with the OT Networks and overall security posture. Current security roles within the HMI and the access privileges within the roles will be evaluated against the operational needs and security policies in place.

Optional Service 2: Vulnerability Assessment and Recommendations

HDR will review NID's Industrial Control System (ICS) equipment and supporting IT Infrastructure (e.g., servers, operating systems [OS], firewalls, and switches) for known vulnerabilities. Based on the vulnerabilities and their CVSS score, HDR will create a list of recommendations for addressing those vulnerabilities. Since addressing vulnerabilities within ICS equipment usually requires an interruption to equipment, HDR can also propose a methodology for incorporating these updates into the larger IT/OT MP, if desired. This assumes up to 100 unique assets.

Optional Service 3: ICS Programming Revision Control Policy Review and Recommendations

Critical to any Disaster Recovery Plan and Continuity of Operations plan is the storage and retrieval of required programming software and configurations, but many organizations lack a formal revision control policy and/or

system. HDR will review NID's existing policies and systems that defines the mechanics of the changing and documenting the programming applications and devices configurations.

HDR will provide recommendations regarding how programming applications and configurations will be updated, regardless of whether that change is initiated by internal NID staff, a contractor, system integrator, or equipment vendor.

Optional Service 4: ICS Control Panel Equipment and Design Standards Review and Recommendations

HDR will review existing control panel equipment and design standards, either formal or "de facto," for their alignment with the OT Networks and overall security posture. Based on NID procurement rules, certain ICS and/or OT network equipment may already be approved for sole source on NID projects. HDR will review this equipment and control panel design standards and provide recommendations to either the equipment itself or the design configuration of the equipment within the control panel.

Optional Service 5: HMI Data Historization Architecture Review and Recommendations

NID's HMI data historization architecture, data paths, and mapping and logging frequencies will be reviewed for alignment with the network design and overall security posture. Specifically, historical data transference between the IT network and the OT networks will be reviewed with a particular focus on the data needs of business users who operate within the IT networks, but do not have access to the data within OT networks. HDR will provide recommendations and a methodology for incorporating these updates into the larger IT/OT MP, if desired.

Optional Service 6: Network Mapping of OT Networks

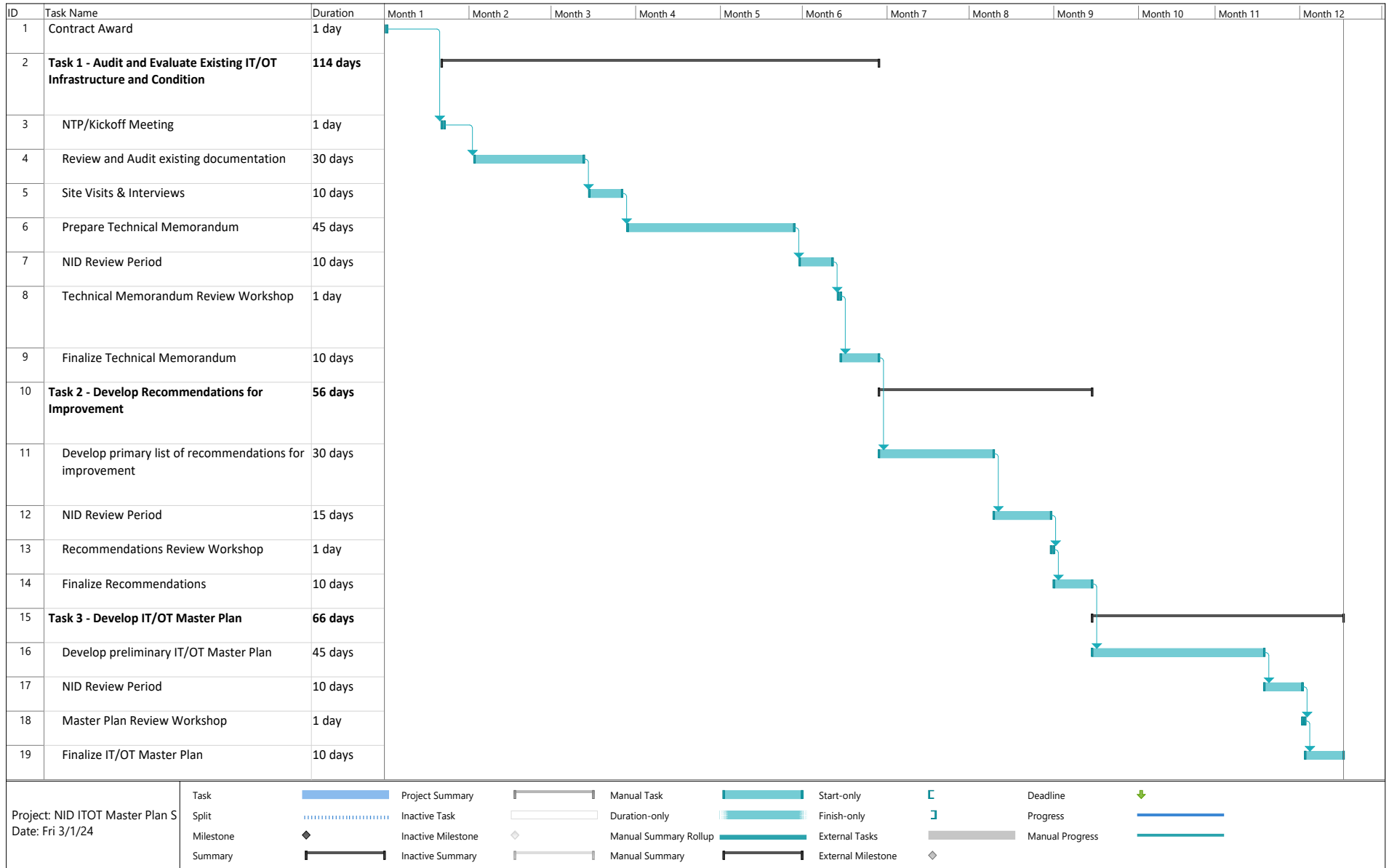
In addition to reviewing NID's documentation and any supplemental information gained from the site visits, HDR could perform mapping of the OT networks using passive scanning tools. By performing these scans on the OT networks, any unknown devices may be identified and documented. In addition, this service can be combined with Optional Service 2 in that the vulnerabilities of the devices can be included with the equipment identification. This service will provide mapping reports for the OT devices and which other devices they are communicating with. This assumes 13 sites (water treatment plants and dams) visited over one 2-week period for data collection at core switches.

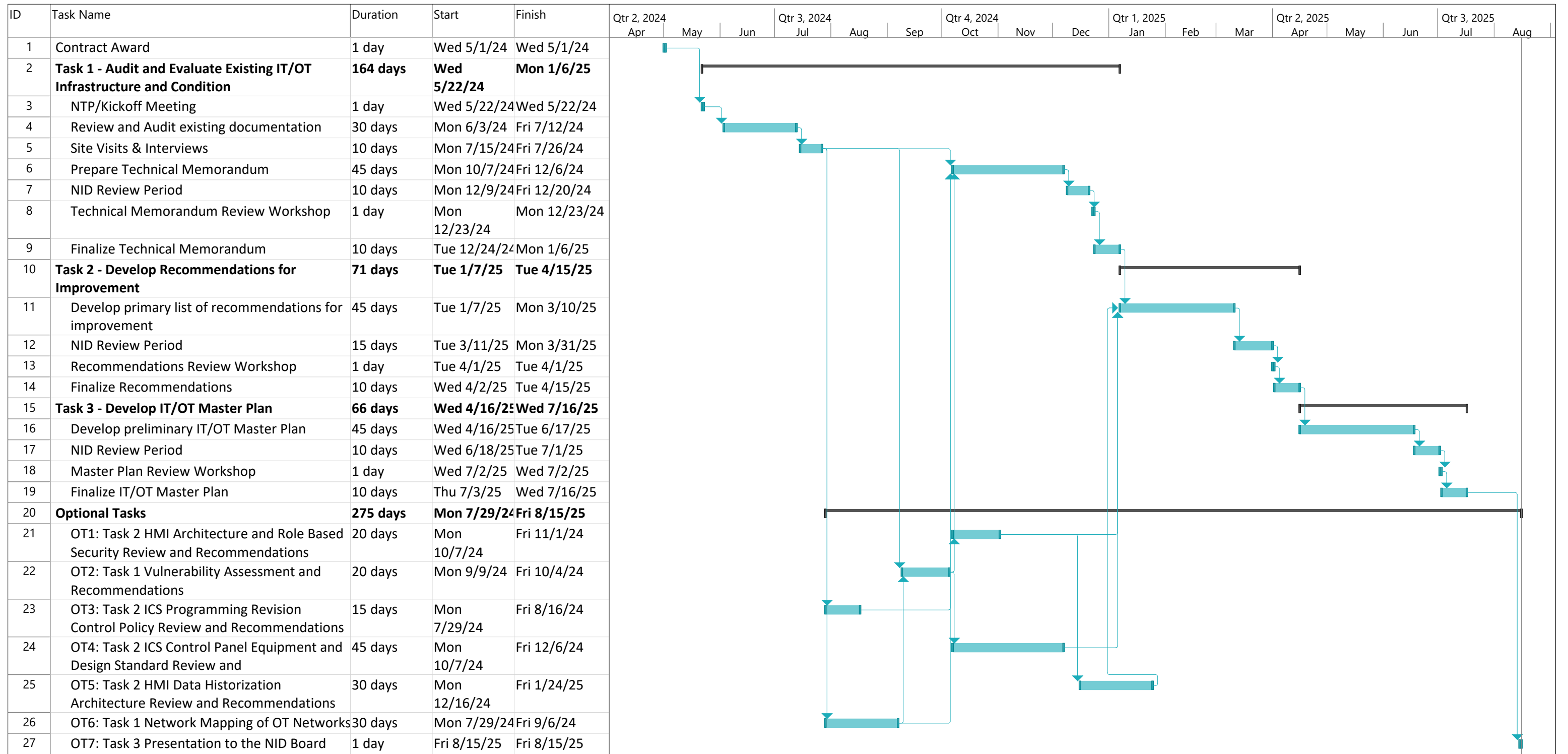
Optional Service 7: Presentation to the NID Board

HDR will present a summary of the final deliverables of the IT/OT Network Master Plan to the NID Board. HDR will summarize the identified projects, overall schedule, and 10-year CIP budget estimates, as well as answer any questions Board members may have.

Figure A-2 on the following page shows our proposed schedule for completion of the project.

Figure A-2. Proposed Schedule for IT/OT Master Plan Completion





Project: NID ITOT Master Plan S Date: Thu 3/21/24	Task		Project Summary		Manual Task		Start-only		Deadline	
	Split		Inactive Task		Duration-only		Finish-only		Progress	
	Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
	Summary		Inactive Summary		Manual Summary		External Milestone			



RESOLUTION NO. 2024-12

OF THE BOARD OF DIRECTORS OF THE NEVADA IRRIGATION DISTRICT

CONTRACT APPROVAL AND BUDGET AMENDMENT FOR IT/OT MASTER PLAN

WHEREAS, On December 5, 2023, NID released a Request for Proposal to 12 perspective consulting firms to deliver an assessment, recommendation and development proposal of a District-wide comprehensive Information Technology / Operational Technology Master Plan (IT/OT Master Plan or Plan); and

WHEREAS, The IT/OT Master Plan is intended to serve as the District's road map for addressing short, mid and long-term organizational opportunities to improve internal services while balancing demands for new and emerging technologies and available resources; and

WHEREAS, NID has sought a tailored Plan balancing industry-leading best practices, efficiency maximization, and addressing our unique needs; and

WHEREAS, The purpose of the IT/OT Master Plan is to lay out a technology-driven strategy and vision for the District while helping to ensure that organization-wide technology services offer innovative and progressive improvements in order to provide effective, efficient and high-quality service for all departments; and

WHEREAS, On March 1st, NID received suitable proposals from five consulting firms. One firm dropped their bid for the project and on March 5th, four of the firms (identified in the table below) gave formal presentations of their proposal to a panel of seven NID staff representing the IT, Water Operations, Hydroelectric and Administrative departments; and

WHEREAS, HDR was the unanimous choice for the project based on an assessment of the firms' approach, cyber security/NERC experience, organizational strength, and cost; and

WHEREAS, HDR Engineering, Inc. (HDR) is recognized as a national leader in IT/OT planning for organizations such as NID and has developed a cost-effective approach to our needs with an experienced and locally based team of experts. HDR will be expected to work closely with NID leadership, managers, and key staff, in developing a phased and scalable Plan with a short-, mid-, and long-term actions which will deliver ongoing value to NID; and

WHEREAS, NID budgeted \$150,000 in the 2024 fiscal year, an updated project timeline by task has been amended to reflect a 2024 project cost estimate of \$255,000. NID's requires a budget addition of \$105,000 to the IT Department's consulting expense line item in order to execute a contract; and

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Nevada Irrigation District, as follows:

1. Adopt a resolution authorizing a budget amendment of \$105,000 to Fund 70 (IT Department); and
2. Approve a contract in the amount of \$393,961.00 to HDR Engineering, Inc. for the development of the District's Information Technology / Operational Technology Master Plan; and
3. Authorize the General Manager or designee to execute appropriate documents.

BE IT FURTHER RESOLVED that the General Manager is hereby authorized to execute the appropriate documents.

* * * * *

PASSED AND ADOPTED by the Board of Directors of the Nevada Irrigation District at a regular meeting held on the 10th day of March, 2024 by the following vote:

AYES:	Directors:
NOES:	Directors:
ABSENT:	Directors:
ABSTAINS:	Directors:

President of the Board of Directors

Attest:

Secretary to the Board of Directors