

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

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In the Matter of:

Docket No. 24-_____

Application of Great Basin Water Co. for authority to consolidate and increase its annual revenue requirements for water and sewer service and to consolidate and adjust the rates charged to all classes of customers in the Pahrump, Spring Creek, Cold Springs and Spanish Springs Divisions and for other relief properly related thereto.

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Eason Testimony (Part 1 of 2)

2

EASON TESTIMONY

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

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PREPARED DIRECT TESTIMONY OF

JAMES T. EASON

ON BEHALF OF GREAT BASIN WATER CO.

December 4, 2024

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PREPARED DIRECT TESTIMONY OF
JAMES T. EASON
ON BEHALF OF GREAT BASIN WATER CO.

Q.1 PLEASE STATE YOUR NAME, PRESENT POSITION AND BUSINESS ADDRESS.

A.1 My name is James T. Eason, and I am the President for Great Basin Water Co. in Nevada ("GBWC" or the "Utility") and Bermuda Water Company in Arizona, since April 2024, before transitioning to my current position I was Vice President/Director of State Operations since September 2015. My business addresses are 1240 E. State Street, Suite 115, Pahrump, Nevada 89048 and 1005 Terminal Way, Ste. 294, Reno, Nevada 89502.

Q.2 WHAT ARE YOUR DUTIES IN YOUR CURRENT POSITION?

A.2 Please *see* Attachment JTE-01 to Exhibit ____, President Job Description.

Q.3 WHAT IS YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND?

A.3 Please *see* Attachment JTE-02 to Exhibit ____, James Eason Resume.

Q.4 HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA (THE "COMMISSION" OR "PUCN")?

A.4 Yes. I have testified in nineteen (19) dockets:

1. Docket No. 15-06063, Utilities, Inc. of Central Nevada ("UICN") General Rate Case ("GRC").
2. Docket No. 16-03006, Utilities, Inc. of Nevada ("UIN") 2016 Integrated Resource Plan ("IRP").
3. Docket No. 16-12006, GBWC Spring Creek Meter Reading

- 1 4. Docket No. 16-12037, GBWC Pahrump GRC
- 2 5. Docket No. 17-12022, GBWC Spring Creek GRC
- 3 6. Docket No. 18-03005, GBWC 2018 Consolidated IRP
- 4 7. Docket No. 18-11014, GBWC Cold Springs /Spanish Springs GRC
- 5 8. Docket No. 19-12029, GBWC Pahrump GRC
- 6 9. Docket No. 20-07015, GBWC Cold Springs GRC
- 7 10. Docket No. 20-07017, GBWC Spring Creek GRC
- 8 11. Docket No. 21-03003, GBWC 2021 Consolidated IRP
- 9 12. Docket No. 21-03042, SIR Well 2 PD
- 10 13. Docket No. 21-06009, SIR Dewatering PD
- 11 14. Docket No. 21-12025, GBWC 2021 Consolidated GRC
- 12 15. Docket No. 23-09015, SIR Pahrump Firebird Circle Loop
- 13 16. Docket No. 23-12020, SIR Mountain Falls Tank 1 Floor Project
- 14 17. Docket No. 24-02018, SIR Spring Creek Pipeline Replacement
- 15 18. Docket No. 24-02023, SIR Pahrump Water SCADA and Mt. View Pipeline
- 16 19. Docket No. 24-03003, GBWC Consolidated 2024 IRP

17

18 **Q.5 HAVE YOU TESTIFIED BEFORE ANY OTHER PUBLIC UTILITIES**

19 **COMMISSION?**

20 A.5 Yes. I have testified before the Arizona Corporation Commission in two (2) dockets:

- 21
- 22 1. Docket No. W-01812A-20-0109, Bermuda Water Co 2020 Rate Case
- 23 2. Docket No. W-01812A-22-0256, Bermuda Water Co 2022 Rate Case
- 24

25 **Q.6 WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS DOCKET?**

26 A.6 The purpose of my testimony is to provide certain information supporting the 2024 GBWC

27 Consolidated Rate Case (the “Application”) for the four water (4) divisions of GBWC: the

28

1 Pahrump Division (“GBWC-PD”), the Spring Creek Division (“GBWC-SCD”), the
2 Spanish Springs Division (“GBWC-SSD”), and the Cold Springs Division (“GBWC-
3 CSD”),and the two (2) wastewater (or sewer) divisions of GBWC: the Pahrump Division
4 and the Spring Creek Division.

5
6 **Section 1 of my testimony (titled “Application and Rate Impact Issues”) is organized**
7 **as follows:**

- 8 ○ Application Organization
- 9 ○ Revenue Requirement Summary
- 10 ○ Rate Consolidation
- 11 ○ GBWC Organization and Operations Staff

12
13 **Section 2 of my testimony (titled “Capital Projects”) is organized as follows:**

- 14 ○ GBWC Project Process
 - 15 ○ *Explain the Capital Project Review Team.*
 - 16 ○ *Summarize GBWC’s 2024 IRP Process*
 - 17 ○ *Explain GBWC’s Maintenance and Inspection Process*
- 18 ○ GBWC Capital Projects
 - 19 ○ *Provide information on GBWC projects that were placed in service on or*
20 *prior to July 31, 2024.*
 - 21 ○ *Provide information on two GBWC Expected Change in Circumstance*
22 *(“ECIC”) Projects that will be placed in service between November 30,*
23 *2024, and before July 2, 2025.*
- 24 ○ Ishani Ridge
 - 25 ○ Discussion of the status of the Ishani Ridge project

1 **SECTION 1 – APPLICATION AND RATE IMPACT ISSUES**

2 **Application Organization:**

3 **Q.7 HOW IS THIS APPLICATION ORGANIZED?**

4 A.7 As will be explained in further detail in the “Revenue Requirement Summary and Rate
5 Consolidation” sections below, this Application is requesting consolidation of the existing
6 individual revenue requirements of each of the four water GBWC Divisions (Pahrump,
7 Spring Creek, Cold Springs, and Spanish Springs) and an increase in this consolidated
8 revenue requirement to accurately reflect recent capital investments in each division as
9 well as increased operating costs. The Application similarly requests that the Commission
10 also consolidate the individual revenue requirements of both GBWC sewer divisions
11 (Pahrump and Spring Creek) and an increase in this consolidated revenue requirement to
12 accurately reflect recent capital investments in each division as well as increased operating
13 costs.

14
15 The Application includes the statements, schedules, and summary workpapers for the
16 requested consolidated water revenue requirement and the requested consolidated sewer
17 revenue requirements. Additionally, the statements, schedules, and summary workpapers
18 for each division which support the consolidated water and sewer revenue requirements
19 are included with the Application as supporting appendices.

20
21 **Q.8 WHO IS PROVIDING TESTIMONY IN SUPPORT OF THIS APPLICATION?**

22 A.8 The following individuals are providing testimony in support of this Application:

- 23 • James Eason –
- 24 ○ Section 1 of my testimony provides a summary of the requested revenue
 - 25 requirements and explains and supports GBWC’s proposal to consolidate
 - 26 revenue requirements and implement uniform rates across all the divisions.
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- Section 2 of my testimony provides details of the capital projects requested to be included in rate base. It also addresses one Expected Change in Circumstance (“ECIC”) project, and two items requested for Regulatory Asset Treatment. My testimony also provides an update regarding the Ishani Ridge Project.
- Bickey Rimal –
 - Mr. Rimal is a third-party consultant from Concentric Energy Advisors who conducted consolidated cost of service studies for water and wastewater, and rate design studies both on a consolidated and stand-alone basis for each division. His testimony explains and supports the Company’s proposed uniform rate design, and discusses how the Company’s proposed rate design allocates revenue responsibilities between customer classes.
- Steve Lubertozi –
 - Mr. Lubertozi’s testimony explains how corporate administrative and general support services (the “Corporate Support Services”) are provided to GBWC and details the recent merger of Corix Infrastructure Inc.’s subsidiary Corix Infrastructure (US) Inc. and SW Merger Acquisition Corp. This testimony identifies and quantifies the benefits associated with the centralized delivery of support services to GBWC. Mr. Lubertozi’s testimony also explains the allocation methodology for Corporate Support Services costs.
- Stella Rosell –
 - Ms. Rosell’s testimony includes information concerning rate base adjustments to the recorded operations results for each of the consolidated water and sewer operations. Her testimony also includes a request to continue the utilization of a Deferred Water Service Adjustment (“DWSA”).

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- Sean Ashcraft –
 - Mr. Ashcraft’s testimony provides an overview of the four divisions and details the capital projects requested to be included in rate base. His testimony also addresses five (5) capital projects that have been previously completed and approved for System Improvement Rates, three (3) Capital Projects completed during the Certification Period for this Application. Finally, Mr. Aschcraft’s testimony explains why the Expected Change in Circumstance (“ECIC”) Capital Project (the Well 10 Project in GBWC’s Pahrump Division) has an objectively high probability of occurring within the time and the budget presented in the below testimony.

- Aleksey Dolinko –
 - Mr. Dolinko’s testimony addresses the Company’s process for annualizing certain revenue and expense information and its proposed treatment of various regulatory assets. This testimony also reviews miscellaneous issues that support the Company’s proposed consolidated revenue requirements and decoupling request.

- Terry Redmon –
 - Mr. Redmon is a third-party consultant, and his testimony provides a summary of the revenue requirement changes requested by the Company and includes information concerning the adjustments to recorded results of operations and rate base for each of the consolidated water and sewer operations. His testimony also supports various statements, related schedules, and workpapers included in the filing.

Revenue Requirement Summary:

Q.9 CAN YOU SUMMARIZE THE REVENUE REQUIREMENT CHANGES GBWC IS REQUESTING IN THIS APPLICATION?

1 A.9 Yes. The first major change is that GBWC is requesting to consolidate the water revenue
 2 requirements of its Pahrump, Spring Creek, Cold Springs, and Spanish Springs water
 3 divisions. GBWC is also asking to consolidate the revenue requirement for its Pahrump
 4 and Spring Creek sewer divisions. As part of this consolidation, GBWC will implement
 5 uniform water and sewer rates across these divisions.

6
 7 Independent of this revenue requirement consolidation, GBWC is also requesting to
 8 increase its water service and sewer service revenue requirements, as shown below:

9
 10 **Requested Water Revenue Requirement Increase**

DIVISION	DIVISION REVENUES AT PRESENT RATES	CONSOLIDATED REVENUE AT PRESENT RATES	REQUESTED CONSOLIDATED REVENUE REQUIREMENT	OVERALL CHANGE
Pahrump	\$6,137,979	\$14,768,218	\$16,718,714	\$1,950,496 +13%
Spring Creek	\$5,876,417			
Cold Springs	\$2,223,850			
Spanish Springs	\$529,972			

17 **Requested Sewer Revenue Requirement Increase**

DIVISION	DIVISION REVENUES AT PRESENT RATES	CONSOLIDATED REVENUE AT PRESENT RATES	REQUESTED CONSOLIDATED REVENUE REQUIREMENT	OVERALL CHANGE
Pahrump	\$4,697,077	\$4,892,824	\$5,284,140	\$391,316 +8%
Spring Creek	\$195,748			

23 **Q.10 ARE THESE REQUESTED REVENUE REQUIREMENT INCREASES**
 24 **ATTRIBUTABLE TO GBWC'S PROPOSED PLAN TO CONSOLIDATE**
 25 **REVENUE REQUIREMENTS AND IMPLEMENT UNIFORM RATES?**

1 A.10 No. The need to increase GBWC’s revenue requirements is driven by recent capital
2 projects in each division as well as increased operating costs across the Company. These
3 factors necessitate an increase in the revenue requirements in each of the individual
4 divisions that is separate and apart from the proposed consolidation.
5

6 **Q.11 CAN YOU EXPLAIN IN MORE DETAIL THE FACTORS NECESSITATING**
7 **GBWC’S REQUESTED INCREASES?**

8 A.11 The rate increases proposed in this filing stem largely from the need to recover for recent
9 capital investments and incurred costs. These factors necessitate rate increases regardless
10 of the consolidation request. The water and sewer revenue requirements set forth in this
11 Application reflect the amounts required to cover the Company’s allowable operating costs
12 and earn a fair return on its investment in facilities dedicated to serving the public.
13

14 ***I. Increases to Rate Base***

15 Since the Company’s last consolidated rate case,¹ GBWC has completed (or will complete
16 during the applicable Certification or ECIC time period) a number of significant capital
17 investments in each of its divisions. Most of these twenty-one (21) of thirty (30) capital
18 projects were reviewed and vetted by the Commission in one of the Company’s Integrated
19 Resource Plan (“IRP”) proceedings. The Commission has already determined that those
20 projects were reasonable and prudent investments that would benefit ratepayers and
21 support GBWC’s mission to provide safe and reliable service. The remaining nine (9) of
22 thirty (30) capital projects were either emergency or compliance projects. Some of these
23 infrastructure projects include:
24

25 ¹ See PUCN Docket No. 21-12025, *Application of Great Basin Water Co. for authority to consolidate*
26 *and increase its annual revenue requirements for water and sewer service and to consolidate and adjust the rates*
27 *charged to all classes of customers in the Pahrump, Spring Creek, Cold Springs and Spanish Springs Divisions and*
for other relief properly related thereto (“2021 Rate Case”).

- 1 • Spring Creek Pipeline Project
- 2 • Spring Creek Well 8 Replacement Project
- 3 • Pahrump Firebird Circle Loop Project
- 4 • Pahrump Mt. View Pipeline Project
- 5 • Pahrump Well 10 Project
- 6 • Pahrump Mt. Falls Floor Replacement Project
- 7 • Cold Springs Booster Pump
- 8 • Cold Springs Test Well Project
- 9 • Spanish Springs Test Well Project

10 More information about these capital projects is available below in Section 2 and in the
11 Prepared Direct Testimony of Sean Ashcraft.

12
13 The proposed increase to rate base is also attributable to GBWC’s request to recover for
14 several regulatory assets, addressed here and in the Prepared Direct Testimony of Aleksey
15 Dolinko.

16
17 **2. *Increased operating costs***

18 Like many businesses, the Company has experienced increases in its operating costs in
19 recent years, attributable to inflationary and other pressures, including increased costs for
20 employee compensation, payroll taxes and benefits, , chemicals, materials, as well as
21 increased costs for depreciation..

22
23 The increased revenue requirements set forth in this Application reflect corresponding
24 increases in the costs necessary to continue providing the safe and reliable water and sewer
25 service that our customers expect and deserve.

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1 **Q.12 CAN YOU BRIEFLY DISCUSS THE RATE INCREASES THAT WILL RESULT**
2 **FROM GBWC'S REQUESTED CHANGES TO THE REVENUE**
3 **REQUIREMENT?**

4 A.12 Yes. GBWC appreciates that the proposed increase in revenue requirements comes along
5 with rate increases for classes of customers across each of GBWC's divisions. Rate
6 increases will be higher in some divisions than in others.

7
8 GBWC continues to propose a tier 1 breakpoint of 5,000 gallons for residential customers,
9 which is the estimated inside the inside the wall usage by our current customers. The
10 Company's consolidation proposal will help smooth rate impacts that stem from
11 completing required capital investment projects. Because the costs of each capital project
12 are spread over more ratepayers, consolidation will improve service affordability by
13 dampening project-driven rate spikes for individual areas.

14
15 **Rate Consolidation:**

16
17 **Q.13 IN THIS FILING, GBWC SEEKS TO IMPLEMENT UNIFORM RATES ACROSS**
18 **ALL FOUR WATER DIVISIONS. WHAT DOES THAT MEAN?**

19 A.13 GBWC is committed to providing safe and reliable water and sewer service to every
20 customer, regardless of which community they call home. GBWC's goal is to provide
21 these same services to all our customers across the state for the same price. By
22 consolidating rates across our Pahrump, Spring Creek, Cold Springs, and Spanish Springs
23 divisions, the company seeks to eliminate rate disparities amongst our Nevada customers.
24 With the implementation of uniform rates, customers in a particular customer class (for
25 example, residential customers) will pay the same water and sewer rates as corresponding
26 customer classes in all the divisions.

27
28

1 **Q.14 WHAT RATE DESIGN ALTERNATIVES IS GBWC PROPOSING IN THIS RATE**
2 **CASE?**

3 A.14 GBWC is proposing 3 alternative rate design in this rate case:

- 4 1. Immediate full consolidation of rates across all divisions
- 5 2. Phased-in full consolidation of rates across all divisions
- 6 3. Stand-Alone rates for each division.

7 GBWC's preferred alternative is #2: Phased-in full consolidation.

8
9 **Q.15 WHY IS GBWC PROPOSING TO IMPLEMENT RATE CONSOLIDATION?**

10 A.15 Consolidated rates across all four (4) divisions will promote predictable, stable rates (in the
11 long-term reducing rate shock) and benefit customers through reduced regulatory expenses
12 and increased efficiencies. GBWC first requested consolidation across its divisions in the
13 2021 Rate Case, and while full consolidation was not granted at that time, the rate and
14 tiering adjustments that resulted from that proceeding represented incremental steps toward
15 consolidation in the longer term.

16
17 In deciding to pursue uniform rates, the Company considered the following factors:

- 18 1. Historically, the rates for each division have been set based upon the investment
19 and expenses for each division, and the water and sewer service rates vary between
20 the divisions. This disparity is, in part, the result of the absence of economies of
21 scale in the smaller or more rural divisions, the disproportionate effect imposed on
22 the smaller division by even routine investments (which leads to rate shock), and
23 the episodic investment of capital in all the individual divisions.
- 24 2. As discussed more below, GBWC has already consolidated the management and
25 branding of each division. Customer-facing functions like billing and customer
26 service are centralized – or put differently, each customer already pays the exact
27

28

1 same amount for the exact same suite of customer engagement services across all
2 our divisions.

3 3. Other GBWC functions are also centralized. These include accounts payable,
4 payroll of executive employees, insurance and pension benefits, original entry
5 accounting, public affairs, liability insurance, personnel training, engineering,
6 environmental reporting, budgeting, and rate case preparation, all of which are
7 accomplished on a centralized basis.

8

9 **Q.16 IS CONSOLIDATION ACROSS THE FOUR DIVISIONS DIFFERENT IN**
10 **CONCEPT FROM THE CURRENT RATE DESIGN AND COST OF SERVICE**
11 **PRINCIPLE?**

12 A.16 No. Consolidation across the four (4) divisions is in practice a continuation of what already
13 occurs in each division on a smaller scale. Consolidation is in its most basic form an
14 averaging of the cost of service across all of GBWC's customers in a particular customer
15 class. This averaging already occurs in process of setting rates for customers within each
16 division, GBWC is just expanding the concept statewide. Below are a few examples of the
17 averaging concept at work within GBWC current divisions:

18 1. Customers closer to a well have a lower cost of service than customers far away
19 from a well, but still pay the same rates.

20 2. Customers who are supported by newer infrastructure have a lower cost of service
21 than those whose being serviced through older infrastructure, but they still pay the
22 same rate. A prime example of that is in Pahrump, where customers in the
23 separately permitted water and wastewater systems of Mountain Falls and Spring
24 Mountain Motor Ranch communities (two newer island systems), pay the same
25 rates as those customers in the much older main system. Additionally, the water
26 customers in the Calvada Main System are paying a rate that subsidizes the smaller
27 and separately permitted water systems of Calvada North, Calvada Meadows

28

1 (Airport) and the former Mountain View Estates Systems, and the customers of the
2 separately permitted Calvada Main System (WWTP3) who receive wastewater
3 services subsidize the wastewater customers in the separately permitted Calvada
4 North System (Plant F).

- 5 3. In Spring Creek, significant investment has been made into the 200 Tract in regard
6 to arsenic remediation and pipe improvement, and the cost of those investments and
7 ongoing O&M is averaged across all Spring Creek customers in two separately
8 permitted systems (200 Tract and 100, 300 and 400 Tracts).

9
10 **Q.17 IN THE 2021 RATE CASE, WHAT WAS STAFF’S POSITION REGARDING THE**
11 **CONCEPT OF RATE CONSOLIDATION?**

12 A.17 In testimony, PUCN Regulatory Staff indicated that Staff recognizes the potential long-
13 term benefits of consolidation in providing rate stability and mitigating rate shocks,
14 particularly in regard to smaller utility divisions, and that Staff does not oppose
15 consolidation across GBWC’s divisions as a long-term goal.

16
17 By way of example, in Q/A 7 of his Direct Testimony, Staff witness Manuel Lopez,
18 answered the following question: “Is Staff opposed to, in general, utilities having uniform
19 rates?” Mr. Lopez responded, in relevant part: “*No, not at all. There are efficiencies and*
20 *other benefits from utilities consolidating operations and from utilities having uniform*
21 *rates....Staff agrees that GBWC that the revenue consolidation and uniform rates may*
22 *bring benefit to customers in the long term”* While Mr. Lopez did also explain Staff’s
23 opposition to the specific consolidation proposal being put forth by GBWC at that time,
24 GBWC continues to agree with his statements regarding the conceptual benefits of
25 consolidation in general.

1 In Q/A 10 of his Direct Testimony, addressing the impact of consolidation on rate shocks,
2 Mr. Lopez stated that “*Staff agrees that consolidation of revenues and rates could help*
3 *reduce potential future rate shocks, especially when it comes to utilities that serve smaller*
4 *communities, as is the case with GBWC’s small divisions....”*

5
6 In Q/A 11 of his Direct Testimony, addressing the impact of consolidation on rate stability,
7 Mr. Lopez stated that: “*In Staff’s opinion, it is undeniable that consolidation and uniform*
8 *pricing will provide better rate stability. This is because, as stated above, GBWC serves*
9 *smaller communities. By consolidating the four divisions for water service (and the two*
10 *divisions for sewer service) and implementing uniform rates, GBWC will have more*
11 *customers (more billing determinants) over which to spread the investment amounts and*
12 *operation costs incurred to serve.”*

13
14 GBWC agrees with these positions of Staff and continues to believe that full consolidation
15 is an appropriate next step for the Company and its customers, with primary benefits in
16 providing long term rate stability and management of rate shock.

17
18 **Q.18 WHAT DID YOU UNDERSTAND TO BE REGULATORY OPERATIONS**
19 **STAFF’S MAJOR CRITICISM OF GBWC’S CONSOLIDATION PROPOSAL IN**
20 **THE 2021 RATE CASE?**

21 A.18 As GBWC understood it, Staff’s major criticism was that GBWC’s proposal did not go far
22 enough to protect certain classes of customers from rate shock. Mr. Lopez articulated that
23 Staff did not support what they viewed to be GBWC’s proposal for a “do it all at once”
24 approach, opining that the specific proposal GBWC put forth in the 2021 Rate Case ran
25 counter to the principle of “gradualism” as a major tenet of rate design. *See, 2021 Rate*
26 *Case, 5/6/22 Prepared Direct Testimony of Manuel N. Lopez at Q/A 15. Staff Witness Dr.*
27 *Anita Castledine also articulated that, while “Staff is not opposed to the concept of revenue*

1 *requirement consolidation and uniform rates across the four divisions as a long-term goal,”*
2 Staff was “*concerned about the large bill impacts that the Company’s proposal would have*
3 *on certain divisions and customers” See 2021 Rate Case, 5/6/2022 Prepared Direct*
4 *Testimony of Anita Castledine, Ph.D. at Q/A 8 and Q/A 35.*

5
6 As articulated by Dr. Castledine, Staff took the position that the Company should adopt a
7 rate design alternative to full consolidation that, among other things, would bring the
8 separate division rate structures incrementally closer to full consolidation and serve as a
9 step toward that general goal. *See Testimony of Dr. Castledine, id. at Q/A 35 (“Staff chose*
10 *to provide alternative rate designs that would bring the current divisional rate designs*
11 *closer in alignment as the first step to the goal.”).*

12
13 Staff specifically recommended that, as an alternative to an immediate and full
14 consolidation, GBWC should take the approach in future rate proceedings of adopting a
15 “phase-in approach to revenue consolidation and uniform rate design” over a period of
16 years. *2021 Rate Case, 5/6/22 Prepared Direct Testimony of Manuel N. Lopez at Q/A 4.*

17
18 GBWC notes that, even in advocating for a phase-in approach over a period of years, with
19 emphasis on gradualism and minimizing near-term rate shock to specific divisions and
20 customer classes, Staff did not impose an expected time frame for a phase-in, or foreclose
21 that GBWC could or should pursue full consolidation through this rate case, so long as the
22 proposal presented was appropriately supported and provided adequate protection for
23 GBWC’s customers. *See, e.g., 2021 Rate Case, 5/6/22 Prepared Direct Testimony of*
24 *Manuel N. Lopez at Q/A 27:*

25
26 ***Q. Does Staff have a time estimate in which the phase-in approach will occur?***
27
28

1 A. No. Staff does not have any specific time estimate. . . . Ultimately, the timeline of a
2 phase-in approach is up to GBWC. If it's done in a reasonable manner with all supporting
3 documents provided, it can be done relatively swiftly. Staff is willing to work with GBWC
4 to implement a phase-in approach.

5
6 GBWC confirmed its agreement with Staff's recommended approach in the stipulation
7 resolving the 2021 Rate Case, as documented in paragraph 32 of the resulting order from
8 that proceeding, where the stipulating parties agreed that, "in GBWC's next GRC
9 application, it will present, inter alia, a proposal to consolidate its water service revenue
10 requirements and sewer service revenue requirements into a single water service revenue
11 requirement and sewer service revenue requirement, and include an option to phase-in
12 uniform rates over a period of years." See June 20, 2022 Order in 2021 Rate Case, at p.
13 16-17, ¶32.

14
15 **Q.19 WHAT DID YOU UNDERSTAND TO BE THE NEVADA ATTORNEY**
16 **GENERAL'S BUREAU OF CONSUMER PROTECTION'S ("BCP") MAJOR**
17 **CRITICISM OF GBWC'S CONSOLIDATION PROPOSAL IN THE 2021 RATE**
18 **CASE?**

19 A.19 As GBWC understood it, BCP's major criticisms of GBWC's 2021 consolidation proposal
20 was that it did not sufficiently address concerns of gradualism and rate shock to certain
21 customer classes. Specifically, as detailed in the Prepared Direct Testimony of Glenn A.
22 Watkins, BCP believed that the proposal set forth would have the Commission approve a
23 rate mechanism in which GBWC's smaller divisions (Spanish Springs and Cold Springs)
24 would unduly subsidize customers in GBWC's larger divisions (Pahrump and Spring
25 Creek), and that the customers in those smaller divisions would experience rate increases
26 overly disproportionate to their cost-based increases. See 2021 Rate Case, 5/6/22 Prepared
27 Direct Testimony of Glenn A. Watkins at Q/A 9.

1 **Q.20 HOW IS GBWC’S CURRENT PROPOSAL IN THIS RATE CASE RESPONSIVE**
2 **TO THE CONCERNS EXPRESSED BY STAFF AND BCP IN 2021?**

3 A.20 GBWC acknowledges the important principle of “gradualism” in rate setting and Staff’s
4 emphasis on that approach with regard to consolidation. GBWC notes that significant
5 incremental steps have already been taken toward full consolidation through the rate
6 structure changes approved in the 2021 Rate Case. For example, residential consumption
7 tiers are now identical across all divisions. Base rates are also identical across three (3) of
8 the four (4) divisions. GBWC appreciates the assistance of Staff and BCP during the last
9 rate case and stipulation in assisting GBWC with implementing these measures. GBWC
10 appreciates Staff’s willingness to work with GBWC on a phase-in approach that may
11 mitigate and/or soften bill impacts for customers.

12
13 In this Application, GBWC is recommending a phase-in approach by which GBWC would
14 achieve full rate consolidation across all four (4) of its divisions before its next rate case.
15 GBWC believes the phase-in approach now proposed is consistent with the stipulated
16 agreement reached in the 2021 Rate Case, and that it addresses Staff’s and BCP’s stated
17 concerns regarding gradualism and will minimize (not eliminate) rate shock impacts for its
18 customers.

19
20 Specifically, GBWC is recommending that rates be adjusted (phased-in) on an annual basis
21 and reach full consolidation by the third year after rate case approval. To illustrate, if the
22 rates from this rate case are approved and become effective July 1, 2025, an additional
23 round of rate changes would be implemented effective July 1, 2026, and then a final round
24 of rate changes (achieving full consolidation) would be implemented effective July 1, 2027.
25 While some customers will unavoidably experience rate increases over the course of the
26 three-year period and consolidation (and others will experience decreases), any rate “shock”
27 will be ameliorated and smoothed through the three-phase approach. GBWC is proposing

1 that each phase of the rate increases by pre-approved by the Commission for compliance
2 transparency. Please note that steps two (2) and three (3) of the phase-in will be revenue
3 neutral to the initial increase in 2025. GBWC will actively communicate with customers
4 in advance of each pre-approved rate change to address concerns and to ensure that the
5 planned increases do not catch GBWC’s customers by surprise.

6
7 GBWC notes that, in the 2021 Rate Case, its consolidation proposal included that all
8 customer classes would be immediately shifted to their respective costs of service. GBWC
9 acknowledged in that proceeding that one effect of this approach would have been
10 relatively sharp rate increases for certain customer classes, with the potential for “rate
11 shock.” In contrast, in this Application, GBWC is proposing that the customer classes be
12 shifted toward their respective costs of service, but with an emphasis on gradualism and
13 taking the risk of rate shock into account in setting final rates.

14
15 **Q.21 DO SYSTEMS NEED TO BE INTERCONNECTED TO BE CONSOLIDATED?**

16 A.21 No. Regulators in various jurisdictions have approved consolidation of revenue
17 requirement and implementation of uniform rates across water systems of varying size
18 within a single utility notwithstanding the separate systems’ lack of connection or
19 geographic proximity. As an illustrative example on a smaller scale, within GBWC’s
20 divisions there are standalone systems that are not interconnected but which have uniform
21 rates, i.e. the Mountain Falls subdivision and Spring Mountain Motor Ranch (“SMMR”)
22 in Pahrump, where customers pay the same rates as those connected to Pahrump’s main
23 system. Also as discussed, there are uniform rates in Spring Creek between the stand-alone
24 system of the 200 Tract and the system of the 100, 300 and 400 Tracts.

25
26 **Q.22 HAVE REGULATORS IN OTHER JURISDICTIONS OPINED ON THE**
27 **BENEFITS OF UTILITY RATE CONSOLIDATION GENERALLY?**

1 A.22 Yes. As the Company detailed in connection with its original consolidation request in the
2 2021 Rate Case, there are many practical and financial benefits that can generally be
3 achieved by utilities through consolidation of revenue requirements and implementation of
4 uniform rates. In the Prepared Direct Testimony of Seán Twomey filed in the 2021 Rate
5 Case, Mr. Twomey described the findings in a 1999 joint study by the U.S. Environmental
6 Protection Agency and the National Association of Regulatory Commissioners (the
7 “EPA/NARUC Study”) wherein those organizations thoroughly reviewed the issue of
8 utility rate consolidation and the benefits and limitations thereof. By the time of the report
9 twenty-two (22) states had approved some form of uniform utility rates. The regulators
10 recognized in the joint report that, among other things, uniform rates generally have the
11 effect of mitigating rate shock to utility customers, lowering utilities’ administrative costs,
12 and improving service affordability for customers. See 2021 Rate Case, 12/30/21 Prepared
13 Direct Testimony of Seán Twomey at Q/A 15, and exhibit ST-03 thereto (EPA/NARUC
14 Study). As summarized in the EPA/NARUC Study:

15 *A variety of specific rationales (or combinations thereof) have been put*
16 *forth by some of the commissions to justify approval of single-tariff pricing:*
17 *it addresses pragmatic concerns affecting utilities and customers (namely,*
18 *revenue stability and mitigation of rate shock); it is consistent with*
19 *consolidated management, operations, financing, and corporate structures;*
20 *it reduces regulatory caseload and costs; and it results in comparable*
21 *prices for comparable services produced from comparable facilities. Many*
22 *investor-owned utilities have strongly urged regulators to recognize that*
23 *these companies provide all of their customers the same brand-name*
24 *product (a safe and reliable supply of potable water) and that single-tariff*
25 *pricing will also make the product more affordable. Essentially, single tariff*
26 *pricing makes it possible for all customers to share in the total economies*
27 *of scale and scope achieved by the utility corporation.*²

24 **Q.23 HOW DO UNIFORM RATES PROMOTE RATE STABILITY FOR**
25 **CUSTOMERS?**

26 _____
27 ² *Id.* at p. 8.

1 A.23 Consolidation promotes rate stability by spreading and averaging costs of service among a
2 larger group of customers. Particularly with regard to capital expenditures, costs of service
3 typically fluctuate and spike from time to time between different systems. Each of
4 GBWC's four (4) divisions was initially constructed by a different utility over different
5 periods of time, prior to purchase and consolidation under GBWC. Each division has its
6 own unique needs and challenges, particularly with regard to infrastructure planning.
7 However, it is fundamental that every division will require some type of capital investment
8 in both the short- and long-term. The investment needs of each division are not consistent
9 and can change over time in response to regulatory changes, unforeseen emergency events,
10 and where required to replace aging infrastructure.

11
12 As the four (4) divisions are currently constituted, rate impacts from significant investment
13 in one division will generally impact only the customers in that division, and bill impacts
14 are experienced sharply by those customers. This is true notwithstanding, as explained
15 above, that the individual customers within each division generally do not have the same
16 costs of service as between each other, and not all customers in any one division may
17 experience a benefit or improvement in service as the result of any one particular
18 improvement (i.e., consolidation of rates already exists on a small scale within GBWC
19 itself). Customers in one division that escape a rate increase over a period where relatively
20 little capital investment is needed will almost certainly experience a rate increase at a
21 different point in time when investments are needed in their own system. Importantly, the
22 rate spikes that result from investment impact smaller divisions the most, where the cost of
23 service is spread out among a smaller number of connections.

24
25 As consolidation occurs on a larger scale, across the four (4) divisions, the implementation
26 of uniform water and wastewater rates will allow the costs of each division's capital
27 projects to be spread over approximately 16,200 GBWC water customers and about 5,900

28

1 GBWC wastewater customers. In this way, over the long term, uniform rates will help
2 significantly mitigate the risks of “rate shock” that arise when fewer customers shoulder
3 the rate burden for a significant capital investment in a particular area.
4

5 **Q.24 CAN GBWC POINT TO EXAMPLES IN OTHER JURISDICTIONS WHERE**
6 **CONSOLIDATION PROMOTED RATE STABILITY AND REDUCED RATE**
7 **SHOCK?**

8 A.24 Yes, GBWC has ready examples of the benefits of rate consolidation as experienced by
9 other utilities also owned by GBWC’s corporate parent, Nexus Water Group (“Nexus”).³
10 Below are several illustrative examples from other Nexus utilities where consolidation
11 protected customers:

- 12 1. In Louisiana, a compliance issues resulted in a need for a >\$680,000
13 Trihalomethane (TTHM) treatment project for a system of 150 customers. Due to
14 consolidation of rates, the impact was spread over 11,000 customers.
- 15 2. In Illinois, consolidation enabled the utility to make a \$1,000,000 investment for
16 375 customers to reach adequate level of services through an installation of a
17 storage tank and booster.
- 18 3. In Indiana, a new \$1,600,000 wastewater treatment plan (“WWTP”) was necessary
19 to service 880 customers. Because the utility had achieved consolidated rates, the
20 cost was spread over approximately 3,700 customers.
- 21 4. In Florida, a water quality project targeting iron reduction was implemented for
22 1,400 customers. Because rates had been consolidated, the \$2,500,000 cost was
23 spread over 34,000 customers.

24
25
26 ³ The Nexus utilities that have been granted uniform rates in other jurisdictions include utilities in
27 Alaska (since 2007); South Carolina (since 2015); Illinois (since 2015); Indiana (since 2015); Pennsylvania (since
28 2016); Louisiana (since 2016); Florida (since 2017); North Carolina (since 2017); Kentucky (since 2019); and
Alabama (since 2019).

1 These are just a few examples, among many, of how regulator-approved rate consolidation
2 has benefits customers and shields them from rate shock.

3

4 **Q.25 HOW WOULD UNIFORM RATES IMPROVE EFFICIENCY AND REDUCE**
5 **COSTS FOR GBWC?**

6 A.25 In general, uniform rates promote efficiency in administration and help reduce costs,
7 particularly in relation to rate filings. Specifically, as to GBWC, it is difficult to quantify
8 exact cost savings that could be realized through consolidation, however GBWC believes
9 the savings (which would be passed on to customers) would not be insubstantial.

10

11 As Mr. Lopez noted in his Q/A 9 of his Direct Testimony in the 2021 Rate Case, many
12 variables can impact whether or not hypothetical cost savings can be achieved. GBWC
13 notes that the regulatory approach to rate filings in Nevada, where GBWC as a large
14 water/waster water utility is required to file a rate case every three (3) years, appropriately
15 promotes gradualism in rates while recognizing the factors of customer growth and
16 fluctuations in operations and maintenance costs. Any savings achieved from rate
17 consolidation over the upcoming three (3) years could be passed on to customers in the
18 next rate case.

19

20 For purposes of this Application, GBWC’s analysis has focused on expected efficiencies
21 to be realized in three areas from consolidation: Regulatory filings, Finance, and
22 Operations.

23

24 ***Regulatory Filings***

25 One possible result of rate consolidation is a need for fewer rate cases, and less
26 administrative and professional time spent developing various revenue requirements, cost
27 of service studies, and rate designs for such filings (and legal fees in connection with the

28

1 litigation of the same). To illustrate, GBWC notes that, between 2016 and 2021, it filed a
2 total of seven (7) rate cases in five (5) years:

- 3 1. 2016 Pahrump
- 4 2. 2017 Spring Creek
- 5 3. 2018 Cold Springs and Spanish Springs
- 6 4. 2019 Pahrump
- 7 5. 2020 Cold Springs
- 8 6. 2020 Spring Creek
- 9 7. 2021 First Consolidated

10
11 GBWC’s commitment to achieving consolidation has reduced the need for frequent or
12 separate rate cases, and it has been nearly three (3) years since the last rate case filing. If
13 full consolidation of revenue requirements across the four (4) divisions is approved, with
14 accompanying uniform rates, further significant cost savings would be realized in that
15 GBWC would only be required to file two (2) revenue requirement/rate design models in
16 its next rate case (anticipated 2027), as opposed to the six (6) stand-alone rate design
17 models that are being prepared each time under the current status.

18
19 ***Finance***

20 GBWC’s Finance team has two main functions: (1) monthly reporting/analysis/forecasting
21 and (2) managing regulatory filings, such as rate cases, decoupling, system improvement
22 rate (“SIR”), and helping with the IRP. With fewer rate cases and fewer revenue
23 requirements to calculate, more of the work described can be completed by GBWC’s in-
24 house finances team, with a less reliance on outside consultants and a resulting decrease in
25 costs. For example, in completing the 2024 IRP filing, GBWC significantly reduced the
26 role of one outside consultant and conducted all rate base and rate impact analysis of
27

1 proposed action plan projects in house. Consolidation would only enhance GBWC's
2 ability to achieve those types of savings.

3

4 ***Operations***

5 As discussed, under a consolidated revenue requirement and uniform rate structure, costs
6 of emergency projects will be spread over a larger number of customers, reducing rate
7 shock. It is important to note that, in resource planning processes, GBWC is sometimes
8 required to defer the timing of beneficial projects out of rate shock considerations. After
9 consolidation, such risks will be greatly mitigated, meaning that GBWC will have greater
10 freedom in managing its resource planning and will be able to complete needed
11 improvements more quickly without resulting harm to its customers (particularly in its
12 smaller divisions). Additionally, more predictable rate case timing leads to better
13 forecasting of future capital needs, which assists GBWC in its ability to access available
14 capital.

15

16 **Q.26 ARE THERE EXAMPLES OF HOW THE BENEFITS OF CONSOLIDATION**
17 **MIGHT EXTEND BEYOND GBWC'S CURRENT CUSTOMERS AND**
18 **OPERATIONS?**

19 A.26 Yes. As discussed, the benefits that accrue to water customers through the "averaging"
20 effect of rate consolidation, and from increased economies of scale, are most pronounced
21 for customers of smaller divisions/water systems/utilities. In this way, uniform rate
22 structures incentivize large utilities to acquire small utilities. In analyzing the benefits and
23 risks for a larger utility to acquire an existing, smaller system, a key consideration for the
24 utilities, customers, and regulators alike is whether and how any necessary capital
25 investments and/or transaction costs might be recovered through rates. Without revenue
26 requirement consolidation and uniform rates, a possible outcome from such a transaction
27 could be the allocation of such costs to the customers of the smaller utility alone, with

28

1 resulting rate shock proportional to the size of the investment needed to bring the smaller
2 system's infrastructure up to acceptable standards. With consolidation, however, the costs
3 of such investments might be shared and diffused among all of the customers of the larger
4 utility. In the long run, the customers of any smaller (possibly distressed) utility could
5 expect to experience significant benefits in service as a result of the economies of scale
6 attributable to larger utilities, including with regard to personnel, purchasing, cost of capital,
7 and a more robust capability to meet environmental and other regulatory requirements.

8
9 GBWC is the largest private water utility in the State of Nevada and is proud to be
10 supported by its parent Nexus, a leading regulated water and wastewater utility serving
11 more than 1.3 million people across 20 U.S. states and 2 Canadian provinces. GBWC
12 believes that full consolidation, as sought in the Application, will yield benefits in allowing
13 GBWC greater flexibility in exploring and structuring potential acquisitions of smaller
14 utilities near GBWC's existing systems that may be experiencing management or financial
15 difficulties, where GBWC would have better access to capital for needed investments and
16 centralized expertise to ensure regulatory and environmental compliance. GBWC submits
17 that this is an additional potential benefit to consolidation that could have the collateral
18 effect of reducing the potential burden on the Commission to impose receiverships over
19 struggling systems or expend resources coordinating acquisitions by alternative water
20 service providers.

21
22 **Q.27 PLEASE SUMMARIZE GBWC'S RATE DESIGN OPTIONS PRESENTED IN**
23 **THIS RATE CASE?**

24 A.27 The following Tables Summarize the water rate design recommended changes.
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Base Service Charges

Base Service Charge	Pahrump, SpringCreek, Spanish Springs					Cold Springs				
	Current	Phase-1	Phase-2	Full Consol.	Standalone	Current	Phase-1	Phase-2	Full Consol.	Standalone
5/8"	18.00	25.00	25.00	25.00	25.00	14.79	18.00	22.00	25.00	25.00
3/4"	18.00	25.00	25.00	25.00	25.00	14.79	18.00	22.00	25.00	25.00
1"	22.51	31.26	31.26	31.26	31.26	22.51	31.26	31.26	31.26	31.26
1.5"	27.01	37.51	37.51	37.51	37.51	27.01	37.51	37.51	37.51	37.51
2"	51.32	71.28	71.28	71.28	71.28	51.32	71.28	71.28	71.28	71.28
3"	87.24	121.17	121.17	121.17	121.17	87.24	121.17	121.17	121.17	121.17
4"	104.69	145.40	145.40	145.40	145.40	104.69	145.40	145.40	145.40	145.40
6"	209.38	290.81	290.81	290.81	290.81	209.38	290.81	290.81	290.81	290.81
8"	323.17	448.85	448.85	448.85	448.85	323.17	448.85	448.85	448.85	448.85
10"	475.25	660.07	660.07	660.07	660.07	475.25	660.07	660.07	660.07	660.07

Base Service Charge	Transmission Irrigation Contract Rate (Pahrump)				
	Current	Phase-1	Phase-2	Full Consol.	Standalone
5/8"	13.19	26.38	26.38	26.38	26.38
3/4"	19.79	39.58	39.58	39.58	39.58
1"	32.98	65.96	65.96	65.96	65.96
1.5"	65.96	131.92	131.92	131.92	131.92
2"	105.54	211.08	211.08	211.08	211.08
3"	211.08	422.16	422.16	422.16	422.16
4"	329.81	659.62	659.62	659.62	659.62
6"	659.61	1,319.22	1,319.22	1,319.22	1,319.22
8"	n/a	1,319.22	1,319.22	1,319.22	1,319.22
10"	n/a	1,319.22	1,319.22	1,319.22	1,319.22

Commodity Charges

Residential						Multi-Residential					
		Pahrump	Spring Creek	Cold Springs	Spanish Springs			Pahrump	Spring Creek	Cold Springs	Spanish Springs
		Tier 1	Current	3.20	4.41			2.43	1.59	Tier 1	Current
	Phase 1	3.68	4.36	3.54	2.85		Phase 1	2.52	2.99	2.47	1.91
	Phase 2	3.70	4.04	3.59	3.28		Phase 2	2.53	2.77	2.51	2.23
	Full Consolidation	3.72	3.72	3.72	3.72		Full Consolidation	2.55	2.55	2.55	2.55
	Sandalone	3.36	5.11	2.50	2.23		Sandalone	3.01	5.11	2.50	2.23
Tier 2	Current	5.38	5.80	3.63	2.38	Tier 2	Current	4.75	5.80	3.63	2.38
	Phase 1	5.04	5.98	4.86	3.90		Phase 1	3.76	4.46	3.69	2.85
	Phase 2	5.07	5.54	4.92	4.50		Phase 2	3.78	4.13	3.74	3.33
	Full Consolidation	5.10	5.10	5.10	5.10		Full Consolidation	3.80	3.80	3.80	3.80
	Sandalone	5.35	6.59	3.74	3.34		Sandalone	4.77	6.59	3.74	3.34
Tier 3	Current	8.18	6.84	4.54	2.98	Tier 3	Current	7.21	6.84	4.54	2.98
	Phase 1	6.35	7.53	6.11	4.91		Phase 1	4.88	5.78	4.67	3.63
	Phase 2	6.38	6.97	6.19	5.66		Phase 2	4.90	5.36	4.80	4.28
	Full Consolidation	6.42	6.42	6.42	6.42		Full Consolidation	4.93	4.93	4.93	4.93
	Sandalone	7.91	7.70	4.68	4.18		Sandalone	7.02	7.70	4.68	4.18

Non-Residential						Irrigation						
		Pahrump	Spring Creek	Cold Springs	Spanish Springs			Pahrump	Spring Creek	Cold Springs	Spanish Springs	
Tier 1	Current	2.24	4.41	2.43	1.59	Tier 1	Current	3.88	4.41	2.43	1.59	
	Phase 1	2.69	3.19	2.59	2.08		Phase 1	4.49	5.32	4.32	3.47	
	Phase 2	2.71	2.96	2.63	2.40		Phase 2	4.51	4.93	4.38	4.00	
	Full Consolidation	2.72	2.72	2.72	2.72		Full Consolidation	4.54	4.54	4.54	4.54	
	Standalone	2.48	5.11	2.50	2.23		Standalone	3.98	5.11	2.50	2.23	
Tier 2	Current	3.86	5.80	3.63	2.38	Tier 2	Current	6.56	5.80	3.63	2.38	
	Phase 1	4.33	5.14	4.17	3.35		Phase 1	5.98	7.10	5.76	4.63	
	Phase 2	4.36	4.76	4.23	3.87		Phase 2	6.02	6.57	5.84	5.34	
	Full Consolidation	4.38	4.38	4.38	4.38		Full Consolidation	6.05	6.05	6.05	6.05	
	Standalone	3.96	6.59	3.74	3.34		Standalone	6.43	6.59	3.74	3.34	
Tier 3	Current	5.84	6.84	4.54	2.98	Tier 3	Current	10.00	6.84	4.54	2.98	
	Phase 1	6.06	7.19	5.84	4.69		Phase 1	7.46	8.85	7.19	5.78	
	Phase 2	6.10	6.66	5.92	5.41		Phase 2	7.51	8.20	7.29	6.66	
	Full Consolidation	6.13	6.13	6.13	6.13		Full Consolidation	7.55	7.55	7.55	7.55	
	Standalone	5.77	7.70	4.68	4.18		Standalone	9.57	7.70	4.68	4.18	
Transmission Irrigation Rate (Pahrump)												
		Pahrump	Spring Creek	Cold Springs	Spanish Springs							
All Usage	Current	0.43	n/a	n/a	n/a							
	Phase 1	1.01	n/a	n/a	n/a							
	Phase 2	1.01	n/a	n/a	n/a							
	Full Consolidation	1.02	n/a	n/a	n/a							
	Standalone	1.02	n/a	n/a	n/a							

The following tables summarize the sewer rate design recommended changes excluding the correctional facility in Pahrump.

	Meter Size	Pahrump			Spring Creek		
		Current	Full Consolidation	Standalone	Current	Full Consolidation	Standalone
Residential	5/8"	\$56.61	\$60.00	\$61.06	\$50.00	\$60.00	\$56.74
	3/4"	\$56.61	\$60.00	\$61.06	\$50.00	\$60.00	\$56.74
	1"	\$56.61	\$60.00	\$61.06	\$50.00	\$60.00	\$56.74
	1.5"	\$344.92	\$60.00	\$372.05	\$50.00	\$60.00	\$56.74
	2"	\$498.11	\$480.00	\$537.28	\$50.00	\$480.00	\$56.74
	3"	\$1,307.42	\$1,200.00	\$1,410.24	\$50.00	\$1,200.00	\$56.74
	4"	\$1,869.34	\$1,800.00	\$2,016.35	\$50.00	\$1,800.00	\$56.74
	6"	\$2,353.08	\$2,400.00	\$2,538.14	\$50.00	\$2,400.00	\$56.74
Non-Residential	8"	\$3,419.29	\$3,300.00	\$3,688.20	\$50.00	\$3,300.00	\$56.74
	5/8"	\$56.61	\$67.67	\$61.06	\$86.00	\$67.67	\$97.59
	3/4"	\$56.61	\$67.67	\$61.06	\$86.00	\$67.67	\$97.59
	1"	\$56.61	\$67.67	\$61.06	\$145.00	\$67.67	\$164.54
	1.5"	\$344.92	\$406.02	\$372.05	\$240.00	\$406.02	\$272.34
	2"	\$498.11	\$541.37	\$537.28	\$400.00	\$541.37	\$453.89
	3"	\$1,307.42	\$1,353.41	\$1,410.24	\$900.00	\$1,353.41	\$1,021.26
	4"	\$1,869.34	\$2,030.12	\$2,016.35	N/A	\$2,030.12	\$2,927.61
6"	\$2,353.08	\$2,706.83	\$2,538.14	N/A	\$2,706.83	\$3,903.48	
8"	\$3,419.29	\$3,721.89	\$3,688.20	N/A	\$3,721.89	\$5,367.29	

The correctional facility in Pahrump will still be charged on a per bed basis. The current rate per bed is \$24.63. Under full consolidation the rate would increase to \$29.44 (vs \$26.57 under standalone rates). Please note that GBWC is not requesting a phase in of sewer rate consolidation. GBWC believes that an immediate consolidation is appropriate at this time.

Q.28 PLEASE DESCRIBE GBWC’S PROPOSED CHANGES TO THE WATER USAGE TIERS.

A.28 All customers with the exception of the Transmission Irrigation customer class are on a 3-tier rate structure. Under the full and partial consolidation option the tier break-points will be as follows.

	Breakpoint 1	Breakpoint 2
Residential (All sizes)	5,000	30,000
Multi-Residential (All sizes)	5,000	30,000
Non-Residential (4” or less)	5,000	30,000
Non-Residential (6” or more)	5,000	2,000,000

Irrigation (4" or less)	5,000	100,000
Irrigation (6" or more)	5,000	2,000,000

Q.29 WHAT WILL 5,000 GALLONS OF WATER COST IN EACH DIVISION FOR A RESIDENTIAL ¾" CUSTOMER?

A.29 The following table contains the total monthly bill for 5,000 gallons of usage.

		Pahrump	Spring Creek	Cold Springs	Spanish Springs
Cost of 5,000 gallons	Current	34.00	40.05	26.94	25.95
	Phase 1	43.40	46.80	35.70	39.25
	Phase 2	43.50	45.20	39.95	41.40
	Full Consolidation	43.60	43.60	43.60	43.60
	Standalone	41.80	50.55	37.50	36.15

Q.30 DOES RATE CONSOLIDATION AS PROPOSED IN THIS RATE CASE SHIFT REVENUES FROM ONE DIVISION TO ANOTHER?

A.30 Yes, that is an inherent component of all rate consolidation. As I've described, rate consolidation is essentially an averaging process. GBWC divisions that have a higher cost of service today per gallon sold, will have some of that cost shifted to divisions that have a lower cost of service per gallon sold. Through the incremental phasing-in of rates, we will gradually reach a true average over the course of a three (3) year period, thus reducing, to the furthest extent possible, rate shock.

As the rate design is proposed in the Application, the customers in GBWC's Spanish Springs division would see the largest near-term rate increases attributable to consolidation, in large part due to the current very high average water usage for those customers. However, as has been described, customers in Spanish Springs, like customers in all of

1 GBWC’s other divisions, can expect to realize the long-term benefits of consolidation in
2 the future, including the smoothing and mitigation of rate impacts from capital investment
3 that may be required for their water system in the future, which otherwise would have
4 resulted in more dramatic acute rate increases for that relatively small system.
5

6 **Q.31 PLEASE DESCRIBE THE AVERAGE WATER USAGE FIGURES FOR SPANISH**
7 **SPRINGS RESIDENTIAL CUSTOMERS.**

8 A.31 For context, it should be remembered that the consumption tier break points for residential
9 customers were synchronized across all four (4) divisions in the last rate case. GBWC is
10 not recommending any change to the tier break points for residential customers.
11

12 Currently, it is estimated that a Spanish Springs residential customer will use an average
13 of nearly 23,000 gallons a month. 33%⁴ of that consumption will fall into Tier 3. That is
14 by far the highest Tier 3 usage of any GBWC division.
15

16 **Q.32 WHY IS WATER CONSERVATION ESPECIALLY IMPORTANT IN SPANISH**
17 **SPRINGS?**

18 A.32 Due to high summer demand, water use by Spanish Springs residential customers puts
19 enormous pressure (and resulting wear-and-tear) on the two (2) wells that service that
20 system. As explained in more detail later in my testimony, GBWC conducted a
21 groundwater exploration program over the past several years in Spanish Springs but was
22 not able to locate a suitable location for a new well. As a result, based on present
23 circumstances, the two wells that are available today must be maintained and be sustained
24 for future consumption needs. Reducing water usage is an important component to
25

26
27 ⁴ 7,675 Tier 3 Gallons divided by 22,983 total gallons.
28

1 preserving the water resource and infrastructure, while meeting the objective of safe,
2 reliable and affordable water service.

3
4 **Q.33 WHAT EFFECTS DOES GBWC PREDICT RATE CONSOLIDATION WILL**
5 **HAVE IN THE NEAR- AND SHORT TERM FOR SPANISH SPRINGS,**
6 **SPECIFICALLY?**

7 A.33 For one, GBWC expects that the near-term rate increases anticipated for Spanish Springs,
8 which are themselves attributable in part to those customers' high average water usage
9 relative to other divisions, will exert downward pressure on usage and assist GBWC in its
10 goal of conserving water and well assets. It has been GBWC's past experiences that the
11 cost of water is an important component to water conservation in our systems. GBWC
12 expects customers will respond to the anticipated rate increases by reducing their monthly
13 usage, and their bills. It is expected that consolidation will have other impacts on this
14 dynamic. Because decoupling will be calculated state-wide, the expected growth in
15 Pahrump may help offset any decoupling sur-charge that could come to Spanish Springs
16 customers as a result of their reduction in usage. Again, consolidation is at its core a
17 dispassionate averaging process. The rate increases that would be produced for Spanish
18 Springs would not be unduly discriminatory toward Spanish Springs customers but would
19 simply be reflective of the shift from their present isolation as a standalone revenue
20 requirement, with a relative small customer base and relatively high consumption figures,
21 to full consolidation and sharing of costs and expenses with GBWC's other customers
22 through uniform rates.

23
24 Thus, while GBWC fully recognizes that Spanish Springs customers may experience some
25 degree of "rate shock" in the near term from consolidation, and has made all feasible efforts
26 to address and minimize that risk through the phase-in approach and rate design proposed
27 in this Application, we believe that some near-term impacts are unavoidable and that, in
28

1 fact, the increases are an important aspect of managing the Spanish Springs system in the
2 long term.

3
4 It is also relevant and important that, in the Company's 2024 IRP proceeding, the
5 Commission has granted prudence determinations to complete three (3) new capital
6 projects for the Spanish Springs system over the coming three (3) years. Those projects
7 are:

- 8 1. Rehab of Suki Well – Estimated Cost of \$0.6M
- 9 2. AMI Meter Replacement – Estimated Cost of \$0.3M
- 10 3. Reconditioning of a Tank – Estimated Cost of \$0.5M

11 The total investment approved is \$1.4M, which is approximately \$2,400 per customer,
12 which would be the highest per customer investment planned for any of GBWC's divisions.
13 This demonstrates the anticipated long-term benefits of consolidation for Spanish Springs.
14 As a result of the phase-in and completion of full consolidation within the next three years,
15 Spanish Springs customers can expect a much-reduced risk of rate shock coming out of
16 GBWC's anticipated 2027 Consolidated Rate Case, where the anticipated rate increases
17 from the costs of those planned capital improvements would be shared among all of
18 GBWC's consolidated customer base.

19
20 **Q.34 WOULD GBWC'S PROPOSAL ALSO INVOLVE A SHIFT OF REVENUE**
21 **REQUIREMENT TO THE COLD SPRINGS DIVISION?**

22 A.34 Yes. As stated, a shift in revenue requirement among groups of customers is a natural
23 consequence of the averaging process inherent in consolidation of systems with existing
24 disparate costs of service relative to volumetric consumption. However, rate consolidation
25 offers the substantial (and longer-term) benefit in the additional level of protection from
26 future rate shock as a result of, i.e., an expensive well replacement. In Cold Springs
27 specifically, wells in use for that division are reaching end of life and can no longer be

1 rehabilitated. If a well in Cold Springs fails it will need to be re-drilled, requiring
2 significant investment over and above what is already being planned for the two approved
3 tank projects (totaling \$1.8M) deemed prudent in the Company's 2024 IRP. As a result of
4 the consolidation planned to be completed within the next three years, Cold Springs
5 customers can expect to experience less long-term rate shock attributable to those needed
6 investments in the long term, notwithstanding any near-term rate increases they might
7 experience as a result of the process.

8
9 **Q.35 WHAT IS GBWC'S COMMUNICATION STRATEGY REGARDING RATE**
10 **CONSOLIDATION?**

11 A.35 GBWC plans to employ a multi-prong approach with regard to rate consolidation:

- 12 1. Direct Communication with large customers. For example, GBWC has already had
13 preliminary discussions with the Spring Creek Association regarding the planned
14 consolidation and potential impacts.
- 15 2. Bill inserts and email communication to individual customers, following the planned
16 Certification filing, explaining the proposed changes, the phase-in and providing
17 relevant rate impacts. The communication will be tailored to each division.
- 18 3. If consolidation is approved, a bill insert will be provided with the first bill explaining
19 the rate consolidation.
- 20 4. Bill inserts will also be provided with each new phase-in change in rates.
- 21 5. GBWC's website will be updated and "news" articles available to inform customers of
22 upcoming changes in rates.

23
24 **GBWC Organization and Operations Staff**

25
26 **Q.36 PLEASE PROVIDE A GENERAL DESCRIPTION OF GBWC'S**
27 **ORGANIZATIONAL STRUCTURE.**

1 A.36 GBWC-PD and GBWC-SCD operate water and wastewater systems within their service
2 territories, while GBWC-SSD and GBWC-CSD only operate water systems. The water
3 and wastewater systems are owned by GBWC, which is directly owned and controlled by
4 Nexus Regulated Utilities (U.S.) Inc. (formerly known as Corix Regulated Utilities (US),
5 Inc.)) The ultimate parent company of GBWC is Nexus Water Group, Inc. (“Nexus”).
6 Local operations personnel, area managers, support staff, project managers, compliance
7 manager, and finance personnel located in Pahrump, Spring Creek, and Reno, NV, and
8 Chicago, IL (one employee) support these systems. Individuals employed by Water
9 Service Corporation (“WSC”) and Nexus provide Corporate Support Services to GBWC
10 utilities. This consolidated service organization is referred to as the Corporate Support
11 Services team. The President is in Reno while the Water Conservation Coordinator for
12 GBWC is in Pahrump. Volume I, Section 1.2.1 of the 2024 IRP provides a more detailed
13 description of the structure and organization of GBWC.
14

15 **Q.37 PLEASE DESCRIBE WHAT THE ROLE AND RESPONSIBILITIES ARE OF A**
16 **GBWC AREA MANAGER?**

17 A.37 A GBWC Area Manager (“AM”) oversees the safety, operation, and maintenance of water
18 and wastewater systems in specific geographic locations or areas served by GBWC. The
19 Area Manager provides guidance, oversight, and leadership to help ensure that the GBWC
20 water and wastewater systems remain in good operating condition. To achieve system
21 compliance, GBWC Operations Teams, including Area Managers, and the Nexus HSE
22 Department, have adopted and followed annually scheduled safety inspections and
23 maintenance programs to meet all state and federal guidelines to provide service. In
24 addition to maintaining system safety and compliance, GBWC Area Managers are
25 responsible for hiring new operational staff (“Field Techs, Operators, Lead Operators, and
26 Operations Support”), training new employees, and employee safety.
27
28

1 **Q.38 PLEASE DESCRIBE WHAT THE GBWC AREA MANAGER MAY DO ON A**
2 **DAILY BASIS OR THROUGHOUT THE COURSE OF YEAR?**

3 A.38 *Emergencies*

4 A GBWC Area Manager and/or their team must respond to all water and wastewater
5 emergencies, such as breaks, spills or equipment failures. These situations may include
6 coordinating with staff and contractors to repair, fix, or replace infrastructure and sending
7 out notifications to inform customers and governmental agencies of a service disruption.

8
9 *Planning*

10 A GBWC Area Manager helps develop or contributes to the strategic plans for water and
11 wastewater systems, such as the Integrated Resource Plan, Emergency Response Plan,
12 Emergency Action Plan, Water Conservation Plan, Annual Budget, and the Maintenance
13 Guidelines' implementation strategy for their area.

14
15 *Compliance*

16 A GBWC Area Manager oversees when required the daily, weekly, monthly, quarterly, or
17 annual sampling and testing of water and wastewater systems. The Area Manager must
18 ensure water and wastewater quality consistently meets Federal, State, and Local laws. All
19 water and wastewater treatment sampling and testing follow specified environmental
20 protection regulations.

21
22 *Operation and Maintenance*

23 A GBWC Area Manager oversees water and wastewater systems field activities and work
24 orders daily. These tasks include working with operational staff to perform maintenance
25 items described above in testimony (“valve turning, fire hydrant inspections, collection line
26 cleanings, etc.”) and working with GBWC Staff or developers and contractors to manage,

27
28

1 design and construct new facilities or infrastructure, which may be part of a planned capital
2 project or new third-party construction project.

3
4 ***Purchasing and Vendor Management***

5 Area Managers are responsible for sourcing equipment, materials, and vendors for day-to-
6 day operations of their systems. Area Managers must also understand the financial system
7 to make sure items are coded and recognized properly on both the balance sheet and
8 income statement of the company.

9
10 **Q.39 HOW IMPORTANT IS THE AREA MANAGER ROLE TO THE SUCCESSFUL**
11 **SERVICE OF WATER AND WASTEWATER TO OUR CUSTOMERS?**

12 A.39 One could argue this is the most crucial role in the organization – it’s where the “rubber
13 hits the road” – what I mean by that is an AM takes the strategic direction from the State
14 Director / President and makes and directs his team to execute on that direction. An AM
15 must navigate between the office and field, between customers and contractors, field
16 employees and management, and keep service going 24/7.

17
18 **SECTION 2 – CAPITAL PROJECTS**

19 **GBWC Project Process and 2024 IRP:**

20 **Q.40 WHAT IS THE CAPITAL PROJECTS REVIEW TEAM (“CPRT”)?**

21 A.40 All large and complex IRP capital projects (twenty-one (21)) presented in this filing were
22 reviewed and approved through parent-company level administrative processes by the
23 legacy Corix CPRT.⁵ The CPRT process during the relevant period consisted of a group

24
25 ⁵ This testimony describes the legacy Corix CPRT process in place prior to the merger of
26 involving GBWC’s parent Corix and SouthWest Water Company, which was the process utilized in relation to the
27 majority of the capital projects (twenty-one (21) of thirty (30)) presented herein. For more information regarding the
28 Company’s resource planning processes post-merger, please see the Company’s most recent 2024 Consolidated IRP
filing (Docket No. 24-03002).

1 of Corix employees throughout the company, including operations managers, engineers,
2 and financial staff, who reviewed certain capital projects before approving the construction
3 or purchase of a plant. The team's purpose was to collaborate on areas of expertise and
4 experience to find the best capital project solution for a given situation. New methodologies,
5 vendors, and solutions were vetted with the team's broad expertise. This process also
6 functioned as a gatekeeper to ensure best business practices are followed prior to opening
7 a project, such as bidding practices. A single capital project may have gone before the
8 CPRT more than once to ensure best practices are followed and the best solution is being
9 implemented. Many projects are also phased projects. For instance, a project may go
10 before the CPRT at the conceptual stage or IRP stage, the engineering stage, the equipment-
11 ordering stage, and the construction stage depending on the complexity and nature of the
12 project. Typically, emergency or compliance projects (nine (9) presented in this
13 application) are not required to go through the full CPRT process, due to timing of service
14 needs, regulatory compliance requirements, preestablished asset management guidelines
15 or relative size or duration of the projects.

16
17 **Q.41 HOW DID GBWC APPROACH DEVELOPING THE GBWC 2024 IRP?**

18 A.41 In the GBWC 2024 Consolidated IRP filing, GBWC selected and used one (1) engineering
19 firm, Lumos and Associates, who was familiar with the GBWC systems to develop the
20 IRP. GBWC submitted RFPs to four (4) engineering firms, two (2) of which had
21 familiarity with GBWC's Pahrump, Spring Creek, Cold Springs, and Spanish Springs
22 systems, and two (2) of which were not as familiar with GBWC's systems. In addition,
23 one (1) of the firms solicited had developed and submitted past IRPs or annexation
24 documents to the Commission.

25
26 **Q.42 DID THE UTILITY SOLICIT AN ENGINEERING PROPOSAL FOR THIS**
27 **PROJECT? IF NOT, WHY NOT?**

1 A.42 Yes, there were four (4) bids solicited for the project.

- 2 • Golder (WSP) Engineering
- 3 • Kimley-Horn
- 4 • Lumos & Associates
- 5 • Black & Veatch

6 Two (2) submitted proposals, one (1) declined and one (1) did not respond. Lumos and
7 Kimley-Horn provided proposals, Golder declined to submit a proposal and Black &
8 Veatch did not respond.

9

10 **Q.43 DID THE UTILITY SELECT THE LOWEST ENGINEERING PROPOSAL FOR**
11 **THIS PROJECT? IF NOT, WHY NOT?**

12 A.43 No, Kimley-Horn submitted the lowest proposal, but Lumos and Kimley-Horn’s proposals
13 were within six thousand dollars apart of one another. After an intensive internal bid
14 review process, GBWC decided to contract the IRP to Lumos and Associates, due to their
15 extensive knowledge of the systems and previous GBWC IRP submittals and Kimley-
16 Horns limited experience with GBWC systems and the IRP development and submittal
17 process. For further information regarding the costs associated with the GBWC 2024
18 Consolidated IRP Engineering Proposals, please *see* Dataroom, Eason Testimony, folder
19 entitled, “GBWC 2024 IRP RFP BID Contracts”.

20

21 **Q.44 WHAT SIGNIFICANT PRACTICAL CONSIDERATIONS DID GBWC TAKE**
22 **INTO ACCOUNT IN DEVELOPING THE GBWC 2024 IRP?**

23 A.44 GBWC’s Asset Management Plan (“AMP”) approach or process has been employed in
24 each Division since the introduction of the AMP process in December 2013 to the GBWC-
25 SCD system. The AMP approach or process is continually evolving, as demonstrated in
26 each of the GBWC Divisions’ implementation/utilization of the recently adopted remove
27 and replaced (“R&R”) process in 2022 and 2023. By now using the R&R process, GBWC

28

continues to develop the necessary tools to better understand its assets, implement monitoring programs, and refine established maintenance protocols, which will help to determine how much useful life remains in each of the assets.

Q.45 HOW DOES GBWC’S AMP HELP THE UTILITY MAINTAIN ITS ASSETS?

A.45 To maximize the useful lives and functionality of our assets, GBWC follows a set of internal preventative maintenance guidelines, and our newly adopted R&R process, which identifies timing of assets end of useful life. These guidelines help to ensure the GBWC systems remain in good operating condition. In turn, GBWC has adopted and continues annually scheduled inspections and maintenance programs to meet all state and federal guidelines to deliver safe and reliable drinking water. Scheduled Inspections and Maintenance Programs of capital assets are shown below in the Table 1, followed by a detailed description of the inspections.

Table 1

Type of Equipment	Maintenance Program	Comments
Facility and Electrical Insp.	Annually	Conducted by GBWC staff and/or qualified third-party contractors or vendors.
Towers / GSTs	Internal and external inspection at 5-year intervals	Conducted by GBWC staff and/or qualified third-party contractors or vendors. All GSTs are inspected in accordance with guidelines. Towers are inspected on 5-year intervals as required.
Hydrant Inspection Hydrant Painting	Exercise annually Hydrants are painted as needed	Conducted by GBWC staff and/or qualified third-party contractors or vendors. Annual letters are sent to local Fire Departments, identifying flows. Foot valves exercised annually. Repairs are made immediately as identified by GBWC or local Fire Departments.
Water Distribution Valves	Exercised annually	Conducted by GBWC staff Initiated marking valves in the field with blue paint and GIS.
Hydro-pneumatic tanks	All Hydro tanks are at different time periods of the inspection process but are all up to date.	GBWC staff and/or qualified third-party contractors or vendors. Internal and external inspections on all tanks – every 5 years
Sewage Collection System	10% of collections lines per year are cleaned with 100% inspected and cleaned within 10 years	GBWC staff and/or qualified third-party contractors or vendors. 100% will be inspected and cleaned every ten years. Videoining to accompany the

		Inspection and Cleaning. Pahrump and Spring Creek only.
Lift Stations	Annual inspection and cleaning per checklist	GBWC staff and/or qualified third-party contractors or vendors. Inspection performed by outside contractors to do annual electrical and pump condition assessments. Pahrump and Spring Creek only.
Fats, Oils and Grease (FOG) Insp.	Annual inspection of facilities	Inspection performed by GBWC staff. Pahrump and Spring Creek only.
Backflow Prevention	Annual inspection of devices	GBWC staff and/or qualified third-party contractors or vendors. All internal inspections conducted annually and documented. Cross Connection Control plan for commercial customers has been established in accordance with NDEP requirements, all customers have been notified of the requirements.
Wells and Intake Pump Equipment	Annual inspection (including control panel inspections & amp draws, etc. by cert. electrician).	Conducted by GBWC staff and/or qualified third-party contractors or vendors. Sanitary Surveys conducted by State Regulators (3-5 years).
Water main Replacement	Based on break frequency, pressure problems, customer complaints	Incorporated in proposed projects in the IRP Action Plan. Presently. Asset Registry info is used to assist in identifying needs...
Wastewater/Manholes Water/Confined Space	Receiving manholes, receiving Flow from Force Mains = annual inspection No-receiving manholes, 10% per year Are cleaned with 100% inspected, video and cleaned within 10 years	Conducted by GBWC staff and/or qualified third-party contractors or vendors. Receiving manholes Pahrump and Spring Creek only. Non-receiving manholes Pahrump and Spring Creek only.
PRVs	Annually	Conducted by GBWC staff and/or qualified third-party contractors or vendors.
Air Release Valves	Annually	Conducted by GBWC staff.
Chemical feed systems and tanks	Chemical feed equipment is visually inspected for leaks and proper operation at each visit and as part of annual facility inspections. Items are repaired or replaced as needed	Conducted by GBWC staff. During weekly and annual well checks and inspections.
Standby Generators	Annually	Conducted by GBWC staff and/or qualified third-party contractors or vendors.
NDEP Facility Insp	Triennial	Conducted by NDEP staff and GBWC Staff

Q.46 CAN YOU PROVIDE ADDITIONAL INFORMATION ABOUT GBWC'S ASSET INSPECTION PROCESS?

A.46 Yes, below I provide detailed descriptions of the Utility's asset inspection processes for the various categories of assets in the systems.

Facility and Electrical Inspections – All GBWC Facility and Electrical Inspections are conducted annually by GBWC staff and/or qualified third-party contractors or vendors to

1 ensure the safety and continued reliability of the GBWC systems. These inspections may
2 also include the Chemical feed systems, SCADA, and tanks (Hydro-pneumatic) depending
3 on the sites and asset configuration.
4

5 **Ground Storage Tank Inspection** – The American Water Works Association has
6 established recommended procedures for the inspection of water storage tanks. These
7 recommendations state that tanks should be inspected every three to five years, depending
8 on water quality. GBWC schedules to have third-party inspections done typically every
9 five years or more frequently as required. This inspection consists of a visual inspection of
10 both the interior and exterior of the tanks by qualified tank inspection specialists. The
11 internal inspections can be done by draining the tanks and performing the inspection with
12 the tank empty. The tank can also be left in service, and the inspection performed using
13 divers, or robotic equipment. The inspections include a physical inspection which is
14 supported by video documentation and a written report. In addition, some inspections can
15 include ultrasonic tank measurements, if requested by the system operator. Ultrasonic tank
16 measurements of the steel thickness are performed using handheld equipment at
17 preselected locations throughout the tank. The measurements are then subjected to analysis
18 by a structural steel engineer to determine the overall integrity of the steel. The engineer
19 will then make recommendations as to the repair or replacement of the defective sections.
20 The inspection process also includes the removal of any sediment found in the tanks. The
21 benefit derived from this activity is mainly for to us to see the overall condition of the tanks
22 and to allow for us to correct any deficiencies noted in the inspection. The last inspections
23 for all GBWC tanks were done through the 2021-2023 period.
24

25 **Hydrants** – Generally, there are two types of hydrants GBWC’s distribution systems. First,
26 flushing fire hydrants, which are two to four inches in diameter and are used for scheduled
27 flushing/cleaning of the water distribution system and are usually located in cul-de-sacs
28

1 and dead-end sections of the system. Second, traditional fire hydrants that are six inches
2 in diameter and used for fire protection. GBWC is currently responsible for the
3 maintenance of all fire hydrants in the GBWC systems, except for private hydrants owned
4 by customers. The hydrants are color coded per the direction of local County Fire District
5 to provide a visual pressure reference to the fire protection staff. The inspection also
6 identifies which hydrants need repairing or replacement and all the repair or replacement
7 work is done in coordination with the local County Fire District and this work is completed
8 at GBWC expense.

9
10 **Water Distribution System Valves** – GBWC’s process for exercising valves in the water
11 distribution system is to exercise valves on an annual or triennial basis, depending on their
12 classification as either critical or non-critical. The critical valves identified have been
13 determined to be essential to controlling pressure zones in the 4 different divisions are
14 exercised annually. The non-critical valves identified are also located in the six different
15 systems and are on a 3-year rotating schedule.

16
17 **Hydro-pneumatic Tanks** – Hydro-pneumatic tanks provide pressure to elevated areas of
18 the distribution system that cannot be served by the conventional storage tanks. Industry
19 recommendations are that the tanks be inspected every five years by qualified specialists
20 to determine overall tank integrity. The GBWC-PD system is the only system which
21 currently has any operating hydro-pneumatic tanks in service.

22
23 **Sewage Collection System** – The sewage collection system is cleaned and inspected on a
24 ten-year cycle. The cleaning process utilizes a hose that is inserted into the pipe and features
25 a high-pressure wash. Debris is removed at the next downstream manhole. Inspection
26 procedures include visual inspection of all manholes, visual inspection of the pipeline
27 interior using a camera, and in some instances a smoke testing procedure can be utilized,

1 though it has not been used throughout the GBWC wastewater systems in Pahrump and
2 Spring Creek. The benefits of these processes are the early detection of possible leaks and
3 identification of areas that may need repair. Inspections also help to minimize or help to
4 identify the impact of ground and storm water intrusion which can impact the treatment
5 process at the plant.

6
7 **Lift Stations** – Sewage pump stations, commonly referred to as ‘lift’ stations are on a
8 monthly cleaning, and an annual inspection cycle. Cleaning consists of spraying down the
9 sides of the sump to control buildup of fats and grease that will accumulate and possibly
10 interfere with normal operations. During the inspection, all components of the station are
11 inspected by a qualified electrician. The inspection includes all electric components and
12 functions, pumping equipment operation, and visual inspection of the sump and discharge
13 piping. Operations staff will also periodically inspect the interior of the station to ensure
14 that all components are operating properly. This maintenance activity will ensure
15 consistent operation and extend the life of the equipment. If it is identified during the
16 inspection that additional repair or replacement of pumping equipment is necessary, a third
17 party will be contacted to perform that work.

18
19 **Fats, Oils and Grease (“FOG”) Inspections** – The GBWC FOG Program is vital to
20 controlling the accumulation of FOG in the GBWC sewage collection system. This is
21 accomplished by GBWC field and operations staff conducting annual inspections of all
22 commercial accounts that generate grease. Those accounts include restaurants, bakeries,
23 gas stations/minimarts, car washes, auto repair shops, etc. The FOG Maintenance Program
24 and inspection activity helps ensure consistent operation of the sewage collection system,
25 improves the treatment processes at the plant, and will extend the life of the equipment.

26
27 **Backflow Preventers** – Backflow preventers are installed at the following locations: water
28

1 treatment plants, sewage treatment plants, fire service lines, irrigation lines, commercial
2 and industrial properties, and at any other facilities when warranted by Nevada statutes or
3 regulations. These devices prevent any water used from flowing back into the water
4 distribution system. The backflow devices which are owned by the Utility and are on an
5 annual inspection cycle and conducted annually by GBWC staff and/or qualified third-
6 party contractors or vendors to ensure the safety and continued reliability of the GBWC
7 systems. Backflow devices which are owned by the customer are also on an annual
8 inspection cycle as required by the Nevada Revised Statutes (“NRS”). GBWC has an
9 approved Cross Connection Control Plan on file with the State.

10
11 **Wells and Intake Pumps** – GBWC has established procedures for the inspection and
12 cleaning of groundwater wells in all the GBWC systems. GBWC will inspect and clean
13 groundwater wells and pumps every five to ten years depending on well production and
14 water quality. In addition, these inspections may also include the Chemical feed systems,
15 SCADA and tanks (Hydro-pneumatic) depending on the sites and asset configuration. The
16 GBWC’s well maintenance program and plan were initially started in the 2015 Spring
17 Creek IRP and the 2016 Cold Springs IRP proceedings and was then presented in the
18 GBWC 2018 and 2021 Resource Plans. GBWC at this time is only recommending one
19 well rehabilitation (Suki Well in Spanish Springs) in the 2024 Consolidated IRP. With the
20 support, guidance, and approval of the Commission, GBWC has been able to establish a
21 robust and efficient well rehabilitation and maintenance program to maintain a sustainable
22 level of service in our respective systems for the past nine years. The Well Rehabilitation
23 program or projects previously approved by the Commission have allowed GBWC to
24 maintain existing critical infrastructure, plan for the future replacement of critical
25 infrastructure and explore new technologies to extend the useful life of the critical
26 infrastructure. Of all the scheduled inspection and maintenance programs conducted or
27 performed by GBWC. The Well and Intake Pumps (Well Rehabilitation Program)

1 inspection program ranks as one of the most critical to the GBWC systems. Because of the
2 need to meet the quality and quantity requirements of providing safe and reliable drinking
3 water to our customers without critical system disruptions.
4

5 **Watermain Replacement** – The waterlines in the water distribution system are scheduled
6 for replacement on an as-needed basis or as approved in an IRP. The watermain
7 replacement projects are generally included in the Triennial IRP and are recommended for
8 replacement based on the following factors: age of the pipe, the overall condition of the
9 pipe, the material composition of the pipe, the size of the pipe, system pressures, the
10 number of repairs to the section of the pipe, and how critical the section of pipe is to the
11 system functioning properly. Previous Pipeline Replacement Projects have been approved
12 by the Commission for various GBWC systems in the 2018 and 2021 IRP proceedings.
13 Since the 2021 IRP, GBWC has been tracking all main line and service break information
14 in the EAM/GIS system, which then can be provided to the GBWC engineer who will be
15 conducting the next IRP or Pipe Replacement Projects. Historically, break information was
16 tracked in an excel file and was then presented to an engineer to build a matrix for
17 recommending which sections of watermain should be replaced.
18

19 **Manholes** – In the water distribution and sewage collection system, manholes are inspected
20 in conjunction with the confined space inspection program and the annual or monthly
21 scheduled cleaning operations. Manholes which are receiving sewage from a force main,
22 are on an annual inspection and a monthly cleaning cycle. GBWC believes that inspection
23 of manholes helps to identify deterioration that may lead to an increase in ground water
24 and storm water intrusion, which can cause the following problems: safety hazards, system
25 problems such as backups to the sewer treatment plant and limited to control valves.
26

27 **Pressure Regulating Valves (“PRVs”)** – PRVs automatically adjust the pressure in the
28

1 distribution system to prevent high pressure in the lower areas of the system. The PRV
2 devices are inspected annually by a qualified third party, which specialize in this work, or
3 done internally by a qualified operator. During the inspection, the technician checks all
4 operations of the valve, and will also replace wearable parts, such as springs, diaphragms,
5 and needle valves. This inspection and service assures the operators that the device is
6 working properly and will adjust automatically as needed to regulate the pressure in the
7 GBWC systems.

8
9 **Air Release Valves** – Air Release Valves are devices which automatically release any
10 buildup of air in the distribution system. The air comes from water mixing with air
11 (entrained air) during the pumping of groundwater or the normal release of oxygen from
12 the water in the distribution system. These devices are on an annual inspection cycle, which
13 assures GBWC that the devices are in good working order, minimizing both customer
14 complaints and possible damage to pipe and equipment due to the effects of water hammer.
15 The annual inspection is usually conducted in-house by GBWC staff.

16
17 **Standby Generators** – The standby generators in the GBWC-SCD system ensure the
18 redundancy of backup power when commercial power disruptions occur in the GBWC
19 system. The groundwater wells’ standby generators have annual electrical inspections and
20 maintenance inspections conducted by qualified third parties. Currently, GBWC has
21 standby generators serving all the ground water wells or booster stations located in the
22 systems.

23
24 **Nevada Division of Environmental Protection (“NDEP”)** – NDEP conducts a triennial
25 sanitary survey/inspection of all of the GBWC systems except for Cold Springs and
26 Spanish Springs (where inspections are performed by the local health district). GBWC field
27 staff and operators review and inspect the physical facilities used to operate the GBWC
28

1 systems with NDEP. NDEP will review any new installations of physical facilities or
2 capital assets added since the previous sanitary survey and inspect existing GBWC
3 facilities for NDEP compliance. Any changes or recommendations cited by the NDEP
4 during sanitary surveys are addressed promptly by GBWC staff or qualified third-party
5 contractors as appropriate.

6
7 By implementing the asset management framework, GBWC aims to take a proactive
8 approach instead of a reactive approach toward asset failure. The integrated portion of the
9 IRP's asset management plan has identified several areas which should be addressed to
10 mitigate risk, minimize costs, and maximize service reliability. GBWC staff believes the
11 best defense against emergencies is to avoid them through routine inspections, routine
12 equipment maintenance, comprehensive sampling plans, security checks, usage checks,
13 and communication. In the event of emergencies such as a natural disaster or a man-made
14 event, the best response to a catastrophic interruption of service is to be prepared. Staff is
15 trained for emergency response in OSHA safety, Electrical Safety, Lock Out / Tag Out,
16 Generator Operation, and recognizing chemicals in an uncontrolled environment.

17
18 **Consolidated Capital Projects:**

19
20 **Q.47 WHAT CAPITAL IMPROVEMENT PROJECTS IS GBWC PRESENTING FOR**
21 **RECOVERY IN THIS RATE CASE?**

22 A.47 Through this Application GBWC is seeking to recover for capital expenditures in
23 connection with thirty (30) projects, listed below, which were placed in service across the
24 four (4) GBWC divisions. I am providing testimony regarding the details of twenty-one
25 (21) of these projects. Details regarding the remaining nine (9) projects are being provided
26 in the Prepared Direct Testimony of Sean Ashcraft.

James Eason's Testimony								
Total Projects	Project Name	Project ID	Testimony	System	Recovery	Project Type	IRP Approved	Infra:
1	PD Rehabilitation Calvada North Well 1	2022127	Eason	PD	Regular	Planned	2021	Water
2	PD Rehabilitation Well 12 Emergency	2022282	Eason	PD	Regular	Emergency	N	Water
3	PD Rehabilitation Well 2 of 3 – CVE 48-2	2022107	Eason	PD	Regular	Planned	2021	Water
4	PD Rehabilitation Well 12 Emergency #2	2024177	Eason	PD	Regular	Emergency	N	Water
5	PD Homestead/160 Main Break #2	2023194	Eason	PD	Regular	Emergency	N	Water
6	PD Mountain Falls Inlet Bar Screen	2022109	Eason	PD	Regular	Emergency	N	Sewer
7	PD Confined Space Project	2022125	Eason	PD	Regular	Compliance	N	Sewer
8	SCD Well 4 Rehabilitation	2021161	Eason	SCD	Regular	Planned	2021	Water
9	SCD Rehabilitation Well 11	2021159	Eason	SCD	Regular	Planned	2021	Water
10	SCD Well 12 Emergency Rehabilitation	2023217	Eason	SCD	Regular	Emergency	N	Water
11	SCD Arsenic Media Well 11 Project	2022235	Eason	SCD	Regular	Compliance	N	Water
12	SCD Arsenic Media Replacement –Well 1	2023271	Eason	SCD	Regular	Compliance	N	Water
13	SCD Arsenic Drying Beds –Well 11	2022209	Eason	SCD	Regular	Planned	2021	Water
14	CSD Replacement Service Lines & Meter Pits 2021 Project	2021236	Eason	CSD	Regular	Planned	2021	Water
15	CSD Replacement Service Lines & Meter Pits Phase 2 2022	2022210	Eason	CSD	Regular	Planned	2021	Water
16	CSD Surge Protection –Wells 6 & 7	2022259	Eason	CSD	Regular	Planned	2021	Water
17	CSD Test Well	2022211	Eason	CSD	Reg Asset	Planned	2021	Water
18	SSD SCADA Upgrade	2023081	Eason	SSD	Regular	Planned	2021	Water
19	SSD Test Wells	2022122	Eason	SSD	Reg Asset	Planned	2018	Water
20	SCD Well 8	2016011	Eason	SCD	ECIC	Planned	2015/2018	Water
21	PD John Deere 331G Skid Steer and Attachments	N/A	Eason	PD	ECIC	Compliance	N	Sewer
Sean Ashcraft's Testimony								
Total Projects	Project Name	Project ID	Testimony	System	Recovery	Project Type	IRP Approved	Infra:
22	PD Firebird Circle Loop	2021209	Ashcraft	PD	SIR	Planned	2018	Water
23	PD MT View Estates Interconnect	2022119	Ashcraft	PD	SIR	Planned	2021	Water
24	PD SCADA Water Upgrade	2022219	Ashcraft	PD	SIR	Planned	2021	Water
25	PD MT Falls Tank 1 Floor	2022121	Ashcraft	PD	SIR	Planned	2021	Water
26	SCD Pipeline Replacement Phase 4	2023080	Ashcraft	SCD	SIR	Planned	2021	Water
27	PD CVE Well 48-1	2022105	Ashcraft	PD	CERT	Planned	2021	Water
28	PD Lift Station Backup Power	2023138	Ashcraft	PD	CERT	Planned	2021	Sewer
29	CSD Booster PZ2 to PZ1	2022123	Ashcraft	CSD	CERT	Planned	21-05008	Water
30	PD Well 10 Rehabilitation	2021163	Ashcraft	PD	ECIC	Planned	2021	Water

Q.48 HAS GBWC PLACED IN SERVICE ANY CAPITAL IMPROVEMENT PROJECTS BETWEEN AUGUST 1, 2024 AND NOVEMBER 30, 2024?

A.48 Yes. GBWC is seeking to recover for capital expenditures in connection with three (3) projects listed below placed in service during the certification period across the four (4) GBWC divisions. Details regarding these certification projects are being provided in the Prepared Direct Testimony of Sean Ashcraft. Additional information regarding the certification of projects is being provided in the Prepared Direct Testimony of Terry J. Redmon.

1. PD Rehabilitation Well 1 of 3 – CVE 48-1 (Project ID 2022105)

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- 2. PD Lift Station Power Upgrades (Project ID 2023138)
- 3. CSD Booster PZ2 to PZ1 - Lissner Annex (Project ID 2022123)

Q.49 DOES GBWC EXPECT TO PLACE IN SERVICE ANY CAPITAL IMPROVEMENT PROJECTS BETWEEN NOVEMBER 30, 2024 AND JULY 2, 2025 (210 DAYS AFTER THE APPLICATION FILING DATE)?

A.49 Yes. In this Application GBWC is presenting three (3) projects as Expected Change in Circumstance (“ECIC”) projects expected to be placed in service within 210 days of the filing of the Application (i.e., by July 2, 2025), listed below:

- 1. SCD Well 8 New Well (Project ID 2016011)
- 2. PD Well 10 Rehabilitation (Project ID 2021163)
- 3. PD John Deere 331G Skid Steer and Attachments

I am providing testimony regarding the SCD Well 8 New Well ECIC project and PD John Deere 331G Skid Steer and Attachments. Details regarding the PD Well 10 Rehabilitation ECIC project are being provided in the Prepared Direct Testimony of Sean Ashcraft. Additional information regarding ECIC is being provided in the Prepared Direct Testimony of Terry J. Redmon

Pahrump Division Projects Completed before End of Test Year

PD Rehabilitation Calvada North Well 1 (Project ID 2022127)

Q.50 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD REHABILITATION CALVADA NORTH WELL 1 PROJECT.

A.50 Calvada North Well-1 (Well CN-1), originally drilled in 1987, was constructed with nominal 10-inch steel threaded column pipe as the steel casing to a depth of 230 feet below

1 ground level (“bgl”). The screen interval is 80 linear feet and consists of torch cut
2 perforations from 150 feet to 230 feet bgl. The well was equipped with a Webtrol,
3 submersible turbine pump (model WS50050L) with a 40-HP Hitachi submersible. The
4 pump and motor were installed in 2015. The well does not have backup power. There is
5 chlorination equipment at the well site. Currently, this well is 36 years old.

6
7 Budget Drilling (“Budget Drilling” or “Budget”), based in Pahrump, was selected as the
8 pump contractor to perform the rehabilitation work at Calvada North Well-1 (Well CN-1).
9 Budget mobilized to the well site on February 20, 2023. Budget pulled the pumping system,
10 set at 189 feet bgl, on 4-inch diameter threaded and coupled galvanized column pipe. A
11 Webtrol 475 GPM Series 5 stage pump was removed with a Hitachi 40 horsepower motor,
12 attached to 6 AWG electrical cable. Budget injected a small flow of potable water down
13 the well casing to clear the water in preparation of a video survey.

14
15 On February 21, 2023, Budget performed a video survey of the well and sent it to GBWC-
16 PD and Lumos & Associates (“Lumos”). The video showed extensive mineral scale
17 deposits and biofilm, with nodules through the casing. The casing used for well
18 construction appeared to be threaded 10-inch column pipe and many of the threads were
19 visible at approximately 86 feet bgl and 126 feet bgl. With the appearance of the threads,
20 Budget Drilling was concerned with the integrity of the 10-inch column pipe casing
21 observed in the video. They believed that the worst-case scenario for the well would be a
22 total collapse of the casing, which would render the well unusable, so a meeting was held
23 to discuss the next steps

24
25 Lumos and GBWC-PD organized a Microsoft Teams meeting to discuss Budget’s concern
26 with proceeding with the rehabilitation. After the meeting it was agreed that the suspect
27 sections of the casing should not be vigorously brushed, and the rehabilitation measures

1 should focus on the torch cut slotted section below the 146-foot zone. Budget was advised
2 not to airlift below 225 feet, in case the well did not have a bottom plug. Airlifting a well
3 without a bottom plug could lead to the gravel pack becoming displaced, making the gravel
4 pack unstable.

5
6 The level of the rehabilitation’s scope of work was reduced to focus more on the competent
7 sections in the well. The well’s scope of work was modified to only include shock
8 chlorination of the well with gentle wire-brushing of the screen interval, followed by airlift
9 development, and cleaning of fill to the 225-foot level bgl. The well was video surveyed
10 again after completing the work to gauge the integrity of the casing and cleaning of the
11 screen interval. The pump and motor were too old and showed signs of heavy wear, so
12 Budget Drilling was asked to provide a new pumping system for the well. The objective
13 was to clean the well as best as possible, equip it with new pumping equipment, and operate
14 the well until casing failure.

15
16 Budget Drilling remobilized to the well on March 7, 2023. They performed a shock
17 chlorination and brushing of the casing’s screen interval with a wire brush through March
18 8, 2023. On March 9, 2023, Budget Drilling redeveloped the well via airlifting and
19 removed debris and sediments from the bottom of the well. At 222 feet bgl, 3/8 gravel
20 started being returned from the airlift string. At 225 feet bgl, Budget Drilling started
21 returning 2-inch minus angular rocks through the airlift tooling and decided to cease all
22 airlift development to ensure that the gravel pack was not displaced. Budget Drilling
23 injected a small flow of potable water down the well casing to clear the water in preparation
24 of a final video survey that was completed on March 10, 2023. On March 10, 2023, GBWC-
25 PD informed the project team that a Variable Frequency Device (“VFD”) would not be
26 advisable to install due to the poor condition of the casing. On March 17, 2023, Budget
27 Drilling installed the new pumping equipment which consisted of a Grundfos Model

28

1 475S400, 5 stage, 6-inch pump end and a 40-HP Grundfos MMS 6 submersible motor.
2 Budget also installed two sounding tubes, one for a dedicated transducer and one for
3 manual water level measurements. GBWC-PD was in the process of updating the SCADA
4 system to work on a cellular, rather than directional, antenna because a signal could no
5 longer be retrieved due to tree coverage in the area.

6
7 On March 27, 2023, the well was pumped to waste and bacti samples collected for analysis.
8 GBWC-PD received an analytical report from SGS Silver State Analytical Laboratories
9 that showed an absence of total coliform and Escherichia coli (“E. coli”). GBWC-PD
10 brought the well back into service on March 30 and 31, 2023. On April 7, 2023, GBWC-
11 PD operators turned the pump on for three hours to document the new flow rate from the
12 new pumping system in the well. The new flow rate from the well was 331 gallons per
13 minute (“gpm”).

14
15 **Q.51 WHEN WAS THE PD REHABILITATION CALVADA NORTH WELL 1**
16 **PROJECT PLACED IN SERVICE?**

17 A.51 The well was placed into service on March 30, 2023.

18
19 **Q.52 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
20 **COMMISSION THROUGH AN IRP PROCESS?**

21 A.52 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
22 Consolidated IRP and received approval from the Commission. *Please see* July 19, 2021,
23 order issued in the GBWC Consolidated IRP (Docket No. 21-03003) (“2021 IRP Order”)
24 at p.3 ¶ 2(b).

25
26 **Q.53 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

27 A.53 The estimated project cost was \$315,000.

28

1 **Q.54 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
2 **APPROVED BY THE COMMISSION?**

3 A.54 No, there were no substantial changes to this project. After reviewing the initial video of
4 the well with our engineer, it was determined modification to the rehabilitation of the well
5 was needed, which included chlorination and light brushing of the casing. GBWC installed
6 new pumping equipment and will run the well to failure as described.

7
8 **Q.55 WHAT WERE THE FINAL COSTS OF THE PROJECT, AND HOW DO THEY**
9 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

10 A.55 The final cost of the project was \$73,908, broken down as set forth below. The project
11 costs were approximately 77% under what was approved in the GBWC 2021 Consolidated
12 IRP Class 3⁶ estimate. Lower costs resulted from the determination that the rehabilitation
13 could not be completed as planned due to the condition of the casing. GBWC performed
14 chlorination to the casing, light brushing to avoid damaging the casing, installed new
15 pumping equipment and will now run the well to its useful life.

16
17
18 _____
19 ⁶ Cost estimate classifications used or defined by ASTM and AACE International. The following Estimate
20 Classes of 3 or 4 definition can be applied to the type of project estimates approved in the IRP process.

21

Estimate Class	Name	Purpose	Project Definition Level
Class 5	Order of magnitude	Screening or feasibility	0% to 2%
Class 4	Intermediate	Concept study or feasibility	1% to 15%
Class 3	Preliminary	Budget, authorization, or control	10% to 40%
Class 2	Substantive	Control or bid/tender	30% to 70%
Class 1	Definitive	Check estimate or bid/tender	50% to 100%

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PD REHABILITATION CALVADA NORTH WELL 1	
Activity	Actual Costs
Design and Permitting	\$9,016
Construction	\$63,294
Captive	\$1,137
Misc.	\$0
AFUDC	\$461
Total	\$73,908

Please see Dataroom, Eason Testimony,⁷ folder entitled, “PD Rehabilitation Calvada North Well 1 INV GL RTRMT”.

Q.56 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

A.56 Yes, the utility received four (4) proposals back through the Request for Proposal (“RFP”) process from Great Basin Drilling, Carson Pump, Stonehouse Drilling, and Budget Drilling

CONSTRUCTION BIDS			
Great Basin Drilling	Carson Pump	Stonehouse Drilling	Budget Drilling
No Response	No Response	Declined to Participate	\$169,000

Please see Dataroom, Eason Testimony, folder entitled, “PD Rehabilitation Calvada North Well 1 RFP BIDS CONTRACTS”.

⁷ As referenced throughout this testimony, “Dataroom, Eason Testimony” refers to the folder in the electronic dataroom established for this docket where the supporting documents referenced in this testimony are available for review. GBWC will provide access to these supporting documents in the dataroom to Staff and BCP concurrently with this Application.

1 **Q.57 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

2 A.57 Yes. The lowest and only bidder was Budget Drilling. The project was awarded to Budget
3 Drilling as their proposal was substantially lower than the original projected cost for the
4 rehabilitation of this well.

5

6 **Q.58 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
7 **PROJECT?**

8 A.58 No. GBWC received an initial proposal from Lumos for less than \$25,000. This proposal
9 included a base cost and a provision for additional time and materials in case extra
10 oversight was needed.

11

12 **Q.59 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD**
13 **REHABILITATION CALVADA NORTH WELL 1 PROJECT.**

14 A.59 Please *see* Dataroom, Eason Testimony, folder entitled, *“PD Rehabilitation Calvada North*
15 *Well 1 RFP BIDS CONTRACTS”*.

16

17 **Q.60 PLEASE PROVIDE ALL PERMITS FOR THE PD REHABILITATION**
18 **CALVADA NORTH WELL 1 PROJECT.**

19 A.60 No permits were required for this project.

20

21 **Q.61 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE PD**
22 **REHABILITATION CALVADA NORTH WELL 1 PROJECT.**

23 A.61 Please *see* Dataroom, Eason Testimony, folder entitled, *“PD Rehab Calvada North Well 1*
24 *REPORTS PHOTOS MISC”*.

25

26 **Q.62 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
27 **THIS PROJECT.**

28

1 A.62 The assets retired are as follows:

- 2 • 40-HP Hitachi Submersible Motor
- 3 • Webtrol submersible pump Model WS50050L
- 4 • 190ft AWG Flat Cable

5
6 **Q.63 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
7 **PROJECT WERE REASONABLE?**

8 A.63 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP.
9 GBWC provided thorough oversight and followed best business practices in bidding,
10 decision-making, invoice review, as well as cost-saving measures. The final costs were
11 reasonable, falling below estimates and ensuring safe, reliable service to customers.

12
13 **PD Rehabilitation Well 12 Emergency (Project ID 2022282)**

14 **Q.64 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD REHABILITATION**
15 **WELL 12 EMERGENCY.**

16 A.64 On July 11, 2022, the well experienced a shutdown due to a motor failure. GBWC-PD
17 contacted Budget Drilling to pull the pumping system and conduct a video survey of the
18 well. The initial emergency work by Budget included the following: pulling the existing
19 pumping equipment, inspecting the electrical cable and connections, performing video
20 surveys, and inspecting the pump and motor. During the inspection of the Goulds 9RCLC
21 3-Stage pump it showed significant signs of wear and metal shavings that necessitated a
22 repair or replacement. It was also determined that the motor had failed. The video survey
23 revealed that most of the louver screens were already plugged, since the previous work was
24 completed to swedge and install neat cement in the damaged sounding tube or shoe port.
25 GBWC-PD then decided to initiate rehabilitation of the well to clean the screen intervals
26 and reduce the stress on the new motor required to be installed. The emergency contract
27 was expanded to include proposed additional rehabilitation work, which included

28

1 treatment; shock chlorination, main acid treatment (acid treatment can be performed on
2 this well, because the gravel pack is not limestone), Arc Wave and additional video surveys,
3 pump testing, and new pumping equipment.

4
5 On July 18, 2022, GBWC-PD contracted Lumos & Associates to provide specifications
6 and oversight of rehabilitation work and various mechanical and chemical treatments of
7 Well 12 utilizing Budget Drilling.

8
9 On August 1, 2022, Budget reported that gray-brown residual drilling fluid was airlifted
10 from the well around 840 feet bgl. Budget was given approval by GBWC-PD to remove
11 all residual drilling fluids. Budget reported that the well was chlorinated on August 2, 2022,
12 and the swabbing and airlifting was completed on August 3, 2022. Water was slowly added
13 to the well in an attempt to flush the water column clear enough to conduct another video
14 survey. The first attempt of the video survey of the well was aborted on August 3, 2022,
15 due to excessive cloudy water conditions. A video survey was attempted the next day after
16 additional water was applied to the well; however, the water column was still too cloudy
17 at 800 feet bgl to clearly view the condition of the casing effectively. On August 8, 2022,
18 the video survey was successfully completed and submitted for review. The video showed
19 that the louvered openings were improved slightly by the initial treatments; however,
20 further cleaning and rehabilitation work would be required to improve the specific capacity
21 of the well.

22
23 Budget disinfected the well and temporarily re-installed the pumping equipment (to meet
24 the high seasonal demand), with one less stick of column pipe to ensure the pump intake
25 was located above the upper screen interval in the well. This work was completed on
26 August 9, 2022. The well was pumped to waste after being brought back online and several
27 total coliform samples were collected for analysis, all of which reported positive.

28

1 On August 16, 2022, GBWC-PD reported that both coliform samples at Well 12 were
2 reported positive again. Budget was asked by GBWC-PD to add additional sodium
3 hypochlorite to the well. Budget added 20 gallons of a 12% sodium hypochlorite solution
4 into the well on August 16, 2022.

5
6 Following the initial assessment and cleaning efforts, a plan was created to further clean
7 and rehabilitate the well with the use of Cotey Chemicals. Lumos was tasked by GBWC-
8 PD to modify the original specifications for cleaning the well using Budget's drill rig with
9 a very tight wire brushing tool.

10
11 Budget re-mobilized to the site on October 2, 2022, after a delayed rig move from
12 California back to Nevada. Using their drill rig, Budget brushed the well from October 2,
13 2022, until October 5, 2022. Budget injected the Cotey Chemicals into the well to begin
14 the acid treatment on October 6, 2022. Budget wire brushed, swabbed and airlifted the well
15 through October 22, 2022.

16
17 On October 25, 2022, Budget reported that the well was chlorinated through the
18 swabbing/airlifting assembly. The swabbing/airlift assembly was then removed to clear the
19 well for the next video survey. The low pH fluid in the well was conveyed into a frac tank
20 and neutralized at the surface. Budget reported that the frac tank would be disposed of
21 offsite. A 10-HP submersible pump and motor on steel column pipe was installed at 880 ft
22 bgl level to pump water out of the well in an attempt to get a clear video survey beneath
23 800 ft bgl. The pump was moved up as the water cleared so the video survey would be as
24 clear as possible. Budget performed this outside of the executed contract specifications.

25
26 Budget successfully completed the second video survey on October 31, 2022; the quality
27 was significantly better than in the previous video. The video revealed strange mineral
28

1 nodules and scaling growth on several portions of the casing, particularly between 590 to
2 610 ft bgl; it appears that the previous wire brushing did not completely remove the nodules.
3 Metal strands from the wire brush observed at the bottom of the well (968 ft bgl) appear to
4 confirm the hardness of the nodules and scaling present in the well. It is suspected that two
5 distinct aquifers with differing water chemistry were encountered in the separate screened
6 intervals of the well. The original placement of the pump intake is believed to have caused
7 the mixing of the water chemistries resulting in heavy mineral deposition of the high-
8 strength nodules and scaling in the well. The hardness of the mineral deposits made them
9 resistant to traditional well rehabilitation brushes. After reviewing and discussing the
10 nodule image with Lumos, Budget, ArcWave Technology, and the casing manufacturer,
11 GBWC-PD opted to proceed with an ArcWave treatment for the well from 480 to 620 ft
12 bgl. The ArcWave method functions by running a tool down the well which generates high
13 intensity P-wave pulse. It serves as an alternative method for removing mineral deposits in
14 cases where brushing and chemical treatments may not be completely effective.

15
16 The ArcWave treatment was completed on November 9, 2022. Budget was approved to
17 follow the ArcWave treatment with additional swabbing and airlifting, which occurred
18 from November 29, 2022, to December 6, 2022. The well was chlorinated with 4,000
19 gallons of a 200 parts per million (ppm) concentration of sodium hypochlorite; chlorination
20 was performed through the swab and brush string before tripping out on December 7, 2022.
21 The final video survey of Well 12 was completed December 10, 2022.

22
23 The December 10, 2022, video showed a further reduction in the amount of scaling as
24 compared to the previous videos. The louvered sections were open throughout the well,
25 although a minor amount of scaling was still present. There were numerous strands of wire
26 brush caught in the louvers starting at 788.25 ft bgl. Additionally, there were large clusters

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1 of wire brush starting at 794 ft bgl, indicative of the hard mineralization present in the well
2 and the effort conducted with the wire brush on the screen intervals.

3
4 On December 20, 2022, a meeting with GBWC-PD, Lumos, and Budget took place to
5 discuss Well 12. It was decided that the replacement pump and motor should be set in the
6 blank chamber between the two screen intervals in well. Lumos recommended one last
7 shock chlorination to the well prior to installing the pump system at approximately 620 ft
8 bgl. The new pumping system consisted of a Grundfos 800S1250-5-A, equipped with a 10-
9 inch SDR 41 PVC shroud, new 75°C AWG 0000 cable, 125HP Hitachi submersible motor,
10 a new water level transducer, and additional new 210 feet of NSF-61 6-inch column pipe
11 from Wheatland Tube to extend the pumping system to the new depth.

12
13 Following the installation of the new pumping system on December 30, 2022, GBWC-PD
14 sampled the well for total coliform in order to bring the well back into production. During
15 the pump to waste action to collect passing bacti samples, the water system Area Manager
16 noticed that the samples were turning a yellow color after sitting for a few hours. Even
17 though the total coliform samples had come back negative, the Area Manager decided to
18 continue pumping the well to waste until the discoloration of the water disappeared. This
19 took approximately another week of pumping 6-12 hours per day to achieve the necessary
20 clarity. On January 19, 2023, Well 12 was put back into service. It is now recommended
21 that GBWC-PD pull the well after 2 years of pumping to assess the condition of well
22 screens again via a video survey. This recommendation was made due to the aggressive
23 nature of the mineral buildup in the screen.

24
25 **Q.65. WHEN WAS THE PD REHABILITATION WELL 12 EMERGENCY PROJECT**
26 **PLACED IN SERVICE?**

27 A.65 The project was placed into service on January 19, 2023.

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Q.66 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE COMMISSION THROUGH AN IRP PROCESS?

A.66 No. This project was an emergency project due to pumping equipment failing at Well 12. The intent of this project was to remove the existing pumping equipment, perform a video survey, and install new pumping equipment. Once the initial video was conducted, GBWC realized that this emergency created the need for a full rehabilitation.

Q.67 WHAT WAS THE TOTAL PROJECT COST?

A.67 The cost of this project totaled \$325,117, broken down as set forth below.

PD REHABILITATION WELL 12 EMERGENCY PROJECT	
Activity	Actual Costs
Design and Permitting	\$24,146
Construction	\$295,228
Captime	\$2,100
Misc.	\$139
AFUDC	\$3,504
Total	\$325,117

Please see Dataroom, Eason Testimony, folder entitled, “PD Rehabilitation Well 12 Emergency INV GL RTRMT”.

Q.68 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

1 A.68 No, this became an emergency project when the motor failed to start. GBWC requested an
2 electrical contractor troubleshoot the electrical issue and when it was discovered that the
3 motor went to ground. GBWC requested Budget Drilling pull the pumping equipment and
4 replace it as this well is critical for sustaining water pressures in Well 12's surrounding
5 area. Once the equipment had been removed and the well videoed, it was determined that
6 this well needed additional rehabilitation work. GBWC requested a proposal from Budget
7 Drilling to perform this work. Once the proposal was received and found to be reasonable,
8 GBWC requested Budget Drilling continue with the emergency work of bringing this well
9 back into service.

10

11 **Q.69 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
12 **PROJECT?**

13 A.69 No. GBWC first requested that Budget Drilling pull the existing pumping equipment and
14 replace the motor. Once Budget Drilling videoed the well casing, it was apparent that
15 GBWC needed an engineer to provide oversight. GBWC reached out to Lumos and
16 requested a proposal for their oversight which was in the amount of \$7,000. GBWC felt
17 that this was a reasonable proposal and awarded Lumos the oversight responsibility of this
18 emergency well rehabilitation.

19

20 **Q.70 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD REHAB**
21 **WELL 12 EMERGENCY PROJECT.**

22 A.70 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation Well 12
23 Emergency RFP BIDS CONTRACTS".

24

25 **Q.71 PLEASE PROVIDE ALL PERMITS FOR THE PD REHABILITATION WELL 12**
26 **EMERGENCY PROJECT.**

27

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1 A.71 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation Well 12
2 Emergency REPORTS PHOTOS MISC".

3
4 **Q.72 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE PD**
5 **REHABILITATION WELL 12 EMERGENCY PROJECT.**

6 A.72 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation Well 12
7 Emergency REPORTS PHOTOS MISC".

8
9 **Q.73 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
10 **THIS PROJECT.**

11 A.73 The assets retired are as follow:

- 12 • 125-HP Hitachi NSF-61 Submersible Motor
- 13 • Grundfos NSF 61 800S 1250 5 A Bowl
- 14 • 420ft Pump Cable Replacement
- 15 • Keller NSF 61 0-200 water level transducer
- 16 • Grundfos 125 VFD

17
18 **Q.74 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
19 **PROJECT WERE REASONABLE?**

20 A.74 As this project was necessitated by an emergency equipment failure, GBWC did not seek
21 or obtain PUCN authorization for this well rehabilitation. The final costs associated with
22 this project are reasonable and were necessary to incur. By rehabilitating this well, GBWC
23 will be able to provide safe and reliable service to customers. GBWC provided thorough
24 oversight and followed best business practices in bidding, decision-making, invoice
25 review, as well as cost-saving measures. The engineering proposal bid was under \$10,000
26 and GBWC chose a contractor that responded to emergency who is dependable, reliable,
27 and with reasonable costs.

28

1 **PD Rehabilitation CVE Well 48-2 (Project ID 2022107)**

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3 **Q.75 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD REHABILITATION**
4 **CVE WELL 48-2.**

5 A.75 Budget Drilling was contracted to complete rehabilitation work of Well CVE 48-2. The
6 objective cleaning the well screens to regain loss flow capacity and increase the useful life
7 of the well. Budget pulled the pumping equipment from Well CVE 48-2 on October 9,
8 2023, following a failure of the pumping equipment. The pulled pumping equipment
9 consisted of a Wolf 6MM8V 6-stage submersible pump equipped with a Franklin 40- HP
10 motor. Budget attempted to complete a video survey of the well on October 13, 2023, but
11 the water was too cloudy to obtain a satisfactory video. Budget utilized chlorine to improve
12 the water clarity in the well prior to attempting another video survey. A successful video
13 survey was completed on October 20, 2023. The video revealed significant scaling
14 (calcium buildup) and nodules present on the well casing, although the structural integrity
15 of the well appeared to be in good condition. It was recommended that the scaling
16 (mineralization) and nodule buildup should be cleared to enhance the production capacity
17 of the well. Fill was encountered at approximately 601 ft bgl, although the total depth listed
18 on the respective driller's report was 815ft bgl.

19
20 Based on the encountered fill depth, it was recommended that Budget use airlifting to
21 remove the fill material in the well. Budget proceeded with the airlifting on November 2-
22 4, 2023. A video survey conducted after airlifting on November 7, 2023, revealed a total
23 depth of approximately 795 ft bgl. This reveals that approximately 194 ft of total material
24 was removed from the well via airlifting. However, the water in the video was too cloudy
25 to discern details of the well casing interior. A video survey was attempted again on
26 November 11, 2023, revealing additional scaling and biofilm on the well interior. Budget
27 completed additional brushing to the well followed by airlifting the debris on November
28

1 15 and 17, 2023; the total depth of the well was subsequently tagged at 815 ft bgl. This
2 total depth is consistent with the value on the original well driller's report. An additional
3 video survey of the well was completed on November 25, 2025. Although water clarity
4 was poor, the video still revealed scale growth, biofilm, and plugging of the mill slots in
5 the well. Due to the previous presence of filter pack found in the well, the bottom two feet
6 of the well were sealed with a cement plug. The purpose of the cement plug was to prevent
7 any intrusion of additional filter pack.

8
9 Budget remobilized to Well CVE 48-2 on December 7, 2023, to perform a chemical
10 treatment on the well. The objective of the chemical treatment was to improve water quality
11 and reduce scaling buildup on the well casing. A 50-ppm solution of chlorine was injected
12 into the well, followed by eight hours of brushing in order to agitate the solution within the
13 well casing and filter pack. On the following day, December 8, 2023, Cotey Liquid
14 Descaler was injected into the well followed by ten hours of brushing. A full day of
15 swabbing and airlifting was completed on December 9, 2023. Additional primary chemical
16 treatment included swabbing and airlift redevelopment, which was completed on
17 December 12, 2023.

18
19 A step rate pumping test was completed for Well CVE 48-2 on December 23, 2023. Four
20 steps were completed during this test, with nominal flow rates of 150, 180, 225, and 290
21 gpm. A constant rate pumping test was subsequently conducted on December 24, 2023, at
22 a flow rate of roughly 305 gpm for a duration of 12 hours. The maximum drawdown
23 induced during the test was roughly 55 ft, resulting in a specific capacity estimate of 5.4
24 gpm/ft of drawdown. The pump test results were analyzed to design and recommend a new
25 pumping system for the well. The recommended pump consisted of a Grundfos 300S300-
26 8 8-stage submersible pump equipped with a Grundfos 40-HP motor. A pump setting depth
27

1 of 320 ft bgl was recommended using 6-inch steel column pipe. The recommended
2 electrical cable consisted of #4 AWG 75°C.

3
4 The final video survey was completed on January 20, 2024. Although the video clarity was
5 somewhat poor due to the amount of floating material in the well, all of the saw-cut slots
6 appear to be visible and unplugged. The video survey encountered the top of the fill in the
7 well at a depth of 799 ft. Budget installed the new submersible pump and motor in the well
8 on February 21, 2024. Budget flushed and chlorinated the well on February 27, 2024,
9 subsequently collecting samples for bacti analysis. Samples were submitted to SGS
10 Laboratories in Las Vegas, Nevada for analysis. Analytical results were returned on
11 February 28, 2024, revealing that the water samples were absent of total coliform and E.
12 Coli. The passing Bac-T samples allowed Well CVE 48-2 to resume its connection to the
13 water system. During this same approximate time, Kill-A-Watt LLC was contracted to
14 complete electrical infrastructure upgrades on the CVE 48-2 system. The electrical work
15 included installation of a 50-HP soft-start, a disconnect panel, and upgraded sub-panel.

16
17 **Q.76 WHEN WAS THE PD REHABILITATION CVE WELL 48-2 PROJECT PLACED**
18 **IN SERVICE?**

19 A.76 The project was placed into service on March 5, 2024.

20
21 **Q.77 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
22 **COMMISSION THROUGH AN IRP PROCESS?**

23 A.77 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
24 Consolidated IRP and received approval from the Commission.
25 Please *see* 2021 IRP Order at p. 3 ¶ 2(b).

26
27 **Q.78 WHAT WAS THE CLASS 3 ESTIMATE PROJECT COST IN THE IRP?**

1 A.78 The estimated project cost was \$315,000.

2

3 **Q.79 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
4 **APPROVED BY THE COMMISSION?**

5 A.79 No, there were no substantial changes to this project.

6

7 **Q.80 WHAT WERE THE FINAL COSTS OF THIS PROJECT AND HOW DO THEY**
8 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

9 A.80 The final actual cost of this project totaled \$208,577, broken down as set forth below. The
10 project costs came in at approximately 34% under the approved estimate.

11

PD REHABILITATION CVE WELL 48-2	
Activity	Actual Costs
Design and Permitting	\$10,739
Construction	\$192,466
Captime	\$2,269
Misc.	\$0
AFUDC	\$3,103
Total	\$208,577

12

13 Please see Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation CVE Well 48-
14 2 INV GL RTRMT".

15

16 **Q.81 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?**

17 A.81 Yes, there were four (4) bids solicited for the project.

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CONSTRUCTION BIDS			
Great Basin Drilling	Carson Pump	Stonehouse Drilling	Budget Drilling
No Response	No Response	Declined	\$162,500

Please see Dataroom, Eason Testimony, folder entitled, “PD Rehabilitation CVE Well 48-2 RFP BIDS CONTRACTS”.

Q.82 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?

A.82 Yes, the project was issued to Budget Drilling. Two (2) companies did not respond, and one (1) company declined to participate.

Q.83 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS PROJECT?

A.83 No. GBWC received an initial proposal from Lumos for less than \$25,000. This proposal included a base cost and a provision for additional time and materials in case extra oversight was needed.

Q.84 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD REHABILITATION CVE WELL 48-2 PROJECT.

A.84 Please see Dataroom, Eason Testimony, folder entitled, “PD Rehabilitation CVE Well 48 - 2 RFP BIDS CONTRACTS”.

Q.85 PLEASE PROVIDE ALL PERMITS FOR THE PD REHABILITATION WELL CVE WELL 48-2 PROJECT.

A.85 Please see Dataroom, Eason Testimony, folder entitled, “PD Rehabilitation CVE Well 48 - 2 REPORTS PHOTOS MISC”.

1 **Q.86 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE PD**
2 **REHABILITATION CVE WELL 48-2 PROJECT.**

3 A.86 Please *see* Dataroom, Eason Testimony, folder entitled, “PD Rehabilitation CVE Well 48
4 - 2 REPORTS PHOTOS MISC”.

5
6 **Q.87 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
7 **THIS PROJECT.**

8 A.87 The assets retired are as follows:

- 9 • Franklin submersible motor, 40-HP.
- 10 • Wolf Pump, 6 stage
- 11 • 310 ft. of 4-inch column pipe
- 12 • 4-inch check valve
- 13 • 40-HP. Starter electrical equipment
- 14 • Miscellaneous electrical subpanels

15
16 **Q.88 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
17 **PROJECT WERE REASONABLE?**

18 A.88 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP.
19 GBWC provided thorough oversight and followed best business practices in bidding,
20 decision-making, invoice review, as well as cost-saving measures. By doing so, GBWC
21 will be able to continue to provide safe and reliable service to its customers. The
22 engineering proposal bid was under \$25,000, and GBWC selected the lowest bid for
23 construction. The project followed the extensive well rehabilitation process as outlined in
24 the GBWC 2021 Consolidated IRP, which included but is not limited to videoing, brushing
25 or cleaning, swabbing, airlifting, non-acid treatment (if applicable), soft starter electrical
26 installation upgrade, and replacement of the pumping equipment. Please *see* 2021 IRP
27 Order at p. 3 ¶ 2(b).

28

1 **PD Rehabilitation Well 12 Emergency #2 (Project ID 2024177)**

2
3 **Q.89 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD REHABILITATION**
4 **WELL 12 EMERGENCY #2.**

5 A.89 Following the completion of the emergency repairs to Well 12 as described for Project ID
6 2022282. Another emergency project for Well 12 was required in late December 2023 by
7 Budget, due to a failure in the well's submersible motor. Well 12, the replacement for the
8 old Well 8, has had operational issues since it was originally drilled, in early 2017, to a
9 total depth of 990 feet bgl. Well 12 has been an ongoing concern to GBWC's operations
10 staff since coming online and due to its critical importance of maintaining system pressures
11 within the southeast section of the low zone. While Well 12 was offline, GBWC received
12 pressure complaints within the service area of Well 12.

13
14 On January 5, 2024, Budget Drilling was contacted by GBWC to pull the pumping system
15 out of Well 12. After inspecting the pumping system, it was determined that the motor had
16 prematurely failed (125-HP Hitachi Motor, SN G267101H-125). Budget Drilling sent the
17 motor out for a failure diagnosis. While the well was down, GBWC decided to have Budget
18 Drilling run a video survey of the well. On January 8, 2024, Budget Drilling conducted a
19 video survey of Well 12, which revealed that the bottom screen interval was extremely
20 plugged again after only about 18 months since the last acid and ARC WAVE treatment.
21 On January 18, 2024, Budget Drilling conducted a disinfection of the well followed by
22 brushing and airlift development. A discussion ensued on whether the well should be
23 cleaned again and if so, what type of cleaning should be conducted. After several meetings,
24 Lumos recommended GBWC to obtain a quote for an Aqua-Freed treatment on the well
25 from Sub Surface technologies to address the extreme calcification. After reviewing the
26 proposal a was submitted, GBWC approved Budget Drilling to being working on the
27

1 wellhead to convert it for a Liquefied Carbon Dioxide (CO2) injection. They also installed
2 piping to 400 feet and 960 feet zones for injecting the CO2 on May 5, 2024.

3
4 On May 7, 2024, Subsurface Technology Inc. arrived on site and began injecting liquid
5 CO2 down the tremie pipes secured in the air-tight well head. Injection pressures reached
6 250 psi inside the well during injection. The CO2 injection continued the next day, May 8,
7 2024. The pressure in the well was left for 48 hours and on May 10, 2024, they relieved
8 the pressure in the well and pulled the injection piping out in preparation for airlift
9 development. During the same day, they installed the development tooling, began at the
10 bottom of the well, and was completed on May 12, 2024. Following the Aqua-Freed
11 cleaning, Budget conducted a post-cleaning video survey of the well. The video survey
12 revealed that the CO2 treatment appeared to break some of the mineral deposits off the
13 lower screen interval. On May 21 and 22, 2024, Budget Drilling was back onsite to
14 disassemble the injection head and re-install the pit-less adapter on the casing in
15 preparation of installing the pumping system.

16
17 On May 23, 2024, Budget Drilling successfully installed a refurbished pump end and a
18 new submersible motor in Well 12. The pump end had undergone a minor rebuild,
19 including the replacement of intermediate bearings. On May 27, 2024, Budget shock
20 chlorinated the well in preparation for collecting bacti samples. After several hours of
21 flushing the well, bacti samples were collected on May 28, 2024, and sent to a certified
22 lab. On May 29, 2024, after receiving negative bacti sample analysis, the well was put
23 back into service.

24
25 **Q.90 WHEN WAS THE PD REHABILITATION WELL 12 EMERGENCY #2 PROJECT**
26 **PLACED IN SERVICE?**

27 A.90 The project was placed into service on May 29, 2024.

28

1 **Q.91 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
2 **COMMISSION THROUGH AN IRP PROCESS?**

3 A.91 No. This project was an emergency project due to the motor failing at Well 12. The intent
4 of this project was to remove the existing pumping equipment, perform a video survey, and
5 install a new motor. Once the initial video survey was conducted, GBWC realized that this
6 emergency replacement would require a rehabilitation due to the lower screens being
7 plugged.

8
9 **Q.92 WERE THERE ADDITIONAL COSTS TO THIS PROJECT INCURRED AFTER**
10 **THE TEST PERIOD END DATE?**

11 A.92 Yes, there was one invoice associated with this project that was received after the project
12 closed in the amount of \$1,680.

13
14 **Q.93 WHAT WAS THE TOTAL PROJECT COST?**

15 A.93 The cost of this project totaled \$154,028, broken down as set forth below.

16
17

PD REHABILITATION WELL 12 EMERGENCY #2 PROJECT	
Activity	Actual Costs
Design and Permitting	\$11,099
Construction	\$141,760
Captive	\$1,053
Misc.	\$0
AFUDC	\$117
Total	\$154,028

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1 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation Well 12
2 Emergency #2 INV GL RTRMT".

3
4 **Q.94 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

5 A.94 No, GBWC did not solicit bids for this project. When the motor failed to start, GBWC
6 requested Budget Drilling troubleshoot the electrical issue. When it was discovered that
7 the motor had failed, GBWC requested Budget Drilling pull the pump equipment. Once
8 the equipment had been removed, and the well was video surveyed, it was determined that
9 the lower screens were plugged and the well needed further rehabilitation work. After
10 consulting with Lumos, GBWC requested a proposal from Budget Drilling to perform a
11 CO2 treatment. Once the proposal was received and found to be reasonable, GBWC
12 requested Budget Drilling continue with the emergency work to bring this well back into
13 service as this well is in a critical area which experiences low pressures.

14
15 **Q.95 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
16 **PROJECT?**

17 A.95 No. GBWC first requested that Budget Drilling pull the existing pumping equipment and
18 to replace the motor. Once Budget Drilling video surveyed the well casing, it was
19 discovered that GBWC needed an engineer to provide oversight. GBWC reached out to
20 Lumos and requested a proposal for their oversight which was in the amount of \$5,000.
21 GBWC felt that this was a reasonable proposal and awarded Lumos the oversight
22 responsibility of this emergency well rehabilitation.

23
24 **Q.96 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD**
25 **REHABILITATION WELL 12 EMERGENCY #2 PROJECT.**

26 A.96 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation Well 12
27 Emergency #2 RFP BIDS CONTRACTS".

28

1 **Q.97 PLEASE PROVIDE ALL PERMITS FOR THE PD REHABILITATION WELL 12**
2 **EMERGENCY #2 PROJECT.**

3 A.97 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Rehabilitation Well 12
4 Emergency #2 REPORTS PHOTOS MISC".

5
6 **Q.98 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
7 **THIS PROJECT.**

8 A.98 The assets retired are as follows:

- 9 • Hitachi submersible motor, 125-HP

10
11 **Q.99 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
12 **PROJECT WERE REASONABLE?**

13 A.99 As this project was necessitated by an emergency equipment failure, GBWC did not seek
14 or obtain PUCN authorization for this well rehabilitation. GBWC provided thorough
15 oversight and followed best business practices in bidding, decision-making, invoice
16 review, as well as cost-saving measures. The final costs associated with this project are
17 reasonable and were necessary to incur because, by rehabilitating this well, GBWC will be
18 able to continue to provide safe and reliable service to its customers. The engineering
19 proposal bid was under \$7,000 and GBWC chose a contractor that is extremely familiar
20 with GBWC's challenges at Well 12. In addition, the pressure issues encountered while
21 Well 12 was off-line, highlighted the importance of Well 12 to provide dependable, and
22 reliable service to our customers.

23
24 **PD Homestead/160 Main Break (Project ID 2023194)**

25 **Q.100 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD HOMESTEAD/160**
26 **MAIN BREAK.**

27
28

1 A.100 On January 21, 2022, GBWC received a call stating that water was running down the road
2 at the intersection of Homestead Rd. and State Hwy. 160. Upon arrival, it was found that
3 water was coming from under the asphalt. Operations lowered the pressures of the 12-inch
4 water main, which feeds into the High Zone Tank and service area. Once the water main
5 was lowered to a controllable level, GBWC called in emergency USA Dig locates to
6 identify any other utility infrastructure underground in the relevant area and Floyd
7 Construction was called to assist with the repairs. USA Dig locates were completed, and
8 Floyd Construction began work after setting up traffic control. Asphalt was cut and
9 removed, followed by the removal of soils over the water main using a vacuum truck.
10 During this process, a rock was discovered beneath the water main, which had penetrated
11 the water pipe and caused a leak. The contractor removed the debris under the pipe and
12 installed a temporary wrap-around repair clamp, until the replacement of the water main
13 could be performed and without disrupting service and/or issuing Boil Water notices to
14 over 350 commercial and residential customers.

15
16 Further discussions with Nye County Road Department were required due to the nature of
17 the break and location. The break occurred in the vicinity of the last break on Homestead
18 where GBWC was required to replace a 20-foot section of the main, over excavate the road
19 base and reconstruct the west travel lane of Homestead Road to the intersection of
20 Homestead Road and Hwy 160. Nye County Road Department required a GEO Technical
21 evaluation and recommendations before GBWC's contractor could repair the asphalt. With
22 Nye County's requirements, GBWC determined to proceed with the pipe replacement of
23 80 feet of 12-inch ductile along Homestead in the area identified in the report.

24
25 Through discussions over time with Nye County, GBWC's contractor, engineer and
26 operations staff to find a long-term solution to the problem area It was decided that GBWC
27 could set up a temporary pumping system to draw water from the low zone and boost it

28

1 into the high zone. This work around would allow GBWC to keep the upper zone in service
2 during the replacement of temporary fix, installation of the new mainline and without
3 disrupting service and/or issuing Boil Water notices to over 350 commercial and residential
4 customers. GBWC researched out to Rain to Rent to see if they could provide a water by-
5 pass pumping system that would meet the pumping demands and provide sufficient
6 capacity to the high zone during the replacement of the damage water main.

7
8 On January 3, 2023, Rain to Rent came to Pahrump to set up the by-pass pumping station
9 utilizing two hydrants, one hydrant from the low zone and one hydrant from the high zone.
10 Once Rain to Rent set the pumping system up, they provided training on the equipment to
11 the operations team. GBWC high chlorinated the by-pass pump, along with the suction and
12 discharge piping after the training session. After a 24-hour set period of the high chlorine
13 in the equipment, it was dispensed and replaced with potable water, which then sat for 24-
14 hours. After the 24-hour setting period, operations collected bacteriological sampling to
15 confirm the equipment meet Safe Drinking Water Act. GBWC also installed a 12-inch gate
16 on January 11, 2023, to isolate the water main prior to crossing over State Hwy. 160 and
17 for the temporary booster system to operate. With this new valve, operations were able to
18 isolate the damaged pipe from the rest of the water main that provide service to the high
19 zone. The two hydrants were utilized to draw water from the low zone and push the water
20 into the high zone with the pumping system. On January 12, 2023, the temporary pumping
21 system was in place, Floyd Construction began to remove asphalt and replace eighty (80)
22 feet of C-900 pipe with 12-inch Ductile Iron (DI) pipe. The old pipe was replaced with the
23 new DI pipe, partially backfilled, pressurized, and checked for leaks at the connection
24 points. Once inspected for leaks and none were found, the contractor backfilled the trench.
25 Two consecutive days of bac-t sampling were collected and sent to the lab for verification
26 of no cross contamination during the pipe replacement process prior to the water main
27 being placed back into service.

1 **Q.101 WHEN WAS THE PD HOMESTEAD/160 MAIN BREAK PROJECT PLACED IN**
2 **SERVICE?**

3 A.101 The watermain replacement project was placed into service on February 9, 2023. Once the
4 repairs of the watermain was completed, GBWC was asked by Nye County and the
5 developer of the Kingdom property if we would be interested in waiting to repair the road
6 after the Kingdom property made their service lateral tie-into the main line. GBWC agreed
7 to the delay to save asphalt costs to the project. The Kingdom property development tie in
8 was delayed due to engineer changes and NDEP approval for a future bypass location for
9 servicing the low to high zone. Nye County then instructed GBWC to have our contractor
10 make the repairs to the asphalt, which was completed on October 24, 2023.

11
12 **Q.102 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
13 **COMMISSION THROUGH AN IRP PROCESS?**

14 A.102 No. This project was an emergency project due to a 12-inch water main break at the
15 intersection of Homestead Rd. and State Hwy. 160. Water was reportedly coming from
16 under the asphalt, which caused GBWC to close part of the intersection and move traffic
17 over for safety reasons during the repairs. This repair needed to be completed as the water
18 main provides water to the High Zone Tank and system.

19
20 **Q.103 WHAT WAS THE TOTAL PROJECT COST?**

21 A.103 The cost of this project totaled \$158,625, broken down as set forth below:

22
23

PD HOMESTEAD AND STATE HWY. 160 WATER MAIN BREAK	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$156,698

24
25
26
27

Captive	\$0
Misc.	\$149
AFUDC	\$1,778
Total	\$158,625

Please see Dataroom, Eason Testimony, folder entitled, “PD Homestead/160 Main Break INV GL RTRMT”.

Q.104 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

A.104 No, GBWC did not solicit or receive bids as this project was an emergency water main repair and time was of the essence. An emergency callout was made to Floyd Construction, a company with a proven track record of reliable and cost-effective water main repairs.

Please see Dataroom, Eason Testimony, folder entitled, “PD Homestead/160 Main Break BIDS CONTRACTS”.

Q.105 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS PROJECT?

A.105 No. GBWC did not seek engineering assistance as this was a water main repair with replacement of asphalt.

Q.106 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD HOMESTEAD/160 MAIN BREAK PROJECT.

A.106 Please see Dataroom, Eason Testimony, folder entitled, “PD Homestead/160 Water Break RFP BIDS CONTRACTS”.

1 **Q.107 PLEASE PROVIDE ALL PERMITS FOR THE PD HOMESTEAD/160 MAIN**
2 **BREAK PROJECT.**

3 A.107 Please *see* Dataroom, Eason Testimony, folder entitled, "PD Homestead/160 Water
4 Break REPORTS PHOTOS MISC".

5
6 **Q.108 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
7 **THIS PROJECT.**

8 A.108 The assets retired are as follows:

- 9 • Eighty (80) feet of 12-inch C-900 water main pipe

10
11 **Q.109 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
12 **PROJECT WERE REASONABLE?**

13 A.109 As this project was necessitated by an emergency mainline failure, GBWC did not receive
14 IRP or Commission approval, GBWC did notice NDEP, PUCN and Nye County (Health,
15 Fire and Road Department) of the main line break. GBWC provided thorough oversight
16 and followed best business practices in bidding, decision-making, invoice review, as well
17 as cost-saving measures. The final costs associated with this project are reasonable and
18 were necessary to incur because, by timely replacing a critical water main and addressing
19 a habitual break or problem area. GBWC will be able to continue to provide safe and
20 reliable service to its customers. The final project costs were reasonable in relation to the
21 work performed, and GBWC chose a contractor that is dependable, reliable, and with
22 reasonable costs. In addition, GBWC was able to identify and implement the following
23 items: develop a work around when there is a break in the critical main line feeding the
24 customers in the High Zone from the Low Zone along Homestead Road, and initiate the
25 purchase of portable booster station and bypass equipment to address future main breaks
26 without disrupting service and/or issuing Boil Water notices to over 350 commercial and
27 residential customers.

28

1 **PD Mountain Falls Inlet Bar Screen (Project ID 2022109)**

2
3 **Q.110 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD MOUNTAIN FALLS**
4 **INLET BAR SCREEN PROJECT.**

5 A.110 The Mountain Falls (“Mtn. Falls”) inlet bar screen (designed capture inorganic wastewater
6 solids) was originally installed at the Mountain Falls Wastewater Treatment Plant in 2007
7 when the plant was constructed. Throughout the years, the bar screen has been adjusted
8 and repaired due to continual usage. The bar screen was removed from the channel in
9 approximately 2014 to repair and replace some of the debris lifting mechanism parts (lifting
10 fingers).

11
12 Since 2018 and continuing into 2022, the bar screen would malfunction or fail to remove
13 solid debris from the inlet channel as designed in the head work of the treatment plant. Due
14 to the screen or equipment failure, operators had to manually net and dispose of solids,
15 leading to sewer system backups coming into the headworks.

16
17 The project began with GBWC considering whether to replace the existing bar screen with
18 a similar model or explore more advanced options available on the market. GBWC
19 contacted several wastewater manufacturers, including Smith and Loveless, who
20 recommended Gierlich Mitchell. However, after preliminary discussions, it was apparent
21 Gierlich Mitchell was not interested in the project.

22
23 In July of 2022, GBWC reach out to Aqua Tec, the manufacturer of the Mtn. Falls treatment
24 plant. After discussions with Aqua Tec, it was decided to proceed with them as they offered
25 to provide a new, updated inlet bar screen for the plant. In August of 2022, GBWC
26 requested videos of Aqua Tec’s inlet bar screen. Once GBWC reviewed the brochures and
27

1 a video, GBWC requested proposals and a preliminary design draft of the inlet bar screen.
2 In September, GBWC received the screen data from Aqua Tec to review. During the review
3 process, it was deemed modifications would be necessary on the new bar screen swivel
4 points, but the bar screen itself will fit within the channel at the plant. GBWC inquired
5 about the manufacturing and delivery of the bar screen. Aqua Tec responded that lead time
6 would be approximately five to six months after the final drawing approval.

7
8 In October of 2022, GBWC received a proposal that exceeded the budgeted amount. After
9 reviewing the proposal and discussing the possibility of another vendor, as Aqua Tec was
10 the third company GBWC had reached out to, GBWC found the proposal to be acceptable
11 in costs. GBWC reached out to Aqua Tec and awarded them the project. Throughout the
12 next several months, GBWC worked with Aqua Tec to verify all dimensions of the inlet
13 channel, length of bar screen, swivel points, and the support brackets were correct. GBWC
14 was able to approve the inlet bar screen final drawing in April of 2023, requesting Aqua
15 Tec order and manufacture the bar screen.

16
17 Prior to the arrival of the new bar screen, GBWC reached out to two companies for
18 proposals to unload and install the new bar screen. Floyd Construction's proposal was the
19 lowest and it was awarded the project.

20
21 In September 2023, the bar screen arrived at the plant. Floyd Construction was onsite to
22 unload and place the bar screen by the headworks door. In November 2023, Floyd
23 Construction removed the old bar screen and installed the new one. Once installed, GBWC
24 notified Aqua Tec that it was in place, electrical wires connected and was ready to be
25 commissioned by them. Aqua Tec personnel arrived on November 21, 2023, to commission
26 the new bar screen and provide training to GBWC operators on its operation and
27 maintenance.

28

1 **Q.111 WHEN WAS THE PD MTN. FALLS INLET BAR SCREEN PROJECT PLACED**
2 **IN SERVICE?**

3 A.111 The Mtn. Falls inlet bar screen was placed into service on November 21, 2023.
4

5 **Q.112 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
6 **COMMISSION THROUGH AN IRP PROCESS?**

7 A.112 No. This project was an equipment failure due to the malfunction of Mtn. Falls bar screen
8 and was not submitted for review by the PUCN.
9

10 **Q.113 WHAT WERE THE FINAL COSTS OF THIS PROJECT, AND HOW DO THEY**
11 **COMPARE TO THE ORIGINAL ESTIMATE?**

12 A.113 The final actual costs for this project \$139,043, broken down as set forth below.
13

PD MTN. FALLS INLET BAR SCREEN PROJECT	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$129,843
Captive	\$3,433
Misc.	\$0
AFUDC	\$5,767
Total	\$139,043

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22
23 Please see Dataroom, Eason Testimony, folder entitled, “PD Mtn. Falls Inlet Bar Screen
24 INV GL RTRMT”.
25

26 **Q.114 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**
27
28

1 A.114 Yes. The only vendor that was interested in the project was Aqua Tec. GBWC reach out to
2 three (3) vendors, and two (2) vendors not interested in participating.
3

4 **Q.115 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
5 **PROJECT?**

6 A.115 No, engineering work was not required for removal and replacement of the inlet bar screen.
7

8 **Q.116 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD MTN. FALLS**
9 **INLET BAR SCREEN PROJECT.**

10 A.116 Please *see* Dataroom, Eason Testimony, folder entitled, “PD Mtn. Falls Inlet Bar Screen
11 RFP BIDS CONTRACTS”.
12

13 **Q.117 PLEASE PROVIDE ALL PERMITS FOR THE PD MTN. FALLS INLET BAR**
14 **SCREEN PROJECT.**

15 A.117 No permits were required for this project.
16

17 **Q.118 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE PD**
18 **MTN. FALLS INLET BAR SCREEN PROJECT.**

19 A.118 Please *see* Dataroom, Eason Testimony, folder entitled, “PD Mtn. Falls Inlet Bar Screen
20 REPORTS PHOTOS MISC”.
21

22 **Q.119 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
23 **THIS PROJECT.**

24 A.119 The assets retired are as follows:

- 25 • Inlet Bar Screen
- 26
27
28

1 **Q.120 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
2 **PROJECT WERE REASONABLE?**

3 A.120 The replacement of the inlet bar screen with a new and updated bar screen will save costs
4 and disruptions by avoiding future malfunctions, backups and needs for repairs as had
5 occurred in recent years. Additionally, the new equipment eliminates the safety hazards
6 and the need for operators to manually remove the inorganic material. In completing this
7 project, GBWC provided thorough oversight and followed best business practices in
8 bidding, decision-making, invoice review, as well as cost-saving measures. Completion of
9 this project will allow GBWC to continue to provide safe and reliable service to its
10 customers.

11
12 **PD Confined Space Project (Project ID 2022125)**

13 **Q.121 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE PD CONFINED SPACE**
14 **PROJECT.**

15 A.121 The purpose of this project is to provide fall protection to all employees at each lift station
16 while the wet well, check valve, and/or the meter vaults are in the open position, reducing
17 risk of injury to employees and be in compliance with OSHA Fall Protection requirements
18 and GBWC safety policies. GBWC began this project with a field meeting with Hamilton
19 and Blake of Las Vegas on July 8, 2022. GBWC provided a complete walkthrough of all
20 lift stations and discussed the required fall protection. This included grating/webbing inside
21 the vaults and a portable fall arrest post tie-off point, so the employees are safe from falling
22 into any open vaults while work is being conducted. GBWC held meetings with Hamilton
23 and Blake over the next several months and receive a proposal to install the fall protection
24 on October 20, 2022. GBWC accepted, signed, and returned the proposal. GBWC drew up
25 a contract for Hamilton and Blake to sign, but for reasons unknown to GBWC, Hamilton
26 and Blake did not respond to any requests from that point on. After several months of trying
27 to reach out to the vendor, GBWC felt it would be best to evaluate other options.

28

1 In February 2023, GBWC conducted a site visit of the lift station facilities with Preferred
2 Construction, from Las Vegas. Preferred Construction agreed to move forward with this
3 project. This project consisted of fall protection grating installation, a powder-coated metal
4 grating for lift stations that were constructed of concrete for anchoring purposes, and a
5 stainless-steel wire webbing for the lift stations that contain a metal lid. The contractor was
6 required to install two engineered portable fall arrest posts at each lift station for the
7 operations team to be tied to when the lift station vaults were in the open position. The
8 installation of the fall protection began on November 1, 2023, at Lift Station 5. The
9 contractor installed the engineered concrete anchoring block for the portable fall arrest post
10 to be anchored to and installed the stainless-steel webbing at this site. Preferred
11 Construction continued with the engineered concrete slab and the grating/webbing
12 installation at all lift stations. In March of 2024, Preferred Construction completed the
13 project, which was then placed into service in April 2024.
14

15 **Q.122 WHEN WAS THE PD CONFINED SPACE PROJECT PLACED IN SERVICE?**

16 A.122 The Confined Space Project was placed into service on April 9, 2024.
17

18 **Q.123 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
19 **COMMISSION THROUGH AN IRP PROCESS?**

20 A.123 No, GBWC did not seek a prudency determination for this project in the IRP. This project
21 was determined to be necessary in consideration of the significant safety risk associated
22 with working around open vaults at the lift stations.
23

24 **Q.124 WHAT WERE THE FINAL COSTS OF THIS PROJECT AND HOW DO THEY**
25 **COMPARE TO THE ORIGINAL ESTIMATE?**

26 A.124 The final actual costs for this project \$211,905, broken down as set forth below.
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PD CONFINED SPACE PROJECT	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$198,581
Captive	\$6,664
Misc.	\$0
AFUDC	\$6,659
Total	\$211,905

Please see Dataroom, Eason Testimony, folder entitled, “PD Confined Space Project INV GL RTRMT”.

Q.125 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT?

A.125 Yes. GBWC obtained a preliminary proposal from Hamilton and Blake, and then from Preferred Construction. In total GBWC reached out to two (2) vendors with one (1) vendor not interested in participating beyond a preliminary proposal.

Q.126 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?

A.126 No. Once GBWC received the preliminary proposal from Hamilton and Blake, they became unresponsive, therefore GBWC sought another vendor, Preferred Construction. Preferred Construction was the only vendor that was interested in the project.

CONSTRUCTION BIDS	
Hamilton and Blake	Preferred Construction
\$81,788.14	\$198,581.24

1 **Q.127 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
2 **PROJECT?**

3 A.127 No, engineering was not required for the installation of the grating/webbing fall protection.
4 The contractor provided their own civil engineering stamped plan set for the concrete and
5 anchoring of the posts.
6

7 **Q.128 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE PD CONFINED**
8 **SPACE PROJECT.**

9 A.128 Please *see* Dataroom, Eason Testimony, folder entitled, “PD Confined Space Project RFP
10 BIDS CONTRACTS”.
11

12 **Q.129 PLEASE PROVIDE ALL PERMITS FOR THE PD CONFINED SPACE PROJECT.**

13 A.129 No permits were required for this project.
14

15 **Q.130 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE PD**
16 **CONFINED SPACE PROJECT.**

17 A.130 Please *see* Dataroom, Eason Testimony, folder entitled, “PD Confined Space REPORTS
18 PHOTOS MISC”.
19

20 **Q.131 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
21 **THIS PROJECT.**

22 A.131 No assets were retired for this project.
23

24 **Q.132 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
25 **PROJECT WERE REASONABLE?**

26 A.132 In completing this project, GBWC provided thorough oversight and followed best business
27 practices in bidding, decision-making, invoice review, as well as cost-saving measures. By
28

1 completing this project, GBWC is protecting employees from hazardous conditions that
2 could lead to serious injury or death by a fall into a wet well, while being in compliance
3 with OSHA Fall Protection requirements and GBWC safety policies.
4

5 **Spring Creek Division Projects Completed before End of Test Year**

6
7 **SCD Well 4 Rehabilitation (Project ID 2021161)**

8
9 **Q.133 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD WELL 4**
10 **REHABILITATION PROJECT.**

11 A.133 In October 2022, GBWC-SCD contracted with Stonehouse Drilling & Construction, out of
12 Reno, to rehabilitate Well 4 after submitting intents to bid to multiple contractors. The
13 objective of the work was to restore specific capacity in Well 4. Stonehouse pulled the
14 pumping equipment from Well 4 and ran an initial video survey on October 7, 2022. No
15 major integrity issues were observed in the well during the first video survey, although
16 substantial scaling (mineralization) and mill slot plugging was observed in portions of the
17 well. A blockage was encountered in the well at approximately 324 feet bgl which
18 prevented the survey camera from continuing down the hole. The obstruction resembled a
19 piece of pipe, rod, or possible construction material which had scaled over heavily. After
20 several attempts to maneuver the camera past the obstruction, Stonehouse decided to
21 terminate the survey above the obstruction.
22

23 Following the video survey, Stonehouse bailed the well, dislodged the blockages, and
24 removed debris from the bottom of the casing. The well was then shock chlorinated and
25 cleaned with a wire brush to remove any organic matter (pretreatment). Airlifting was then
26 completed from top to bottom on the screen interval to remove any materials dislodged by
27 the wire brush. A second video survey was subsequently completed on October 21, 2022,
28

1 and the previous blockage had been pushed to the bottom of the well. The video survey
2 continued to the total depth of the well at approximately 432 feet bgl. The material that
3 previously caused the blockage was observed at the bottom of the well. Based on the second
4 video survey, it appears that brushing and airlifting efforts removed some of the plugging
5 of the mill slots. However, additional cleaning and rehabilitation measures were required
6 to ensure the removal of scale buildup observed in the well. Additionally, the video
7 confirmed that the construction of the well matches the information provided on the well
8 log. The well integrity appeared to be in good condition and did not reveal any damaged
9 sections that would require repairs.

10
11 A primary treatment of Cotey chemicals (acid treatment) were applied and brushed into the
12 well on November 5, 2022. The chemicals were applied into the screen intervals using a
13 brushing and swabbing tool. Once the pH of the water in the well reached 5, the brushing
14 and swabbing was complete. This process took several days to complete. Following the
15 chemical and mechanical treatment to the well, airlift development occurred to evacuate
16 all the spent chemicals. The airlift water was initially discharged into frac tank for final
17 neutralization, followed by disposal of the water onto the local golf course. Extreme cold
18 weather required the contactor to temporarily suspend work due to the equipment not
19 running properly.

20
21 Stonehouse returned to the Well 4 site on December 12, 2022, to install a test pump and
22 perform pump development. Stonehouse started pump development on December 15,
23 2022, and continued until the discharge water began to inundate the adjacent road, which
24 caused Stonehouse to temporarily cease pumping. Pump development continued through
25 December 16 and was terminated once clear discharge water was observed. The test pump
26 was pulled at the conclusion of pump development and the well was disinfected in
27

1 accordance with AWWA C654-13. Stonehouse modified the discharge head to
2 accommodate the elevated casing head to the discharge assembly.

3
4 Due to supply chain issues, Lumos recommended GBWC-SCD convert the existing
5 vertical turbine pumping system to a new submersible pumping system in order to resume
6 operations as soon as possible. The existing pump assembly was heavily worn and would
7 either need to be rebuilt or replaced. A new submersible pumping system was designed by
8 Lumos which included a Grundfos 800S1250-5-AA pump and 125 HP Franklin motor. On
9 December 17, 2022, Stonehouse installed the new submersible pumping system including
10 a shroud to ensure proper water flow past the motor. On December 20, 2022, the modified
11 discharge head was installed, and Stonehouse was prepared to begin the pump test.

12
13 The pump test was designed to discharge into the water system, necessitating two negative
14 total coliform tests. On December 20, 2022, GBWC-SCD reported that the pump to waste
15 at Well 4 could only be run for 15 to 20 minutes before the road became inundated with
16 water, disrupting access to the adjacent Spring Creek Homeowners Association (“HOA”)
17 maintenance yard. This short flush time was not adequate to collect samples, and chlorine
18 was still detected after the short flush attempts. GBWC-SCD requested that the flushing be
19 performed for 45 minutes before acceptable samples are collected and tested for total
20 coliform.

21
22 A representative from a local water hose supplier, Faulstich & Rand Construction (“FRC”),
23 was asked to install a new 5-inch fire hose on December 21, 2022, so that Well 4 could be
24 discharged to the same area that the pump development water was conveyed. The FRC
25 hoses were installed and reportedly popped soon after flushing began. GBWC-SCD was
26 forced to look for and order alternative hoses as FRC did not have any alternatives
27 available.

28

1 New hoses were delivered to the well site on December 28, 2022; however, modifications
2 were required on December 29, 2022, to be able to utilize the new hoses. Due to a limited
3 area to discharge the water, the flushing could not be accomplished. GBWC staff contacted
4 the operations manager for the HOA to get permission to pipe the water across the HOA
5 driveway, which was granted. Initial pumping was measured at 1,200 gallons per minute
6 and the discharge water appeared discolored.

7
8 Adequate discharge hoses were installed, and water samples were taken on January 6,
9 2022. The water sample showed an absence of total coliform based on a WETLAB
10 laboratory report.

11
12 A 12-hour constant rate pump test with the new pump and motor was performed by
13 Stonehouse Drilling on January 13, 2022, with manual sounder readings provided by
14 Stonehouse for analysis. The pumping rate for the 12-hour constant pump test was
15 measured at 800 gallons per minute, resulting in a pumping water level of 171 feet bgl.
16 This equated to 79 feet of drawdown from the static water level of 91.5 feet bgl measured
17 before starting the test. In order to perform the constant pump test, GBWC-SCD maintained
18 a low tank level so that Well 4 could discharge into the distribution system which then back
19 filled the storage tank, ensuring it didn't overflow.

20
21 In the GBWC 2021 Consolidated IRP, Lumos recommended that a VFD be installed on
22 Well 4 based on the system pressure measured. GBWC-SCD reported that the operating
23 pressure was approximately 125 psi in October 2022. It was recommended that an output
24 filter be integrated with the VFD to prevent damage to the motor due to the length of the
25 cable between the proposed VFD and the submersible motor. A motor operating on a VFD
26 without an output filter is subject to harmonic distortion that causes excessive stress and
27

1 efficiency losses that would potentially void any warranty provided by the motor
2 manufacturer.

3
4 GBWC-SCD requested that I&E order an ABB 200-HP VFD with a 250A TCI output
5 filter. The electrical contractor, I&E, installed the specified VFD, after it arrived in April
6 2023.

7
8 **Q.134 WHEN WAS THE SCD WELL 4 REHABILITATION PROJECT PLACED IN**
9 **SERVICE?**

10 A.134 The Well 4 Rehabilitation Project was placed into service on June 1, 2023.

11
12 **Q.135 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
13 **COMMISSION THROUGH AN IRP PROCESS?**

14 A.135 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
15 Consolidated IRP and received approval from the Commission. Please *see* 2021 IRP Order
16 at p. 4 ¶ 5(c).

17
18 **Q.136 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

19 A.136 The estimated project cost was \$321,316.

20
21 **Q.137 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
22 **APPROVED BY THE COMMISSION?**

23 A.137 No, there were no substantial changes to this project.

24
25 **Q.138 WHAT WERE THE FINAL COSTS OF THIS PROJECT, AND HOW DO THEY**
26 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

27

28

1 A.138 The total actual project cost was \$268,814, broken down as set forth below. This was
 2 84% of the approved GBWC 2021 Consolidated IRP estimate of \$321,316.

SCD WELL 4 REHABILITATION PROJECT	
Activity	Actual Costs
Design and Permitting	\$14,943
Construction	\$245,081
Captive	\$1,020
Misc.	\$0
AFUDC	\$7,771
Total Project Cost	\$268,814

11
 12 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 4 Rehabilitation
 13 Project INV GL RTRMT”.

14
 15 **Q.139 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?**

16 A.139 Yes, the utility issued an RFP to two (2) well drillers. One declined to participate, and the
 17 other, Stonehouse Drilling, was awarded the project.

CONSTRUCTION OVER DRILL BIDS	
Bruce MacKay Drilling	Stonehouse Drilling
Declined	\$64,770

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 19
 20
 21
 22
 23 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 4 RFP BIDS
 24 CONTRACTS”.

25
 26 **Q.140 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

1 A.140 Yes. The project was awarded to the lowest and only bidder, Stonehouse Drilling, as their
2 proposal was substantially lower than the original projected cost for the rehabilitation of
3 this well.
4

5 **Q.141 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
6 **PROJECT?**

7 A.141 Yes, GBWC reached out to three (3) engineering firms. One engineering firm declined to
8 participate, and two (2) engineering firms provided a proposal, which was Lumos and
9 Associates and Farr West Engineering. After GBWC reviewed all proposals Lumos and
10 Associates was the lowest bidder and awarded the contract.
11

ENGINEERING BIDS		
Farr West Engineering	Golder	Lumos & Associates
\$127,500	Declined	\$13,230

12
13
14
15
16 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Well 4 Rehabilitation RFP
17 ENGINEER BIDS CONTRACTS".
18

19 **Q.142 PLEASE PROVIDE ALL PERMITS FOR THE SCD WELL 4 REHABILITATION**
20 **PROJECT.**

21 A.142 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Well 4 Rehabilitation
22 REPORTS PHOTOS MISC".
23

24 **Q.143 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SCD**
25 **WELL 4 REHABILITATION PROJECT.**
26
27
28

1 A.143 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Well 4 Rehabilitation
2 REPORTS PHOTOS MISC".

3

4 **Q.144 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
5 **THIS PROJECT.**

6 A.144 The assets retired are as follows:

- 7 • Johnson 10GMC, 12 stage turbine
- 8 • Motor, GE 125 hp.
- 9 • Column Pipe, 8'' x 2-1/2'' x 1-1/2'' column pipe, oil tube and shaft
- 10 • Well Head, Worthington oil lube
- 11 • Level Transducer, Air line

12

13 **Q.145 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
14 **PROJECT WERE REASONABLE?**

15 A.145 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP.
16 GBWC provided thorough oversight and followed best business practices in bidding,
17 decision-making, invoice review, as well as cost-saving measures. The final costs were
18 reasonable, falling below estimates and ensuring safe, reliable service to customers.

19

20 SCD Well 11 Rehabilitation (Project ID 2021159)

21

22 **Q.146 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD WELL 11**
23 **REHABILITATION PROJECT.**

24 A.146 In December 2021, Well 11 ceased functioning and was assessed by a local electrical
25 contractor. The assessment found there was a ground fault to the motor, which usually
26 indicates a motor failure. GBWC-SCD contracted Stonehouse Drilling on an emergency
27 basis to pull the pumping equipment and provide a video survey of the well. On January

28

1 11, 2022, the submersible pumping system was pulled out of the well, and a video survey
2 was conducted on January 13, 2022. The integrity of the well casing appeared good from
3 what is visible in the video survey. The upper screen interval, consisting of wire wrap
4 screen (150 ft-200 ft), appeared very heavily plugged. The second screen interval,
5 consisting of mill slots (200 ft-320ft), was also very heavily plugged. The two lower screen
6 zones (350 ft-360 ft and 370 ft-440 ft) were so heavily coated with nodules that the mill
7 slots could not be visually distinguished between the screen intervals and blank casing.
8 Lumos & Associates recommended a full rehabilitation of the well.

9
10 On March 15, 2022, Lumos prepared and submitted an application for a DeMinimis Permit
11 for Well 11's water discharge to NDEP. NDEP requested additional information on April
12 6, 2022, which GBWC provided and NDEP approved the permit on April 7, 2022. After
13 evaluating methods for water discharge at Well 11, it was agreed that land application was
14 the best method. Previous discharge projects were reported to have issues with back flow
15 coming up the drainages. The NDEP DeMinimis Permit discharge path was still valid, but
16 due to the flow path going through several private properties, GBWC and Lumos agreed
17 that this method be used as a contingency for the pump test discharge.

18
19 A video survey was recorded on May 5, 2022, after the shock chlorination of the well.
20 Stonehouse was able to remove 11 feet of fill, compared to the first video survey. The
21 screen and slots were still significantly plugged after chlorination, and a full acid treatment
22 was deemed necessary based on the high amount of mineral buildup viewed during the
23 video survey. The well was then acid treated on May 15, 2022. A third video survey
24 recorded on May 16, 2022, revealed that the screen and slots were still heavily plugged
25 with mineral buildup. The water column in the well was very cloudy, indicating that there
26 was no flow occurring in a large portion of the mill slot casing. The nodules were greatly
27 reduced, but the heavy mineral buildup on the perforations could still impact the well

1 capacity. Further rehabilitation to remove the scaling could potentially help improve well
2 capacity. On May 17, 2022, a conference call was held to discuss the results of the acid
3 treatment. GBWC and Lumos agreed that further rehabilitation should be explored, but not
4 until the fall season after the period of highest water demand had passed. The potential for
5 an Aqua Freed rehabilitation method was discussed but was deemed too costly for this
6 phase of the project. Lumos contacted Stonehouse to inquire about equipment for jetting
7 wells or an alternative chemical prescription to attempt to remove the apparent mineral
8 buildup on the casing and penetrate into the filter pack.

9
10 Stonehouse and Lumos discussed mineral removal strategies, suggesting Cotey Chemicals.
11 Stonehouse ordered the supplies and had them freighted to Elko, Nevada on May 20, 2022.
12 Stonehouse injected chemicals to acid treat the well on May 20, 2022, with the pH
13 declining to 0.1. The swabbing took place on May 21 (pH 3.0) and May 22 (no pH
14 recorded). Two 12-hour shifts of airlift development were completed on May 23. Two
15 additional 12-hour shifts of airlift development were completed on May 24. Discharge
16 water from airlift development water was successfully land applied in an appropriate area.
17 Work completed on May 25 included running potable water down the well in preparation
18 for the video survey. The camera deployed on May 26 and provided to Lumos for review.
19 This video survey revealed that the well still had significant mineral buildup after utilizing
20 the Cotey Chemicals. The open section of the casing was severely plugged by mineral scale
21 and the video showed several sections in the well where there was little to no flow. The
22 change of chemicals did not appear to drastically improve the scaling present in the well.

23
24 A constant pump test was planned as a 24-hour test, but due to concerns with water
25 discharge and the cost to rent the necessary pipe for discharging the water, it was decided
26 that a 12-hour pump test would sufficiently test the aquifer back into the system to collect
27 a new specific capacity. Prior to this current work, GWBC-SCD had evidence that there

1 may be current holes throughout the casing, compromising the well integrity. GBWC-SCD
2 opted to evaluate and rehabilitate this well in conjunction with Well 4, also located in the
3 Spring Creek area. Well 11 was re-equipped with a new pumping system and put back
4 online during the summer high water demand season.

5
6 Following the summer high water demand season, Stonehouse completed another video
7 survey of the well on October 7, 2022, after pulling the pumping equipment from the well.
8 The video clarity was extremely poor due to clouded water and scaling on the casing. There
9 were several sections of the video which may have depicted holes or other integrity issues
10 in the casing but could not be discerned with certainty due to the poor video quality.
11 GBWC-SCD opted to run an additional, higher-quality video before moving forward with
12 further rehabilitation work. Work was temporarily suspended at the well site in late 2022
13 due to weather conditions. Due to storms and low winter temperatures, Stonehouse could
14 not continue working, as their equipment and hydraulics were not functioning properly in
15 the low temperatures.

16
17 Pacific Surveys was contracted to complete an additional video of the well on January 23,
18 2023. This video was better quality than the previous one and revealed multiple holes
19 throughout the casing. The new video suggested that biofouling material regenerates
20 rapidly in this well, even with acid treatment and brushing actions. Based on the new video
21 findings, GBWC-SCD opted to proceed with a series of rehabilitation measures.

22
23 It was recommended to place swage patches in the well from 313 to 317 ft bgl and 419 to
24 423 ft bgl to cover large holes observed in the casing. The goal of placing swages was to
25 increase the well integrity for additional longevity. Finally, with a break in the weather,
26 Longmire Drilling mobilized to the site on April 5, 2023, placing the swages from 313 to
27 317 ft bgl and from 419 to 423 ft bgl the next day, April 6, 2023. Stonehouse Drilling
28

1 performed a video survey on May 3, 2023, at Well 11, commenting that the swages
2 appeared well placed. Lumos reviewed the video on May 4, 2023, and gave Stonehouse
3 Drilling the authorization to complete the rehabilitation. The video placed the swage depths
4 from approximately 313.80 to 318.85 ft bgl and 420.08 to 425.18 ft bgl. An additional acid
5 treatment was performed following the swage placement.

6
7 Well 11 was again shocked chlorinated and the new pumping equipment was installed in
8 the well on May 4, 2023. The new pump consisted of a Goulds 9RCLC 4-stage submersible
9 pump with a Franklin 150-HP motor. The new pump was installed to a depth of
10 approximately 300 ft on 6-inch column pipe. Approximately 320 ft of 250 MCM flat
11 jacketed electrical cable was installed with the pump. A 10-inch PVC shroud was also
12 installed around the pumping system.

13
14 Passing Bacti analytical results for Well 11 were received on June 6, 2023. The media in
15 the arsenic treatment system was removed and replaced on June 9, 2023. Routine
16 replacement of the media is necessary in order to properly treat for arsenic in the drinking
17 water supply. A pumping test was postponed after the rehabilitation work because it was
18 necessary to bring the well back online immediately following the restoration of the arsenic
19 treatment system. After a certified lab report that the water is safe and the arsenic treatment
20 system is functioning, a pump test was performed at Well 11. Otherwise, GBWC-SCD will
21 monitor the drawdown in the well and provide an updated specific capacity. Startup of the
22 well was delayed by pipe breaks in the arsenic treatment system throughout June and July
23 2023. Damage to the arsenic treatment system infrastructure may have been partly driven
24 by the exceptionally low temperatures experienced during the previous winter season. This
25 required the cleaning of vessel seals and replacement of damaged pipes prior to operating
26 the system. Final repairs to the treatment system were completed on July 7, 2023.

1 In early August 2023, operators faced challenges in obtaining a chlorine residual from the
2 well discharge. The chlorine residual is used as an extra safety measure for water treatment
3 and is not required by regulation. It is likely that chlorine concentrations are being lowered
4 in some portion of well's arsenic treatment system. Operators applied modest increases to
5 the input chlorine concentration to obtain a residual from the discharge without elevating
6 the chlorine to a level that would lead to customer complaints. The chlorine residual was
7 successfully obtained on August 8, 2023. On August 29, 2023, a flow rate of 500 gpm was
8 verified at Well 11. The pumping water level was measured in the well on August 30, 2023,
9 at 89 ft bgl. For reference, the static water level was approximately 23.5 ft bgl in May 2023.
10 Based on this pumping rate and the degree of drawdown, the calculated specific capacity
11 of the well post-rehabilitation was 7.6 gpm/ft.
12

13 **Q.147 WHEN WAS THE SCD WELL 11 REHABILITATION PROJECT PLACED IN**
14 **SERVICE?**

15 A.147 The Well 11 Rehabilitation Project was placed into service on June 1, 2023.
16

17 **Q.148 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
18 **COMMISSION THROUGH AN IRP PROCESS?**

19 A.148 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
20 Consolidated IRP and received approval from the Commission. Please *see* 2021 IRP Order at p.
21 4 ¶ 5(b).
22

23 **Q.149 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

24 A.149 The estimated project cost was \$283,979.
25

26 **Q.150 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
27 **APPROVED BY THE COMMISSION?**

1 A.150 Yes, there were substantial changes to this project. As the well rehabilitation progressed,
 2 there were additional treatments of Cotey Acid that was necessary to clean the well screens.
 3 Due to the additional treatments, the summer months approached and required GBWC to
 4 place the well back into service for pumping capacity during the summer season before the
 5 rehabilitation was completed. GBWC requested Stonehouse return later and continue the
 6 rehabilitation. GBWC's engineer needed to apply to NDEP for a DeMinimis Permit, as it
 7 was necessary to apply to discharge water during the pump test via land application.
 8

9 **Q.151 WHAT WERE THE FINAL PROJECT COSTS, AND HOW TO THEY COMPARE**
 10 **TO THE IRP CONCEPTUAL ESTIMATE?**
 11

12 A.151 The final actual costs for this project totaled \$357,201, broken down as set forth below.
 13 The project costs were approximately 26% higher than what was approved in the GBWC
 14 2021 Consolidated IRP estimate. The overrun costs of the project were caused by the
 15 additional Cotey Acid treatments to clean the well screens, the well rehab moving into
 16 seasonal demand period which required GBWC to postpone the well rehab and place the
 17 well back into service for the pumpage season, the remobilization of Stonehouse Drilling
 18 in the cooler season to finish the rehab, and the permitting of the NDEP DeMinimis Permit.
 19 All these factors contributed to the overrun of the project.
 20

SCD WELL 11 REHABILITATION PROJECT	
Activity	Actual Costs
Design and Permitting	\$33,817
Construction	\$299,674
Captive	\$2,576
Misc.	\$605
AFUDC	\$20,529

Total Project Cost	\$357,201
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Please see Dataroom, Eason Testimony, folder entitled, “SCD Well 11 Rehabilitation Project INV GL RTRMT”.

Q.152 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

A.152 Yes, the utility requested pricing from two (2) well drillers. One declined to participate, and the other, Stonehouse Drilling, was awarded the project.

CONSTRUCTION OVER DRILL BIDS	
Carson Pump	Stonehouse Drilling
Declined	\$173,429

Please see Dataroom, Eason Testimony, folder entitled, “SCD Well 11 RFP BIDS CONTRACTS”.

Q.153 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?

A.153 Yes. The contract was awarded to the lowest and only bidder, Stonehouse Drilling, as their proposal was substantially lower than the original projected cost for the rehabilitation of this well.

Q.154 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS PROJECT?

A.154 Yes, GBWC reached out to three (3) engineering firms. One engineering firm declined to participate, and two (2) engineering firms provided a proposal, which was Lumos and Associates and Golder. After GBWC reviewed both Lumos and Associates and Golder’s proposals, the contract was awarded to Lumos and Associates who was the lowest bidder.

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ENGINEERING BIDS		
Farr West Engineering	Golder	Lumos & Associates
Declined	\$17,217	\$810 + T&M

Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 11 Rehabilitation RFP ENGINEER BIDS CONTRACTS”.

Q.155 PLEASE PROVIDE ALL PERMITS FOR THE SCD WELL 11 REHABILITATION PROJECT.

A.155 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 11 Rehabilitation REPORTS PHOTOS MISC”.

Q.156 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SCD WELL 11 REHABILITATION PROJECT.

A.156 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 11 Rehabilitation REPORTS PHOTOS MISC”.

Q.157 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF THIS PROJECT.

- A.157 The assets retired are as follows:
- Old Pump: Berkeley 10T150-750
 - Motor: Hitachi 150 Hp 460 Volt 3 Phase
 - Column Pipe: 6-inch tapered
 - Well Head: Standard submersible
 - Level Transducer: Installed in a 1" Sounding tube

1 **Q.158 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
2 **PROJECT WERE REASONABLE?**

3 A.158 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP. In
4 completing this project, GBWC provided thorough oversight and followed best business
5 practices in bidding, decision-making, invoice review, as well as cost-saving measures.
6

7 **SCD Well 12 Emergency Rehabilitation (Project ID 2023217)**
8

9 **Q.159 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD WELL 12**
10 **EMERGENCY REHABILITATION PROJECT.**

11 A.159 On April 27, 2022, Well 12 went down. While attempting to restart the well, the operators
12 commented that a sound coming from the motor suggested a bearing was failing. In
13 addition, there was another strange noise coming from inside the well. The well was shut
14 down by GBWC-SCD and Stonehouse Drilling was contracted the following day to pull
15 the pumping system and inspect the equipment at their earliest availability. After the
16 pumping equipment was pulled on May 3, 2022, a video survey was conducted the
17 following day. Stonehouse reported that the pump needed new wear rings and bearings.
18 The motor also required minor repairs due to a bad thrust bearing. GBWC-SCD requested
19 a proposal from Lumos to review the video survey, make recommendations based on their
20 findings, and generate a close out report for Well 12 when the project was completed.

21 A review of the video survey from May 4, 2022, showed that the screened portion of the
22 well was heavily plugged starting at 180 ft bgl and continuing through the well. A swage
23 is apparent from the video from 330.9 to 335 ft bgl. The top of another swage starts at
24 450.56 and ends at 456.36 ft bgl. A third swage was encountered from 465.5 to 469.5 ft
25 bgl. Another swage was encountered at 479.3 ft bgl as evidenced by the appearance of a
26 twisted wire just above this swage. The bottom of the swage was not visible with all the
27 buildup and nodules present. The twisted wire could either be damaged wire wrap screen
28

1 or the wire hanger for the swage. The blank casing from 500 to 570 ft bgl contains
2 significant nodules. At 573.5 ft bgl there is another possible swage present, however, it was
3 difficult to determine given the significant nodule and mineral buildup. There were areas
4 where the water was cloudy occurring at 734.38, 750, and 796.39 ft bgl, suggesting possible
5 no flow zones. The top of the fill was documented at 802 ft bgl. Based on these findings,
6 it was apparent Well 12 needed a full cleaning and rehabilitation with shock chlorination,
7 acid treatment, and redevelopment.

8
9 Well 12 was pulled and due to the time of year and the need for water, GBWC-SCD
10 identified this well as critical to the system. With Well 12 offline, GBWC-SCD staff
11 advised that customers were reporting complaints of milky water and lower pressure as a
12 result of relying only on Well 8 and Well 9. To prevent pressure issues in the Tract 400
13 lower pressure zone due to rising temperatures and water demand, a prompt repair of Well
14 12 was deemed necessary. GBWC and Lumos met to discuss the best strategy to restore
15 Well 12. GBWC suggested postponing the cleaning and rehabilitation until the fall, after
16 peak water demand ended. It was agreed that postponing the cleaning and rehabilitation
17 was the best choice for the Spring Creek Division overall. Following this decision,
18 Stonehouse was given approval to reinstall the pump and motor after rebuilding the pump
19 and repairing the motor's thrust bearing.

20
21 GBWC collected water quality samples from Well 12 on May 27, 2022, to ensure there
22 was no presence of e. coli or total coliform. The results from WETLAB sent to GBWC-
23 SCD on May 31, 2022, revealed the absence of concerning microbiological constituents
24 and the well was permitted to pump into the system. GBWC reported that Well 12 produced
25 300 gpm on June 9, 2022.

1 Stonehouse Drilling was then scheduled to perform the cleaning and rehabilitation in the
2 winter of 2023. The scheduled cleaning and rehabilitation consisted of pulling/reinstalling
3 the pumping equipment, pretreatment cleaning via shock chlorination, two primary acid
4 treatments, two airlift developments, three video surveys, pump development, water
5 management, and well disinfection.

6
7 Lumos assisted GBWC with obtaining a temporary discharge permit to discharge the
8 development water on Spring Creek Association (“SCA”) property via land application.
9 GBWC obtained the required permits from the SCA to discharge the water. The temporary
10 discharge permit required Stonehouse to decant and neutralize the well development water
11 in a frac tank before it was pumped to land application sprinklers. The discharge water
12 from the sprinklers flowed gently over the existing ground surface under Bronco Drive to
13 the GBWC infiltration field. The temporary discharge permit allowed excess water to flow
14 past the infiltration area to Dry Creek. Stonehouse was responsible for providing daily flow
15 records and pH readings of the development water. GBWC was responsible for taking
16 photos at select monitoring points before, during, and after discharging to ensure that no
17 erosion was occurring. GBWC was also required to collect water quality samples for pH
18 levels. Lumos was responsible for compiling the data from both Stonehouse and GBWC-
19 SCD and filling the Discharge Monitoring Report (“DMR”) to NDEP’ s BWPC.

20
21 On May 3, 2023, Stonehouse pulled the pumping equipment out of Well 12. They ran water
22 down the well to clear up the water column and performed a video survey on May 4, 2023.
23 Lumos reviewed the video survey and gave Stonehouse approval to move forward with the
24 pretreatment on May 9, 2023. The pre-treatment, consisting of shock chlorination and
25 brushing, was completed on May 10, 2023. Additional time was required to remove
26 approximately 30 feet of fill that had accumulated at the bottom of the well after the
27 pretreatment brushing.

1 Following the pretreatment, acid was injected into Well 12 and swabbed on May 10, 2023.
2 Swabbing continued until the pH of the water in the well reached 5.0 or greater, which was
3 accomplished on May 14, 2023. Following the acid treatment, the well was redeveloped
4 utilizing the permit requirement mentioned earlier. Following development, Stonehouse
5 injected water into the well to clear up the water column in preparation for conducting a
6 post acid treatment video survey. The video survey was completed on May 15, 2023.

7
8 Lumos reviewed the second video survey on May 15, 2023. Small holes measuring
9 approximately 1/4 of an inch or less were observed in the video near 620 ft bgl. Small holes
10 were noted, but not considered to be of significant concern. Lumos gave the approval to
11 proceed with a second acid treatment and planned to evaluate the holes after the final video
12 survey to assess if swages were warranted. Stonehouse began the second primary treatment
13 on May 20, 2023, and completed it on May 23, 2023. Following the second acid treatment,
14 which was similar to the first, the well was once again redeveloped using the permitting
15 procedures associated with the temporary discharge permit. The frac tank was fully
16 evacuated on May 24, 2023, and Stonehouse disinfected the well on May 25, 2023.

17
18 The DMR was compiled and sent to NDEP' s BWPC on May 30, 2023. No violations were
19 reported for the DMR. Due to the absence of laboratory pH analysis, Stonehouse pH
20 samples were used. The pH lab values from WETLAB were submitted with the final DMR
21 per BWPC' s requirements.

22
23 While the rehabilitation was underway, Stonehouse assessed the pumping equipment and
24 reported on May 15, 2023, that the pump suction bowl was worn out and should be
25 replaced. GBWC-SCD approved the change order of a new pump suction for the pump
26 intake. The pumping equipment was installed on May 31, 2023, by Stonehouse.
27 Stonehouse reported that they installed a rubber disc around the column pipe above the

1 pump assembly to prevent cascading water from free falling into the pumping water level,
2 which would result in cavitation of the pump. The pump assembly was set at 474 ft bgl.
3 On May 27, 2023, Bacti samples were collected and sent to WETLAB for analysis, where
4 there was no indication of total or fecal coliform, allowing GBWC-SCD to start using the
5 well.

6
7 On June 13, 2023, the well triggered an overvoltage alarm, leading GBWC-SCD to contact
8 Stonehouse to diagnose the issue. On June 14, 2023, Stonehouse inspected the motor and
9 reported that the anti-ratchet on the motor was not functioning properly, and a repair would
10 be required to get the well operational. Stonehouse removed the motor for repairs on June
11 23, 2023, and transported it to a motor repair shop to fix the issue. Stonehouse returned on
12 June 29, 2023, to install the repaired motor. GBWC-SCD reported on July 25, 2023, that
13 Well 12 was pumping at 350 gpm.

14
15 **Q.160 WHEN WAS THE SCD WELL 12 EMERGENCY REHABILITATION PROJECT**
16 **PLACED IN SERVICE?**

17 A.160 The Well 12 Emergency Rehabilitation Project was placed into service on July 25, 2023.
18

19 **Q.161 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
20 **COMMISSION THROUGH AN IRP PROCESS?**

21 A.161 No. This project was an emergency project that became necessary due to the pumping
22 equipment failing at Well 12. The intent of this project was to remove the existing pumping
23 equipment, perform a video survey, and install new pumping equipment. Once the initial
24 video survey was conducted, GBWC realized that this emergency replacement would
25 require a full rehabilitation.

26
27 **Q.162 WHAT WAS THE TOTAL PROJECT COST?**

28

1 A.162 The total project cost was \$215,926, broken down as set forth below.

2

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SCD WELL 12 REHABILITATION PROJECT	
Activity	Actual Costs
Design and Permitting	\$29,811
Construction	\$180,828
Captive	\$2,124
Misc.	\$121
AFUDC	\$3,042
Total Project Cost	\$215,926

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11 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 12 Emergency
12 Rehabilitation Project INV GL RTRMT”.

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14 **Q.163 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?**

15 A.163 No, GBWC did not request RFPs from multiple contractors as this project was an
16 emergency. When the motor failed to start, GBWC contracted Stonehouse Drilling to
17 trouble shoot the electrical issue. When it was discovered that the motor went to ground,
18 GBWC requested Stonehouse pull the pumping equipment and install new pumping
19 equipment. Once the equipment had been removed and the well videoed, it was determined
20 that this well needed further rehabilitation work. Stonehouse Drilling provided a
21 reasonable construction bid of \$38,595 for the rehabilitation. Stonehouse has a proven
22 track record of reliable and cost-effective well rehabilitation work.

23 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Well 12 RFP BIDS
24 CONTRACTS”.

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1 **Q.164 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
2 **PROJECT?**

3 A.164 No, GBWC only reached out to one (1) engineering firm, which was Lumos and
4 Associates, due to this being an emergency well failure. Lumos provided a reasonable bid
5 for the work of \$9,000. Some of GBWC's concerns were that Well 12 is one of the systems
6 biggest producers, and the Well went down right before the summer pumping months
7 which historically are the highest pumping months of the year. GBWC needed to have this
8 well back online as quickly as possible to be able to continue to provide safe and reliable
9 service to the Spring Creek customers.

10 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Well 12 Rehabilitation RFP
11 ENGINEER BIDS CONTRACTS".

12
13 **Q.165 PLEASE PROVIDE ALL PERMITS FOR THE SCD WELL 12 EMERGENCY**
14 **REHABILITATION PROJECT.**

15 A.165 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Well 12 Emergency
16 Rehabilitation REPORTS PHOTOS MISC".

17
18 **Q.166 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SCD**
19 **WELL 12 EMERGENCY REHABILITATION PROJECT.**

20 A.166 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Well 12 Emergency
21 Rehabilitation REPORTS PHOTOS MISC".

22
23 **Q.167 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
24 **THIS PROJECT.**

25 A.167 No assets were retired as a part of this project.

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1 **Q.168 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
2 **PROJECT WERE REASONABLE?**

3 A.168 This project became necessary to implement emergency rehabilitation work after an
4 unexpected well failure. Throughout the project, GBWC provided thorough oversight and
5 followed best business practices in bidding, decision-making, invoice review, as well as
6 cost-saving measures. The rehabilitation of this well will ensure that GBWC is able to
7 continue providing safe and reliable service to its customers. The engineering proposal bid
8 was under \$10,000 and GBWC chose a contractor that is dependable, reliable, and with
9 reasonable costs.

10
11 **SCD Arsenic Media Well 11 Project (Project ID 2023235)**

12
13 **Q.169 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD ARSENIC MEDIA**
14 **WELL 11 PROJECT.**

15 A.169 The project consisted of removal and replacement of the media at Well 11. GBWC
16 contracted with AdEdge Water Technologies (“AdEdge”) to remove the existing media
17 and replace with the new arsenic media. AdEdge arrived on site, utilizing a vacuum truck,
18 they removed the media from the treatment system. Once completed with the extraction of
19 the old media, AdEdge installed the under-bedding gravel, Anthracite Grade Media, and
20 the ADGS+ Media. All new gaskets were installed to prevent any leakage. AdEdge
21 supervised and performed the chlorination, backwashing, recommissioning of the
22 treatment system. The old media was disposed of at a Non-Hazardous Landfill.

23
24 **Q.170 WHEN WAS THE SCD ARSENIC MEDIA WELL 11 PROJECT PLACED IN**
25 **SERVICE?**

26 A.170 The Arsenic Media Project was placed into service on August 10, 2023.
27
28

1 **Q.171 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
2 **COMMISSION THROUGH AN IRP PROCESS?**

3 A.171 No. This project was necessary to replace the arsenic media at Well 11 as recommended
4 by the manufacturer. The media is required to be replaced when necessary to assure that
5 the water system meets the Arsenic MCL limits set forth by the Safe Drinking Water Act.
6

7 **Q.172 WHAT WERE THE TOTAL PROJECT COSTS?**

8
9 A.172 The project costs totaled \$120,148, as broken down as set forth below.

SCD ARSENIC MEDIA WELL 11 PROJECT	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$111,993
Captive	\$800
Misc.	\$0
AFUDC	\$7,356
Total Project Cost	\$120,148

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19 Please *see* Dataroom, Eason Testimony, folder entitled, “SCD Arsenic Media Well 11
20 Project INV GL RTRMT”.

21
22 **Q.173 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?**

23 A.173 No, GBWC did not request RFPs from multiple contractors as this project was to replace
24 the media from the manufacturer. AdEdge is the proprietary manufacturer of the arsenic
25 media used in the AdEdge arsenic treatment equipment, provided a bid of \$93,242.18 for
26 the replacement work.
27

28

1 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Well 11 RFP
2 BIDS CONTRACTS".

3

4 **Q.174 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

5 A.174 No, GBWC ordered the arsenic media from the manufacturer for Well 11's equipment. A
6 contractor was not necessary for this project.

7

8 **Q.175 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
9 **PROJECT?**

10 A.175 No, an engineer was not required for the arsenic media replacement at Well 11.

11

12 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Well 11
13 Project RFP ENGINEER BIDS CONTRACTS".

14

15 **Q.176 PLEASE PROVIDE ALL PERMITS FOR THE SCD ARSENIC MEDIA WELL 11**
16 **PROJECT.**

17 A.176 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Well 11
18 Project REPORTS PHOTOS MISC".

19

20 **Q.177 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SCD**
21 **ARSENIC MEDIA WELL 11 PROJECT.**

22 A.177 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Well 11
23 Project REPORTS PHOTOS MISC".

24

25 **Q.178 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
26 **THIS PROJECT.**

27 A.178 The assets retired are as follows:

28

- 1 • 1/8"x1/16" Under bedding Gravel (GR10018)
- 2 • ADGS+ Media (MM10045)
- 3 • Anthracite Grade #1 - 0.6mm-0.8mm (MM10048)
- 4

5 **Q.179 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
6 **PROJECT WERE REASONABLE?**

7

8 A.179 This project was necessary for GBWC to continue providing safe and reliable service to
9 customers in the Spring Creek service area and to maintain compliance with the Safe
10 Drinking Water Act and the recommendations of the media manufacturer. In completing
11 this project, GBWC provided thorough oversight and followed best business practices in
12 bidding, decision-making, invoice review, as well as cost-saving measures.

13

14 **SCD Arsenic Media Replacement Well 1 (Project ID 2023271)**

15

16 **Q.180 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD ARSENIC MEDIA**
17 **REPLACEMENT WELL 1 PROJECT.**

18 A.180 The project consisted of removal and replacement of the arsenic media at Well 1, like Well
19 11 arsenic media replacement. GBWC contracted with AdEdge to remove the existing
20 media and replace with the new arsenic media. AdEdge arrived on site, utilizing a vacuum
21 truck, they removed the media from the treatment system. Once completed with the
22 extraction of the old media, AdEdge installed the under-bedding gravel, Anthracite Grade
23 Media, and the ADGS+ Media. All new gaskets were installed to prevent any leakage.
24 AdEdge supervised and performed the chlorination, backwashing, recommissioning of the
25 treatment system. The old media was disposed of at a Non-Hazardous Landfill.

1 **Q.181 WHEN WAS THE SCD ARSENIC MEDIA REPLACEMENT WELL 1 PROJECT**
2 **PLACED IN SERVICE?**

3 A.181 The Arsenic Media Project was placed into service on December 19, 2023.
4

5 **Q.182 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
6 **COMMISSION THROUGH AN IRP PROCESS?**

7 A.182 No. This project was necessary to replace the arsenic media at Well 1 as recommended by
8 the manufacturer. The media is required to be replaced when necessary to assure that the
9 water system meets the Arsenic MCL limits set forth by the Safe Drinking Water Act.
10

11 **Q.183 WHAT WERE THE TOTAL PROJECT COSTS?**

12 A.183 The project costs totaled \$80,444, broken down as set forth below.
13

SCD ARSENIC MEDIA WELL 1 PROJECT	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$79,198
Captive	\$770
Misc.	\$0
AFUDC	\$475
Total Project Cost	\$80,444

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22 Please see Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Replacement
23 Well 1 Project INV GL RTRMT".
24

25 **Q.184 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?**
26
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28

1 A.184 No, GBWC did not request RFPs from multiple contractors as this project was to replace
2 the media from the manufacturer. AdEdge is the proprietary manufacturer of the arsenic
3 media used in the AdEdge arsenic treatment equipment, provided a bid of \$73,948.24 for
4 the replacement work.

5
6 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Replacement
7 Well 1 RFP BIDS CONTRACTS".

8
9 **Q.185 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

10 A.185 No, GBWC ordered the arsenic media from the manufacturer for Well 1's equipment. A
11 contractor was not necessary for this project.

12
13 **Q.186 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
14 **PROJECT?**

15 A.186 No, an engineer was not required for the arsenic media replacement at Well 1.

16 **Q.187 PLEASE PROVIDE ALL PERMITS FOR THE SCD ARSENIC MEDIA REPLACE**
17 **WELL 1 PROJECT.**

18 A.187 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media
19 Replacement Well 1 Project REPORTS PHOTOS MISC".

20
21 **Q.188 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SCD**
22 **ARSENIC MEDIA REPLACE WELL 1 PROJECT.**

23 A.188 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Media Replacement
24 Well 1 Project REPORTS PHOTOS MISC".

25
26 **Q.189 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
27 **THIS PROJECT.**

28

1 A.189 The assets retired are as follows:

- 2 • 1/8"x1/16" Under bedding Gravel (GR10018)
- 3 • ADGS+ Media (MM10045)
- 4 • Anthracite Grade #1 - 0.6mm-0.8mm (MM10048)

5
6 **Q.190 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
7 **PROJECT WERE REASONABLE?**

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9 A.190 This project was necessary for GBWC to continue to provide safe and reliable service to
10 customers in the Spring Creek service area and to maintain compliance with the Safe
11 Drinking Water Act and the recommendations of the media manufacturer. In completing
12 this project, GBWC provided thorough oversight and followed best business practices in
13 bidding, decision-making, invoice review, as well as cost-saving measures.

14
15 **SCD Arsenic Drying Bed Well 11 (Project ID 2022209)**

16
17 **Q.191 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD ARSENIC DRYING**
18 **BED WELL 11 PROJECT.**

19 A.191 This project consisted of fabricating a welded steel arsenic drying bed tank at GBWC-
20 SCD's Well 11, per the stamped plan set provided by T.Y. Lin engineering. Superior Tank
21 Solutions completed all work as specified, fabricating and delivering the tank to Well 11.
22 The original "temporary arsenic drying beds" were developed, constructed and tested after
23 the installation of the arsenic treatment plant at Well 11. The beds were only intended to
24 be a temporary test project, which became a long-term temporary solution for addressing
25 the sludge drying and sludge hauling costs associated with the disposal of the arsenic cake,
26 which is a byproduct of the treatment process.

27
28

1 A local contractor, FRC was required to demo and remove the existing arsenic drying bed
2 infrastructure (plastic K-rails and HDEP liner) and regrade the site, prior to the new tank's
3 arrival. When the tank fabricator delivered the arsenic drying bed tank, FRC unloaded and
4 set the tank onto an existing reconditioned receiving pad. FRC plumbed in the discharge
5 lines and the effluent pump, and had the electrical equipment completed for the startup of
6 the new tank.

7
8 **Q.192 WHEN WAS THE SCD ARSENIC DRYING BEDS WELL 11 PROJECT PLACED**
9 **IN SERVICE?**

10 A.192 The project was placed into service on May 17, 2023.

11
12 **Q.193 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
13 **COMMISSION THROUGH AN IRP PROCESS?**

14 A.193 Yes. This project became necessary to replace the existing arsenic drying beds at Well 11
15 due to the poor condition of the existing drying beds, and to ensure that GBWC could
16 continue providing safe and reliable service to the customers of Spring Creek and to keep
17 the environment safe. The project was recommended as part of the Action Plan in the
18 GBWC 2021 Consolidated IRP and received approval from the Commission. Please *see*
19 2021 IRP Order at p. 4 ¶ 5(a).

20
21 **Q.194 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

22 A.194 The estimated project cost was \$130,020.

23
24 **Q.195 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
25 **APPROVED BY THE COMMISSION?**

26 A.195 Yes, there were substantial changes to this project. During the development of the 2021
27 IRP GBWC received an engineer's estimate for \$130,020 to install new Arsenic drying
28

1 beds at Well 1, 3 and 11, which was submitted and approved by the commission in the
2 2021 IRP. (Please see the 2021 IRP Order at p. 4 ¶ 5(a)). After receiving proposals for the
3 construction and installation of the new drying beds GBWC realized that the approved
4 project budget was not going to be enough to complete all three (3) drying beds. After
5 further review GBWC made the decision to move forward with the fabrication and
6 installation of the new Well 11 Drying Bed. Please see below for reasons of the large
7 difference in cost from the approved 2021 IRP budget and the actual costs to complete the
8 project:

- 9 • Supply chain issues.
- 10 • Unstable steel prices (changing daily), due to COVID.
- 11 • Unstable labor costs.
- 12 • The one change order to install a small, shed structure over the effluent discharge
13 pump to protect the equipment from the harsh elements (freezing).

14
15 **Q.196 WHAT WERE THE FINAL PROJECT COSTS, AND HOW TO THEY COMPARE**
16 **TO THE IRP CONCEPTUAL ESTIMATE?**

17
18 A.196 The final actual costs for this project totaled \$158,507, broken down as set forth below.
19 The project costs were approximately 22% higher than what was approved in the GBWC
20 2021 Consolidated IRP estimate. The overrun costs of the project were caused by the
21 unstable steel prices, labor costs, and one change order for protecting the equipment.

22
23

SCD ARSENIC DRYING BED WELL 11 PROJECT	
Activity	Actual Costs
Design and Permitting	\$12,169
Construction	\$138,164

24
25
26
27

Captive	\$3,083
Misc.	\$598
AFUDC	\$4,094
Total Project Cost	\$158,107

Please see Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Drying Bed Well 11 Project INV GL RTRMT".

Q.197 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

A.197 Yes, GBWC requested proposals from three (3) tank contractors. One (1) tank company declined and GBWC received two (2) proposals to construct and deliver the drying bed. GBWC requested proposals from three (3) local contractors and only received one (1) proposal to install the new arsenic drying bed.

TANK CONSTRUCTION BIDS		
Resources Development	Paso Robles Tank	Superior Tank
\$150,000	No Response	\$93,000

CONSTRUCTION BIDS		
Creico	High Mark	FRC
No response	No response	\$33,300

Please see Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Drying Bed Well 11 RFP BIDS CONTRACTS".

Q.198 DID THE UTILITY AWARD TO THE LOWEST BIDDER?

1 A.198 Yes, GBWC received two (2) proposals for the construction of the drying bed, and the
2 contract was awarded to the lowest bidder, Superior Tank. GBWC awarded FRC the
3 construction project as two (2) contractors declined to participate.
4

5 **Q.199 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
6 **PROJECT?**

7 A.199 No, GBWC reached out to T.Y. Lin International and requested a proposal for them to
8 engineer and design the drying bed. The proposal from the engineer was \$12,169, thus not
9 requiring any additional bids.
10

11 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Drying Beds Well 11
12 Project RFP ENGINEER BIDS CONTRACTS".
13

14 **Q.200 PLEASE PROVIDE ALL PERMITS FOR THE SCD ARSENIC DRYING BEDS**
15 **WELL 11 PROJECT.**

16 A.200 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Drying Beds Well
17 11 Project REPORTS PHOTOS MISC".
18

19 **Q.201 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SCD**
20 **ARSENIC DRYING BEDS WELL 11 PROJECT.**

21 A.201 Please *see* Dataroom, Eason Testimony, folder entitled, "SCD Arsenic Drying Beds Well
22 11 Project REPORTS PHOTOS MISC".
23

24 **Q.202 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
25 **THIS PROJECT.**

26 A.202 The old drying bed(s) was/were the only asset retired for this project.
27
28

1 **Q.203 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
2 **PROJECT WERE REASONABLE?**

3
4 A.203 This project was necessary for GBWC to continue providing safe and reliable service to
5 customers in the Spring Creek service area and to protect the environment from the risk of
6 contaminant seepage into the ground from the old drying beds, which had deteriorated to
7 poor condition. In completing this project, GBWC provided thorough oversight and
8 followed best business practices in bidding, decision-making, invoice review, as well as
9 cost-saving measures. The final project costs are reasonable in relation to the work
10 performed and justified by the improved service and environmental protection that will
11 result from replacing the arsenic media drying beds.

12
13 **Cold Springs Division Projects Completed before End of Test Year**

14
15 **CSD Replacement Service Lines & Meter Pits 2021 Project (Project ID 2021236)**

16 **Q.204 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE CSD REPLACEMENT**
17 **SERVICE LINES AND METER PITS 2021 PROJECT.**

18
19 A.204 In the 2021 GBWC Consolidated IRP, GBWC recommended and asked the Commission
20 to approve a three-year distribution line infrastructure replacement project (piping, valves,
21 service laterals and meter pits) in the Cold Springs system. The Commission approved
22 \$250,000 per year for a total of \$750,000, without factoring inflation and IDC. The project
23 consisted of replacing twenty-nine (29) existing service lines and meter pits that have
24 outlived their useful life. There are three streets, Hummingbird, Meadowlark and Dove Ct.,
25 that had service line replacements.

26
27
28

1 Some of the distribution piping in the water system consists of schedule 40 PVC pipe that
2 is approximately 45 years old. Although pipeline breaks are rare, this old schedule 40 PVC
3 pipe is reaching the end of its useful life. More frequent leaks and breaks are expected in
4 the future, which in turn adds to the NRW within the system and emergency service outages.
5 During a meter pit replacement pilot test study, which was recommended and approved by
6 the PUCN, several of the service laterals and meter pits being replaced were found to be
7 leaking. In addition, several of the lots in the oldest part of Pressure Zone 2 contain old
8 paper tar meter pits that are frequently filled with dirt requiring operators to clean them
9 before the meters could be read for monthly water use. Generally, paper tar meter pits are
10 located in topographic low areas adjacent to the streets, allowing them to fill with water
11 and dirt during rainstorm events. The streets in this part of the service area do not have
12 curb and gutter systems, thus, having poor drainage for storm water runoff. The operators
13 spend a significant amount of time cleaning the dirt out of the meter pits only to have them
14 fill again during the next storm event. The laterals to these meter pits were constructed of
15 1-inch PVC pipe that is connected to some of the oldest schedule 40 PVC distribution pipe
16 in the water system. The PVC laterals do not have valves (corporation stops) to isolate the
17 lateral in order to replace the paper tar meter pits when they finally fail.

18
19 **Q.205 WHEN WAS THE CSD REPLACEMENT SERVICE LINES AND METER PITS**
20 **2021 PROJECT PLACED IN SERVICE?**

21 A.205 The replacement service lines, and meter pits were placed into service on July 11, 2023.
22

23 **Q.206 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
24 **COMMISSION THROUGH AN IRP PROCESS?**

25 A.206 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
26 Consolidated IRP and received approval from the Commission. Please *see* 2021 IRP Order
27 at p. 5, ¶ 10(b)

1 **Q.207 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

2 A.207 The estimated project cost was \$266,750.

3

4 **Q.208 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
5 **APPROVED BY THE COMMISSION?**

6 A.208 No, there were no substantial changes to this project.

7

8 **Q.209 WHAT WERE THE FINAL COSTS OF THIS PROJECT, AND HOW DO THEY**
9 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

10 A.209 These final actual costs for this project were \$256,854, broken down as set forth below.
11 The project costs were approximately 4% lower than what was approved in the GBWC
12 2021 Consolidated IRP estimate.

13

14

CSD REPLACEMENT SERVICE LINES & METER PITS 2021 Project	
Activity	Actual Costs
Design and Permitting	\$12,183
Construction	\$210,630
Captive	\$8,461
Misc.	\$9,716
AFUDC	\$15,864
Total Project Cost	\$256,854

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Please see Dataroom, Eason Testimony, folder entitled, "CSD Replacement Service Lines
& Meter Pits 2021 Project INV GL RTRMT".

Q.210 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

1 A.210 Yes, the utility requested pricing from three (3) contractors. One contractor did not respond
2 to the RFP and two (2) contractors provided proposals for this project. After review of the
3 two proposals, GBWC awarded the project to Pioneer General Engineering.

4

CONSTRUCTION BIDS		
Pioneer General Engineering	FMI	Shank Excavation
\$117,780	\$188,000	No Response

5
6
7

8

9 Please see Dataroom, Eason Testimony, folder entitled, “CSD Replacement Service Lines
10 & Meter Pits 2021 RFP BIDS CONTRACTS”.

11

12 **Q.211 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

13 A.211 Yes. The lowest bidder was Pioneer General and GBWC awarded the project to them.
14 During the installation of the service lines, material was vandalized which caused a delay
15 in the middle of this project. Due to the long delay in receiving the replacement material,
16 Pioneer took on other projects which meant they faced a shortage of manpower to complete
17 GBWC’s project. Pioneer requested authorization to be relieved of their contract with
18 GBWC. After careful consideration of this request, GBWC granted the request and reached
19 out to FMI to continue the replacement of the existing service lines.

20

21 **Q.212 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
22 **PROJECT?**

23 A.212 No, GBWC did not reach out to engineering firms for this project as it consisted of
24 replacing existing service lines which did not need to be engineered.

1 **Q.213 PLEASE PROVIDE ALL PERMITS FOR THE CSD REPLACEMENT SERVICE**
2 **LINES & METER PITS 2021 PROJECT.**

3 A.213 Please *see* Dataroom, Eason Testimony, folder entitled, "CSD Replacement Service Lines
4 & Meter Pits 2021 REPORTS PHOTOS MISC".

5
6 **Q.214 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE CSD**
7 **REPLACEMENT SERVICE LINES & METER PITS 2021 PROJECT.**

8 A.214 Please *see* Dataroom, Eason Testimony, folder entitled, "CSD Replacement Service Lines
9 & Meter Pits 2021 REPORTS PHOTOS MISC".

10
11 **Q.215 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
12 **THIS PROJECT.**

13 A.215 The assets retired are as follows:

- 14 • Sch. 40 PVC pipe
- 15 • Water saddles
- 16 • 29-meter pits

17
18 **Q.216 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
19 **PROJECT WERE REASONABLE?**

20 A.216 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP.
21 GBWC provided thorough oversight and followed best business practices in bidding,
22 decision-making, invoice review, as well as cost-saving measures. The final costs were
23 reasonable, falling below estimates for phase 1 and ensuring safe, reliable service to
24 customers.

25
26 CSD Replacement Service Lines & Meter Pits Phase 2 2022 (Project ID 2022210)

27

28

1 **Q.217 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE CSD REPLACEMENT**
2 **SERVICE LINES AND METER PITS PHASE 2 2022 PROJECT.**

3
4 A.217 In the 2021 GBWC Consolidated IRP, GBWC recommended and asked the Commission
5 to approve a three-year distribution line infrastructure replacement project (piping, valves,
6 service laterals and meter pits) in the Cold Springs system. The Commission approved
7 \$250,000 per year for a total of \$750,000, with factoring interest and IDC. The project
8 consisted of replacing thirty-eight (38) existing service lines and meter pits that have
9 outlived their useful life. There are 5 streets that had service lines replacements,
10 Mockingbird Dr., Cold Springs Dr., Flamingo Dr., Owl Ct., and Peacock Pl.

11
12 Some of the distribution piping in the water system consists of schedule 40 PVC pipe that
13 is approximately 45 years old. Although pipeline breaks are rare, this old schedule 40 PVC
14 pipe is reaching the end of its useful life. More frequent leaks/breaks are expected in the
15 future, which in turn adds to the NRW within the system and emergency service outages.
16 During a meter pit replacement pilot test study, which was recommended and approved by
17 the PUCN, several of the service laterals and meter pits being replaced were found to be
18 leaking. In addition, several of the lots in the oldest part of Pressure Zone 2 contain old
19 paper tar meter pits that are frequently filled with dirt requiring operators to clean them
20 before the meters can be read for monthly water use. Generally, the paper tar meter pits are
21 located in topographic low areas adjacent to the streets allowing them to fill with water and
22 dirt during rainstorm events. The streets in this part of the service area do not have curb
23 and gutter systems, thus, having poor drainage for storm water runoff. The operators spend
24 a significant amount of time cleaning the dirt out of the meter pits only to have them fill
25 again during the next storm event. The laterals to these meter pits were constructed of 1-
26 inch PVC pipe that is connected to some of the oldest schedule 40 PVC distribution pipe

1 in the water system. The PVC laterals do not have valves (corporation stops) to isolate the
2 lateral in order to replace the paper tar meter pits when they finally fail.

3

4 **Q.218 WHEN WAS THE CSD REPLACEMENT SERVICE LINES AND METER PITS**
5 **Phase 2 2022 PROJECT PLACED IN SERVICE?**

6 A.218 The replacement service lines, and meter pits were placed into service on August 11, 2023.

7

8 **Q.219 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
9 **COMMISSION THROUGH AN IRP PROCESS?**

10 A.219 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
11 Consolidated IRP and received approval from the Commission. *Please see 2021 IRP Order*
12 *at p. 5, ¶ 10(b).*

13

14 **Q.220 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

15 A.220 The estimated project cost was \$266,750.

16

17 **Q.221 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
18 **APPROVED BY THE COMMISSION?**

19 A.221 No, there were no substantial changes to this project.

20

21 **Q.222 WHAT WERE THE FINAL COSTS FOR THIS PROJECT, AND HOW DO THEY**
22 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

23

24 A.222 The final actual costs for this project totaled \$342,430, broken down as set forth below.
25 The project costs were approximately 28% higher than what was approved in the GBWC
26 2021 Consolidated IRP estimate. The overrun costs were attributed to several factors.

27

28

1 First, when GBWC discovered three cul-de-sacs, Owl Ct., Peacock Ct., and Mockingbird
 2 Ct. which did not have an isolation valve for each street. After numerous attempts to
 3 locate the watermain at each of the cul-de-sacs by our contractor and GBWC, GBWC
 4 decided to abandon the search of the watermain on Peacock Ct. at that time.

5
 6 Second, GBWC installed an insertion valve on Mockingbird Ct. and an inline valve on
 7 Peacock Ct. GBWC installed valves on the two-cul-de-sacs to minimize the number of
 8 customers affected by a shut down in any future main breaks. In the past, a main break in
 9 these cul-de-sacs, would require a larger shut down.

10
 11 Lastly, there was an unknow high pressure gas line that was not located by Nevada
 12 Energy on Cold Springs Dr. Once located by FMI, the project was shut down and Nevada
 13 Energy was notified. During an emergency site meeting with Nevada Energy, they
 14 required that GBWC to excavate and locate the gas line at each crossing of the new water
 15 service lines to maintain a minimum of one feet pipe separation between the two lines.
 16 This gas line was located within the asphalted roadway, which required additional
 17 permitting with Washoe Co. and asphalt cutting and replacement. With this requirement
 18 from Nevada Energy, this additional exploration for the high-pressure gas line elevated
 19 the cost factors for phase 2 service line replacement project.

20
 21

CSD REPLACEMENT SERVICE LINES & METER	
PITS PHASE 2 2022	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$293,942
Captive	\$13,501

22
 23
 24
 25
 26
 27

Misc.	\$14,643
AFUDC	\$20,344
Total Project Cost	\$342,430

Please see Dataroom, Eason Testimony, folder entitled, “CSD Replacement Service Lines & Meter Pits Phase 2 2022 Project INV GL RTRMT”.

Q.223 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?

A.223 Yes, the utility requested pricing from three (3) contractors. Two contractors did not respond to the RFP and one (1) contractor provided proposal for this project. After review of the proposal, GBWC awarded the project to Facilities Management Inc. (FMI).

CONSTRUCTION BIDS		
Pioneer General Engineering	FMI	Shank Excavation
No Response	\$188,000	No Response

Please see Dataroom, Eason Testimony, folder entitled, “CSD Replacement Service Lines & Meter Pits Phase 2 2022 RFP BIDS CONTRACTS”.

Q.224 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?

A.224 Yes. After much consideration of the only proposal returned, GBWC awarded the contract to the lowest and only bidder for this project, FMI.

Q.225 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS PROJECT?

1 A.225 No, GBWC did not reach out to engineering firms for this project as it consisted of
2 replacing existing service lines which did not need to be engineered.

3

4 **Q.226 PLEASE PROVIDE ALL PERMITS FOR THE CSD REPLACEMENT SERVICE**
5 **LINES & METER PITS PHASE 2 2022 PROJECT.**

6

7 A.226 Please see Dataroom, Eason Testimony, folder entitled, “CSD Replacement Service Lines
8 & Meter Pits Phase 2 2022 REPORTS PHOTOS MISC”.

9

10 **Q.227 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE CSD**
11 **REPLACEMENT SERVICE LINES & METER PITS PHASE 2 2022 PROJECT.**

12

13 A.227 Please see Dataroom, Eason Testimony, folder entitled, “CSD Replacement Service Lines
14 & Meter Pits Phase 2 2022 REPORTS PHOTOS MISC”.

15

16 **Q.228 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
17 **THIS PROJECT.**

18 A.228 The assets retired are as follows:

- 19 • Sch. 40 PVC pipe
- 20 • Water saddles
- 21 • 36-meter pits

22

23 **Q.229 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
24 **PROJECT WERE REASONABLE?**

25

26 A.229 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP. In
27 completing this project, GBWC provided thorough oversight and followed best business

28

1 practices in bidding, decision-making, invoice review, as well as cost-saving measures.
2 The final costs associated with this project are reasonable for the work completed, ensuring
3 safe and reliable service to customers. In addition, GBWC at this time has not elected to
4 initiate phase 3 of the project, due to the additional costs incurred during phase 2 of the
5 project.

6

7 **CSD Surge Protection – Wells 6 and 7 (Project ID 2022259)**

8 **Q.230 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE CSD SURGE**
9 **PROTECTION – WELL 6 & 7 PROJECT.**

10

11 A.230 The intent of this project is to protect Wells 6 and 7 from power surges in the event of
12 lightning strikes or other irregular electrical surges. This situation happened at Well 7 six
13 months after a new pump and motor were installed following rehabilitation of the well. The
14 failed motor was diagnosed by Franklin Electric and determined to have been damaged due
15 to a power surge. Surge protectors were installed at each well to protect the pumps and
16 motors from damage in the case of future electrical surges. The wells are also located on
17 or near the end of the power transmission line, resulting in inconsistent power quality,
18 subjecting the wells to rolling brown outs. Power conditioners were installed to reduce
19 voltage fluctuations and prevent damage to the pumps, motors, and other electrical
20 components.

21

22 **Q.231 WHEN WAS THE CSD SURGE PROTECTION – WELL 6 & 7 PROJECT**
23 **PLACED IN SERVICE?**

24 A.231 The surge protectors were placed into service on December 12, 2022.

25

26 **Q.232 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
27 **COMMISSION THROUGH AN IRP PROCESS?**

28

1 A.232 Yes. The project was recommended as part of the Action Plan in the GBWC 2021
2 Consolidated IRP and received approval from the Commission. *Please see 2021 IRP Order*
3 *at p. 5, ¶ 10(a).*
4

5 **Q.233 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

6 A.233 The estimated project cost was \$202,542.
7

8 **Q.234 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
9 **APPROVED BY THE COMMISSION?**

10 A.234 No, there were no substantial changes to this project.
11

12 **Q.235 WHAT WERE THE FINAL COSTS OF THIS PROJECT, AND HOW DO THEY**
13 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

14 A.235 The final actual costs for this project totaled \$226,651, broken down as set forth below.
15 The final costs were approximately 12% higher than what was approved. GBWC attributes
16 at least a portion of the elevated costs to higher than anticipated inflation cost for labor and
17 materials.
18

CSD SURGE PROTECTION – WELLS 6 AND 7	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$218,916
Captive	\$226
Misc.	\$0
AFUDC	\$7,509
Total Project Cost	\$226,651

1 Please see Dataroom, Eason Testimony, folder entitled, "CSD Surge Protection – Wells 6
2 & 7 Project INV GL RTRMT".

3
4 **Q.236 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT? IF NOT, WHY NOT?**

5 A.236 Yes, the utility requested pricing from two (2) contractors. One contractor did not respond
6 to the RFP and one (1) contractor provided a proposal for the project. After review of the
7 proposal, GBWC awarded the project to Action Electric.

8

CONSTRUCTION BIDS	
I & E Electrical	Action Electric
No Response	\$218,916.36

9
10
11
12

13 Please see Dataroom, Eason Testimony, folder entitled, "CSD Surge Protection –
14 Wells 6 & 7 Project RFP BIDS CONTRACTS".

15
16 **Q.237 DID THE UTILITY AWARD TO THE LOWEST BIDDER? IF NOT, WHY NOT?**

17 A.237 Yes. The lowest and only bidder was Action Electric. After consideration, GBWC awarded
18 them the contract.

19
20 **Q.238 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
21 **PROJECT?**

22 A.238 Yes, GBWC did reach out to Nelson Electric for the electrical engineering of this project,
23 but they did not respond to the RFP. Therefore, GBWC requested that the contractor,
24 Action Electric, design, engineer and permit the Electrical Plan Set for both Wells 6 and 7.

1 Please see Dataroom, Eason Testimony, folder entitled, “CSD Surge Protection – Wells 6
2 & 7 Project RFP ENGINEER BIDS CONTRACTS”.

3

4 **Q.239 PLEASE PROVIDE ALL PERMITS FOR THE CSD SURGE PROTECTION –**
5 **WELLS 6 & 7 PROJECT.**

6

7 A.239 Please see Dataroom, Eason Testimony, folder entitled, “CSD Surge Protection – Wells 6
8 & 7 Project REPORTS PHOTOS MISC”.

9

10 **Q.240 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE CSD**
11 **SURGE PROTECTION – WELLS 6 & 7 PROJECT.**

12

13 A.240 Please see Dataroom, Eason Testimony, folder entitled, “CSD Surge Protection – Wells 6
14 & 7 Project REPORTS PHOTOS MISC”.

15

16 **Q.241 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
17 **THIS PROJECT.**

18

A.241 No assets were retired for this project.

19

20 **Q.242 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
21 **PROJECT WERE REASONABLE?**

22

A.242 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP. In
23 completing this project, GBWC provided thorough oversight and followed best business
24 practices in bidding, decision-making, invoice review, as well as cost-saving measures.
25 The final costs associated with this project are reasonable, ensuring safe and reliable
26 service to customers.

27

28

1 CSD Test Well (Project ID 2022211)

2

3 **Q.243 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE CSD TEST WELL**
4 **PROJECT.**

5 A.243 GBWC recently drilled three test holes on three separate properties within the Cold Springs
6 service area to determine a viable location for a replacement well. Based on the condition
7 and age of Wells 6 and 7, GBWC estimates that at least one of these wells will need to be
8 replaced in the next 5 to 7 years.

9

10 The targeted project areas were located within the Cold Spring Valley hydrographic basin
11 (No. 100) and Long Valley hydrographic basin (No. 100A). The specific test hole sites
12 were located near the west and northwest boundary areas of Cold Spring Valley and Long
13 Valley and south and east of Bordertown, Nevada (Cold Springs Valley). The basin is
14 bounded by the Petersen mountains to the northwest, Granite Hills to the east, and Mount
15 Peavine to the south. White Lake Playa is located in the center of the basin; groundwater
16 in Cold Spring Valley generally flows to the basin center towards White Lake. The project
17 area is also located in a small portion of the adjacent Long Valley Hydrographic Basin,
18 where GBWC's existing Well-6 and Well-7 are located.

19

20 Lumos was contracted to oversee a groundwater exploration drilling program in the region
21 after reviewing request for proposal submittals. The long- term objective of the exploration
22 program was to evaluate potential locations for a new municipal production well for the
23 GBWC-CSD water system approved in the 2021 GBWC Consolidated IRP. Lumos
24 developed a set of specifications and bidding documents for drilling three boreholes
25 totaling 2,400 linear feet. Several drilling companies were contacted regarding bids for the
26 project, but only one completed a satisfactory bid. The contract for the drilling work was
27 awarded to O'Keefe Drilling of Butte, Montana.

28

1 For this project, the borehole geologic and hydrogeologic data was gathered using a
2 Schramm 685 top drive rotary drill rig owned and operated by O’Keefe Drilling. The rig
3 drilled the test boreholes using the reverse circulation drill method.
4

5 The exploratory dual-tube reverse-circulation drilling program began on September 6,
6 2023, and was completed on October 8, 2023. A cumulative total of 3,109 linear feet were
7 drilled across four boreholes. The boreholes, identified as CSD-TH1, CSD-TH1A, CSD-
8 TH2, and CSD-TH3 were sited to intercept groundwater flow from the Long Valley
9 hydrographic basin. Borehole CSD-TH1A was drilled on the same pad as CSD-TH1, which
10 had to be abandoned prematurely due to the drill bit and sub twisting off at bottom prior to
11 reaching total depth.
12

13 The drilling of each borehole began with the installation of a temporary 6-inch (in)
14 diameter conductor casing to depths ranging from 20 – 60 ft. Grout was placed on the
15 outside of the casing and typically given 2 hours to set. Each borehole was drilled with a
16 5-in nominal diameter. Both tri-cone and percussion hammer bit assemblies were used for
17 this exploration program. This drilling bit assembly was used until the hydrostatic pressure
18 head interfered with the impact of the hammer bit, causing the drilling rate to slow to an
19 unreasonable rate. When this occurred, the hammer bit assembly was pulled out of the
20 borehole and replaced with a 5-in tricone bit assembly. Following the tooling bit
21 changeover, the injection water was generally turned off or down, and drilling continued
22 utilizing the water produced in the borehole. When the drilling of the borehole was
23 completed, the borehole was abandoned as per State regulations, and the rig was moved to
24 the next site.
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1 For a further description of the project, Please *see* Dataroom, Eason Testimony, folder
2 entitled, “*CSD Test Well Project REPORTS PHOTOS MISC*”; report
3 *CSD_Exploration_TM_compiled_FINAL.pdf*
4

5 **Q.244 WHAT WERE THE RESULTS OF THE TEST HOLE DRILLING PROJECT?**

6 A.244 Please see the findings for each test hole in the Cold Springs drilling program below. Once
7 GBWC reviewed the below findings, it was determined that GBWC would not continue
8 the exploration due to poor water quality and quantity.
9

10 **1. CSD-TH1/TH1A Findings:**

- 11 • The most productive zones of test borehole CSD-TH1/A appear to be
12 situated in the fractured gabbro bedrock strata of the well. Although bedrock
13 was encountered at approximately 600 ft below ground level (“bgl”), the
14 more fractured and productive interval appears to occur from roughly 640
15 to 800 ft bgl. Most of the shallower, alluvial portions of the well did not
16 exhibit characteristics of a productive aquifer; abundant fine-grained
17 materials were encountered throughout the alluvial strata, which are
18 interpreted to act as a detriment to production capacity and water quality.
19 There may be some additional production potential in the alluvium from
20 525 to 580 ft bgl. Constituents of concern in this borehole include arsenic,
21 iron, and manganese, along with TDS.

22 Although field discharge measurements between 640 and 800 ft bgl
23 exhibited positive flow characteristics, these data should not be treated as a
24 representation of long-term sustainable flow capacity. The extent and
25 interconnectivity of the fracture network is not known; wells screened in a
26 fracture flow system may produce water at high flow rates initially, but
27 production can decline dramatically once the initial fracture network
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becomes depleted of water. This occurs because the fractures are of limited extent and are not connected to a larger fracture network. Aquifer testing along with other investigation methods would likely be necessary to confirm production viability at this location.

2. CSD-TH2 Findings:

- The most productive water-bearing zones in CSD-TH2 appear to be in the alluvium below depths of 400 ft bgl. Specifically, the depth intervals from 410 – 430, 540 – 595, 615 – 625, 640 – 670, and 695 – 705 ft bgl were identified as the most potentially productive zones in the borehole; they consist primarily of coarse-grained dominated well-graded sand and gravel deposits. The other depth intervals within the 400 – 600 ft bgl zone are not ideal for water production, consisting of silty sand, clayey sand, and clay. It should be noted that there are some shallower portions of the borehole (above 400 ft bgl) appear to host coarse-grained, water-bearing materials. However, these shallower intervals should not be targeted for production in order to maintain an adequate margin for drawdown in the well.

Field measurements of discharge in the productive zones ranged from 20 to 45 gpm. Measured values of pH also reveal modest increases along with the depth of the borehole. There appear to be multiple constituents which could pose concerns for water quality at this location; these include arsenic, iron, manganese, gross alpha, and gross beta radionuclides, each of which revealed concentrations which exceed their respective MCL. It should be noted that bedrock was not encountered in this borehole.

3. CSD-TH3 Findings:

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- Strata encountered in borehole CSD-TH3 were primarily interpreted as alluvial and lacustrine deposits. Bedrock was not encountered at this location, and there is subsequently no fracture flow dynamics interpreted in this borehole. The zones interpreted to have the highest production potential occur below a depth of 400 ft bgl. Specifically, the zones between 440 – 490, 640 – 670, and 700 – 715 ft bgl were the most productive, consisting of well-graded coarse gravelly sand and sandy gravels. The other depth intervals within the 400 – 715 ft bgl range consisted of silty sand, clayey sand, clayey gravel, and clay; these zones are not interpreted as productive, water-bearing strata.

Field measurements of discharge from this borehole ranged from 3 to 50 gpm. Water quality constituents of concern in this borehole appear to include iron, manganese, and potentially radionuclides, as there were the samples from this borehole which exceeded the associated MCLs. Arsenic concentrations in all samples collected from CSD-TH3 were below the MCL of 10 micrograms per-liter (ug/L).

Q.245 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE COMMISSION THROUGH AN IRP PROCESS?

A.245 Yes. The test hole for future replacement well project was recommended as part of the Action Plan in the GBWC 2021 Consolidated IRP and received approval from the Commission. *See* 2021 IRP Order at p. 5, ¶9.

Q.246 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?

A.246 The 2021 GBWC Consolidated IRP preferred plan estimated project costs:

- Exploration program (Test Hole/Wells) \$221,680

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- Development and construction of a new well \$2,153,510
- Total estimated project cost of \$2,375,190.

Q.247 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS APPROVED BY THE COMMISSION?

A.247 No, there were no substantial changes to this project.

Q.248 WHAT WERE THE FINAL COSTS OF THIS PROJECTS, AND HOW DO THEY COMPARE TO THE IRP CONCEPTUAL ESTIMATE?

A.248 The final actual costs for this project totaled \$373,097, broken down as set forth below. The final costs were 41% higher than what was provided in the 2021 IRP estimate for the Test Hole/Well portion of the new well estimated budget.

CSD TEST WELL	
Activity	Actual Costs
Design and Permitting	\$154,565
Construction	\$192,706
Captive	\$4,781
Misc.	\$390
AFUDC	\$20,655
Total Project Cost	\$373,097

Please see Dataroom, Eason Testimony, folder entitled, "CSD Test Well Project INV GL RTRMT".

Q.249 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT?

1 A.249 Yes, the utility requested pricing from three (3) contractors. One (1) contractor did not
 2 respond to the RFP, one (1) contractor declined the RFP request, and one (1) contractor
 3 provided a proposal for the project. After review of the proposal, GBWC awarded the
 4 project to O’Keefe Drilling.

CONSTRUCTION BIDS		
Stone House Drilling	Yellow Jacket	O’Keefe Drilling
Declined	No Response	\$166,950

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 10 Please *see* Dataroom, Eason Testimony, folder entitled, “CSD Test Well Project
 11 RFP BIDS CONTRACTS”.

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 13 **Q.250 DID THE UTILITY AWARD TO THE LOWEST BIDDER?**

14 A.250 Yes. The lowest and only bidder was O’Keefe Drilling. After consideration, GBWC
 15 awarded them the contract.

16
 17 **Q.251 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
 18 **PROJECT?**

19 A.251 Yes, GBWC did reach out to four (4) engineering firms. Of the four firms, GBWC received
 20 three proposals and one engineering firm declined to participate. After reviewing the three
 21 proposals, GBWC awarded the Engineering to Lumos.

ENGINEERING BIDS			
Farr West	Golder	Kimley Horn	Lumos And Associates
Declined	\$199,397.70	\$249,570	\$394,520

1 Please *see* Dataroom, Eason Testimony, folder entitled, "CSD Test Well Project RFP
2 ENGINEER BIDS CONTRACTS".

3
4 **Q.252 DID THE UTILITY AWARD THE ENGINEERING WORK TO THE LOWEST**
5 **BIDDER? IF NOT, WHY NOT?**

6 A.252 No. After consideration, GBWC selected Lumos for the engineering work on this project,
7 despite the lower bids from Golder and Kimley-Horn. In reviewing the proposals, GBWC
8 deemed that the scopes of work proposed by Golder and Kimley-Horn were incomplete
9 and/or vague and posed substantial risks for delays and costly change orders as the project
10 developed into a production well. In contrast, the proposal by Lumos reflected a clear and
11 definite understanding of the steps that would be required to complete the development of
12 a new well project. In addition, Lumos has the most familiarity with the CSD system, and
13 working knowledge of the geology and hydrology of the basins (Cold Springs Valley and
14 Long Valley). Neither Golder nor Kimley-Horn were familiar with basins, which GBWC
15 believed would best serve the interests of the project. GBWC concluded that retention of
16 Lumos posed the lowest risk of unforeseen change orders or delays and that such
17 advantages outweighed the difference in the amounts submitted in the RFP response, and
18 selected Lumos on that basis.

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20 **Q.253 PLEASE PROVIDE ALL PERMITS FOR THE CSD TEST WELL PROJECT.**

21 A.253 Please *see* Dataroom, Eason Testimony, folder entitled, "CSD Test Well Project REPORTS
22 PHOTOS MISC".

23
24 **Q.254 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE CSD**
25 **TEST WELL PROJECT.**

26 A.254 Please *see* Dataroom, Eason Testimony, folder entitled, "CSD Test Well Project REPORTS
27 PHOTOS MISC".

1 **Q.255 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
2 **THIS PROJECT.**

3 A.255 No assets were retired for this project.
4

5 **Q.256 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR**
6 **THIS PROJECT WERE REASONABLE?**

7 A.256 The Commission deemed this project prudent in the GBWC 2021 Consolidated IRP.
8 GBWC provided thorough oversight and followed best business practices in bidding,
9 decision-making, invoice review, as well as cost-saving measures. The final costs
10 associated with this project are reasonable, to ensure safe and reliable service to our
11 customers. In addition, at this time GBWC has not continued to initiate further exploration
12 of a new well site/sites in Pressure Zone 1. GBWC has elected to save the costs associated
13 with the exploration and development of a new well and to utilize the additional capacity
14 from Pressure Zone 2 to make up any loss in capacity in Pressure Zone 1 in emergencies.
15 The additional capacity is a temporary solution only made possible by the approval of the
16 CSD Booster PZ2 to PZ 1 by the Commission in Docket # 21-05008. When Well 6 or
17 Well 7 go down and cannot be rehabilitated, GBWC will notify Commission Staff and will
18 then proceed with redrilling the site of the failed well (6 or 7) and continue the project as
19 approved 2021 IRP.
20

21 **Q.257 HOW IS GBWC PROPOSING TO RECOVER THESE COSTS?**

22 A.257 GBWC is proposing to recover these costs as a regulatory asset. For more information on
23 the recovery of the cost for the CSD-Test Well Project please see the Direct Testimony of
24 Aleksey Dolinko at Section 4.
25

26 **SPANISH SPRINGS DIVISION PROJECTS COMPLETED BEFORE END OF TEST YEAR**
27
28

1 **SSD SCADA Upgrade (Project ID 2023081)**

2 **Q.258 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SSD SCADA UPGRADE**
3 **PROJECT.**

4 A.258 GBWC proposed and initiated this project to upgrade the entire SCADA system, because
5 it was deemed as an important compliance project to secure the SCADA infrastructure
6 from future cyber threats in Spanish Springs.

7 GBWC sent out RFPs to SCADA integration companies in a 3-tier proposal, due to rising
8 costs in upgrading the SCADA programs in other sections of the company. Each tier was
9 designed to allow GBWC to choose the number of upgrades based on the returns of the
10 RFP proposals. GBWC did not receive any proposals back from the three (3) vendors that
11 were contacted.

12
13 GBWC personnel previously worked with a company called Verus Associates (“Verus”),
14 in Reno, who was then contacted to request submittal of a proposal. Verus agreed, and
15 through negotiations over a period of several months with different proposals, GBWC
16 determined that it would proceed with a more limited upgrade to the Spanish Springs
17 SCADA infrastructure than originally contemplated.

18
19 The vendor’s scope of work included facilitating the upgrade to Nexus’s target technology
20 for SCADA, VTSCADA, which will enhance cyber security to counter today’s cyber
21 threats. The contractor also provided a new RTU cabinet to Tank A, which was a request
22 from the Washoe County Health Department during a recent facility inspection. The
23 contractor performed the following upgrades: upgrade all radios, install backup auto dialer,
24 install new VTSCADA screen to match existing screens, integrate the generators into
25 SCADA, and install solar regulator to the Upper Tank 1B.

26
27 **Q.259 WHEN WAS THE SSD SCADA UPGRADE PROJECT PLACED IN SERVICE?**

1 A.259 The SSD SCADA Project was placed into service on December 6, 2023

2

3 **Q.260 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
4 **COMMISSION THROUGH AN IRP PROCESS?**

5 A.260 Yes. The SSD SCADA Project was recommended as part of the Action Plan in the GBWC
6 2021 Consolidated IRP and received approval from the Commission. *See* 2021 IRP Order
7 at p. 6, ¶14.

8

9 **Q.261 WHAT WERE THE ORIGINAL ESTIMATED COSTS OF THIS PROJECT?**

10 A.2611 GBWC originally estimated that this project would cost \$74,638 to complete.

11

12 **Q.262 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

13 A.262 The estimated project cost was \$74,638.

14

15 **Q.263 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
16 **APPROVED BY THE COMMISSION?**

17 A.263 No, there were no substantial changes to this project.

18

19 **Q.264 WHAT WERE THE FINAL COSTS OF THIS PROJECTS, AND HOW DO THEY**
20 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

21 A.264 The final actual costs for this project totaled \$144,656, broken down as set forth below.
22 The final costs were 94% higher than what was provided in the 2021 IRP estimate. The
23 increased costs were associated with contractors submitting competitive bids and increases
24 in hardware costs due to supply chain issues.

25

26 **Q.265 WHAT WERE THE FINAL ACTUAL COSTS FOR THIS PROJECT?**

27

28

1 A.265 The final actual costs for this project totaled \$144,656, broken down as set forth below.

SSD SCADA UPGRADE PROJECT	
Activity	Actual Costs
Design and Permitting	\$0
Construction	\$137,241
Captive	\$4,854
Misc.	\$238
AFUDC	\$2,323
Total Project Cost	\$144,656

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12 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD SCADA UPGRADE
13 PROJECT INV GL RTRMT”.

14
15 **Q.266 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT?**

16 A.266 Yes, the utility ultimately requested pricing from four (4) contractors. Two (2) contractors
17 declined to participate in the bidding process, one (1) contractor did not respond to the
18 RFP, and one (1) contractor provided a proposal for the project. After review of the
19 proposal, GBWC awarded the project to Verus Associates. GBWC also reached out to an
20 electrical company, Action Electric, to assist Verus with the installation of the RTU
21 cabinet, installation of a water level transducer at the water tanks, installation of the radios,
22 and installation of conduit for the data wiring that was required

CONSTRUCTION BIDS				
Sierra Controls	Wunderlich-Malec	I&E Electric	Verus	Action Electric
Declined	Declined	No Response	\$119,010	T&M

1 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD SCADA UPGRADE
2 PROJECT RFP BIDS CONTRACTS”.

3

4 **Q.267 DID THE UTILITY AWARD TO THE LOWEST BIDDER?**

5 A.267 Yes. The lowest and only bidder was Verus. After consideration, GBWC awarded them
6 the contract.

7

8 **Q.268 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
9 **PROJECT?**

10 A.268 No, Verus was the engineer, designer, and the integrator for this project. A third-party
11 engineer was not required.

12

13 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD SCADA UPGRADE
14 PROJECT RFP ENGINEER BIDS CONTRACTS”.

15

16 **Q.269 PLEASE PROVIDE ALL PERMITS FOR THE SSD SCADA UPGRADE**
17 **PROJECT.**

18 A.269 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD SCADA UPGRADE
19 PROJECT REPORTS PHOTOS MISC”.

20

21 **Q.270 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SSD**
22 **SCADA UPGRADE PROJECT.**

23 A.270 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD SCADA UPGRADE
24 PROJECT REPORTS PHOTOS MISC”.

25

26 **Q.271 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
27 **THIS PROJECT.**

28

1 A.271 The following assets were retired:

- 2 • 5 radios
- 3 • 5 Antennas
- 4 • 1 SCADA server and monitor

5

6 **Q.272 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
7 **PROJECT WERE REASONABLE?**

8 A.272 This project involved necessary and reasonable upgrades to the existing SCADA platform
9 to keep current with technology and to ensure the system is protected from cyber threats
10 and intrusions. In completing the project, GBWC provided thorough oversight and
11 followed best business practices in bidding, decision-making, invoice review, as well as
12 cost-saving measures.

13

14 **SSD Test Wells (Project ID 2022122)**

15

16 **Q.273 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SSD TEST WELL**
17 **PROJECT.**

18 A.273 As approved in the 2018 Consolidated IRP proceeding, and as discussed in depth in the
19 monthly status reports filed in Docket No. 21-07020⁸ between November 1, 2021, and
20 September 3, 2024, the Company undertook a project to drill a series of test holes and a
21 test well as part of its effort to determine an appropriate location for a possible new
22 production well for its Spanish Springs Division.

23

24

25

26 ⁸ See PUCN Docket No. 21-07020, *Investigation regarding the potential rate impacts of projects included in*
27 *Great Basin Water Co.'s Spanish Springs Division's Preferred Plan, the potential future operations and maintenance*
costs associated with poor water quality in the basin and potential remedies to address groundwater quantity and
quality concerns.

28

1 The project was originally planned to include the drilling of two test holes (“TH-1” and
2 TH-2”) to determine the best location for drilling a future test well. After completing the
3 drilling of TH-1 on July 7, 2019, and TH-2 on August 26, 2019, GBWC determined to
4 proceed with drilling a test well at TH-2 due to limitations in the alluvial found at TH-1.
5

6 GBWC’s contracted driller Bruce Mackay Pump and Well then initiated the test well
7 drilling at the TH-2 location on May 11, 2020, but the initial drilled depths of 0-200 feet
8 showed little indication of possible water production and the lithology differed from what
9 had been found in the test hole. GBWC suspended drilling and sealed the test well hole at
10 TH-2 on June 3, 2020.
11

12 GBWC then proceeded with further groundwater exploration that included the drilling of
13 three test boreholes (designated “SSTH-1,” “SSTH-2,” and “SSTH-4”) and three test wells
14 (“SSTW-1,” “SSTW-1A,” and “SSTW-4”) between 2019 and 2023. Each of test boreholes
15 and wells were completed in the alluvial/lacustrine basin fill deposits.
16

17 Test boreholes SSTH-1 and SSTH-2 (located near the center of the GBWC service area)
18 respectively encountered bedrock at total depths of 385 and 370 feet below ground level
19 (“ft bgl”). The first test well, SSTW-1, was drilled to a total depth of 384 ft bgl and located
20 slightly to the northeast of the SSTH-1 borehole. However, lithologies were dissimilar
21 between the first borehole and test well. The lithologic disparity is attributed to a fault
22 running between the two locations. The SSTW-1 location was abandoned without
23 constructing a test well due to abundant clay and lack of significant water bearing zones.
24 The second test well, SSTW-1A, was installed at a total depth of 330 ft bgl near the
25 northwest corner of the GBWC service area in November of 2021. However, analysis of
26 subsequent pumping and recovery tests from the well revealed an estimated transmissivity
27 value which was much too low for municipal well production.
28

1 The third test well and borehole, SSTH-4/SSTW-4, were completed from 2022 through
2 2023; this yielded the most promising results for a new well location. This location was
3 roughly equidistant between the two existing GBWC municipal wells. Zone testing was
4 used to determine the final test well design. SSTW-4 was constructed to a total depth of
5 600 ft bgl, with screened intervals from 220 to 340 ft bgl and 470 to 590 ft bgl
6 corresponding to alluvial and lacustrine water-bearing deposits. The blank casing interval
7 from 340 to 470 corresponds to a thick, clay- dominated strata. Subsequent pump testing,
8 dynamic flow profiling, and packer testing revealed that elevated arsenic concentrations
9 were most prevalent in the deepest part of the well screen from 470 to 590 ft bgl. The
10 deeper aquifer below the clay body appears to be interacting with a geothermal system.
11 This was corroborated by pH and temperature measurements of deeper water, sulfur-like
12 odor of the deeper groundwater, and extremely high arsenic concentrations at depth.

13
14 GBWC determined that elevated arsenic concentrations, among other factors, precluded
15 the current SSTW-4 location and design from being used as a municipal production well
16 without utilizing an arsenic treatment system. In March 2024, GBWC completed the final
17 plugging and abandonment of the test well site to NDWR and NDEP requirements, and
18 also remediated the site to local HOA requirements.

19
20 **Q.274 WHAT WERE THE RESULTS OF THE TEST HOLE AND TEST WELL**
21 **DRILLING PROJECT?**

22 A.274 The test hole/well project did not result in the identification of a suitable site for the drilling
23 of a new production well. While the results of the SSTW-4 drilling showed promise and
24 that the site could offer a viable future groundwater production source or site for further
25 testing, GBWC recommends that the completion of the Rehabilitation of Suki Well (Well
26 2) Project approved in the 2024 Consolidated IRP be prioritized at this time over other
27 possible alternatives for addressing groundwater issues in the Spanish Springs Division.

1 **Q.275 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
2 **COMMISSION THROUGH AN IRP PROCESS?**

3 A.275 Yes. The project was recommended as part of the Action Plan in the GBWC 2018
4 Consolidated IRP and received approval from the Commission. *See* 2018 IRP Order at p.
5 10 ¶ 2(d)(viii.). The test well drilling project was then re-approved in the 2021
6 Consolidated IRP proceeding. *See* 2021 IRP Order at p. 8, ¶23.

7
8 **Q.276 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

9 A.276 The original estimated project cost as set forth in the 2018 IRP was \$1,559,366, and an
10 updated estimate of \$1,634,295 was provided in the 2021 IRP.

11
12 **Q.277 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
13 **APPROVED BY THE COMMISSION?**

14 A.277 Yes, there were many changes from the originally submitted project in the 2018 IRP and
15 the resubmittal in the 2021 IRP. GBWC provided the Commission with monthly status
16 updates of the ongoing project. For more details, please see the monthly status reports filed
17 in Docket No. 21-07020⁹ as stated above.

18
19 **Q.278 WHAT WERE THE FINAL COSTS OF THE PROJECT, AND HOW DO THEY**
20 **COMPARE TO THE IRP CONCEPTUAL ESTIMATE?**

21 A.278 The final, actual costs for this project totaled \$1,159,749, broken down as set forth below.
22 This total actual cost was lower than the estimates provided in connection with the 2021
23 IRP. That being said GBWC stopped the project, due to not being able to locate a feasible
24

25 ⁹ *See* PUCN Docket No. 21-07020, *Investigation regarding the potential rate impacts of projects included in*
26 *Great Basin Water Co.'s Spanish Springs Division's Preferred Plan, the potential future operations and maintenance*
27 *costs associated with poor water quality in the basin and potential remedies to address groundwater quantity and*
quality concerns.

1 site that would yield the required water quantity and quality need to drill a new production
2 well.

SSD TEST WELL	
Activity	Actual Costs
Design and Permitting	\$231,342
Construction	\$803,278
Captive	\$7,895
Misc.	\$25,825
AFUDC	\$91,407
Total Project Cost	\$1,159,749

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13 Please see Dataroom, Eason Testimony, folder entitled, "SSD Test Well Project INV GL
14 RTRMT".

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16 **Q.279 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT?**

17 A.279 Yes, the utility requested pricing from two (2) contractors. One contractor did not respond
18 to the RFP and one (1) contractor provided a proposal for the project. Stone House Drilling
19 gave a proposal for \$315,277. After review of the proposal, GBWC awarded the project to
20 Stone House Drilling as the sole bidder.

21 Please see Dataroom, Eason Testimony, folder entitled, "SSD Test Well Project RFP BIDS
22 CONTRACTS".

23
24 **Q.280 DID THE UTILITY AWARD TO THE LOWEST BIDDER?**

25 A.280 Yes. The lowest and only bidder was Stone House Drilling.
26
27

1 **Q.281 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS**
2 **PROJECT?**

3 A.281 Yes, GBWC solicited Lumos & Associate for a proposal and Lumos provided a proposal
4 for the permitting and oversight of the exploratory drilling for \$23,826. GBWC reviewed
5 the proposal and awarded Lumos the contract.

6 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD Test Well Project RFP
7 ENGINEER BIDS CONTRACTS”.

8
9 **Q.282 PLEASE PROVIDE ALL PERMITS FOR THE SSD TEST WELL PROJECT.**

10
11 A.282 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD Test Well Project REPORTS
12 PHOTOS MISC”.

13
14 **Q.283 PLEASE PROVIDE ANY OTHER PERTINENT INFORMATION FOR THE SSD**
15 **Test Well PROJECT.**

16
17 A.283 Please *see* Dataroom, Eason Testimony, folder entitled, “SSD Test Well Project REPORTS
18 PHOTOS MISC”.

19
20 **Q.284 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
21 **THIS PROJECT.**

22 A.284 No assets were retired for this project.

23
24 **Q.285 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS**
25 **PROJECT WERE REASONABLE?**

26 A.285 The Commission deemed this project prudent in the GBWC 2018 Consolidated IRP and
27 again in the 2021 Consolidated IRP. GBWC provided regular updates regarding project

28

1 status to Staff and other stakeholders throughout completion. GBWC provided thorough
2 oversight and followed best business practices in bidding, decision-making, invoice review,
3 as well as cost-saving measures. The groundwater exploration efforts to identify an
4 alternative viable well site in Spanish Springs, while to date unsuccessful, were justified in
5 light of the ongoing concerns about the quality and quantity of the existing groundwater
6 supplies and the life of the existing wells, and the need to fully vet all possible alternatives
7 for continued safe and reliable service to Spanish Springs customers. The final costs
8 associated with this project are reasonable in relation to the previous estimates that the
9 work performed as provided in the monthly reports to the Commission in Docket No. 21-
10 07020.

11
12 **Q.286 HOW IS GBWC PROPOSING TO RECOVER THESE COSTS?**

13 A.286 GBWC is proposing to recover this cost as a regulatory asset. For more information on the
14 recovery of the cost for the SSD - Test Well Project please see the Direct Testimony of
15 Aleksey Dolinko at Section 4.

16
17 **EXPECTED CHANGE IN CIRCUMSTANCE (ECIC) PROJECTS**

18 **Q.287 UNDER WHAT STANDARD SHOULD THE COMMISSION EVALUATE THE**
19 **COST RECOVERY FOR THE ECIC PROJECTS?**

20 A.287 The Commission should evaluate the cost recovery of these projects under the standards
21 provided in NRS 704.110(4). Under that statute, a utility may request approval of an ECIC
22 "which may occur within 210 days after the date on which its general rate Application is
23 filed with the Commission if such expected changes in circumstances are reasonably
24 known and are measurable with reasonable accuracy." See NRS 704.110(4).

25
26 The statute also provides that the utility "has the burden of proving that the expected
27 changes in circumstances set forth in the statement are reasonably known and are
28

1 measurable with reasonable accuracy," and that the Commission "shall consider expected
2 changes in circumstances to be reasonably known and measurable with reasonable
3 accuracy if the expected changes in circumstances consist of specific and identifiable
4 events or programs rather than general trends, patterns or developments, have an
5 objectively high probability of occurring to the degree, in the amount and at the time
6 expected, are primarily measurable by recorded or verifiable revenues and expenses and
7 are easily and objectively calculated, with the calculation of the expected changes relying
8 only secondarily on estimates, forecasts, projections or budgets." See id.

9
10 In addition, the Commission's regulations specify that the utility "must include a separate
11 and specific analysis explaining, in sufficient detail to satisfy the applicant's burden of
12 proof, the manner in which each such event or program meets each of the criteria set forth
13 in subsection 4 of NRS 704.110." NAC 703.2791. The utility should also include
14 "anticipated offsets which are directly attributable to or associated with the expected
15 changes in circumstances," and the "manner in which each anticipated offset is directly
16 attributable to or associated with an expected change in circumstances." NAC 703.2792.

17
18 *Spring Creek Division - New Well 8 (Project ID 2016011)*

19
20 **Q.288 PLEASE PROVIDE A BRIEF DESCRIPTION OF THE SCD NEW WELL 8**
21 **PROJECT.**

22 A.288 This project involves the replacement of the existing Well 8 in Spring Creek with a new
23 well. The replacement of Well 8 was originally approved by the Commission in the 2015
24 IRP filing by Spring Creek Utilities Company ("SCUC"), and then reapproved by the
25 Commission in the 2018 GBWC Consolidated IRP. Updates have been provided on the
26 status of the project at various stages, including in the 2018 IRP Capital Project Progress
27 Report, and in the 2021 GBWC Consolidated Rate Case which included a revision to the

1 2018 IRP Updated Capital Project Progress Report. The scope of work has not changed
2 since the original approval in the 2015 SCUC IRP and the reapproval of the project in the
3 2018 Consolidated IRP, however the estimated budget for the project was increased during
4 the 2018 Consolidated IRP, due to the identification of additional regulatory requirements
5 and increased construction costs.

6
7 GBWC selected Lumos Engineering through an RFP process to oversee the Well 8 project,
8 to include identification and design of a test well RFP for a new well location site,
9 processing bidding, review and selection of the test well drilling contractor, design of the
10 new well, and selection of the final drilling contractor to construct the new well
11 replacement in compliance with NDWR and NDEP guidelines and approval.

12
13 The scope of work called for the replacement of Well 8 and did not support the redrilling
14 of the existing Well 8 site, because of the potential groundwater radial interferences
15 between the existing Well 8 and Well 9 sites. These two wells are within an approximate
16 900-foot radius of each other, which prompted the need for a new well site to be located
17 and developed to avoid interference between the two wells when operating together.
18 Initially, three test well sites were targeted by GBWC based on the geology of the area, the
19 limited available knowledge of the hydrogeology in the area and based on the proximity to
20 existing water and power infrastructure. Once the areas were identified, GBWC submitted
21 a water right change application to NDWR, which targeted the most promising site to begin
22 GBWC's exploration work. The water right change application was challenged by NDWR
23 during the temporary drilling permit process and after the review of the drilling bid
24 packages for the new test well site. NDWR notified GBWC and Lumos that before NDWR
25 would issue a temporary drilling permit and authorize a new permit to change the place of
26 use for the project application, GBWC would have to conduct a study (NDWR required
27 either a Glover Analysis or other studies to be performed in the Spring Creek area),

1 demonstrating that any new proposed well location in the area would not interfere with any
2 surface water rights (vested water rights) associated with Dry Creek and Stoufer Creek
3 located in the Spring Creek area.
4

5 It is our understanding that NDWR's request was partly in response to a lawsuit filed by
6 the Pershing County Water Conservation District ("PCWCD") against the NDWR
7 regarding the Waters of the Humboldt River Basin. In that suit, PCWCD requested that
8 the basins located in the order be declared Critical Management Areas; to help curtail the
9 pumping of ground water and to lessen the impacts that pumping of ground water has on
10 surface water right held by PCWCD. After the requested study was completed, NDWR
11 approved the application for the test well. The new test well was drilled, and the location
12 proved to not be a viable site, due the lack of production needed to replace Well 8 and
13 alleviate the declining production from Well 9. The lithologies collected during the drilling
14 of the borehole indicated that hydrogeology was not favorable for a production well with
15 sufficient capacity. To save costs, the borehole was abandoned, and the site reclaimed.
16 GBWC resubmitted the project in the 2018 GBWC Consolidated IRP for review and
17 approval by the Commission,
18

19 After the reapproval by the Commission in the 2018 GBWC Consolidated IRP, GBWC
20 then requested that Lumos reexamine the remaining targets identified and identify new
21 locations to drill the next test well, but the project was placed on hold again pending
22 resolution of issues related to the PCWCD lawsuit and the preliminary draft regulations for
23 the conjunctive management of the basin that were circulated by the State Engineer in 2017.
24 The State Engineer's response to the PCWCD lawsuit initially resulted in denial of all new
25 water right applications for groundwater appropriation and the State Engineer's heavily
26 scrutinizing all water right change applications that requested point of diversion changes
27 for existing water rights that are in basins that drain to the Humboldt River. The scrutinizing
28

1 of these type of change applications included a groundwater/surface water hydraulic
2 analysis through the use of a model known as the Glover Analysis. Through this process
3 GBWC continued to work to address the challenges of developing a new well site in the
4 400 Tract and provided updates to the Commission in the 2021 GBWC Consolidated Rate
5 Case.

6
7 The Glover Analysis was developed for large river systems associated with unconfined
8 groundwater aquifers in the Midwest and was adopted by NDWR to be used in all the
9 basins that drain to the Humboldt River. GBWC's hydrologist (Lumos) argued to NDWR
10 that the Glover Analysis is not directly applicable for many of the basins located in the
11 Great Basin watershed, or for groundwater aquifers in the groundwater basins adjacent to
12 the Humboldt River, since many contain confined aquifer systems. GBWC's proposed
13 well site locations were all identified to be in confined aquifer systems. Discussion
14 continued, and NDWR ultimately agreed with GBWC that a test hole and well could be
15 developed at the current site. GBWC proposed and NDWR allowed for the current site to
16 be partially developed, so testing could demonstrate no impacts to surface water in the area
17 if used to service the 400 Tract area to meet demand, and to demonstrate and determine if
18 the location is within a confined aquifer.

19
20 GBWC located a new test hole site at 317 Scrub Oak Dr. in Spring Creek. GBWC reached
21 out to the owner of the property to negotiate for a potential easement if the site showed that
22 there would be sufficient capacity and acceptable water quality for the new well. GBWC
23 contracted with Stone House Drilling to drill the test well, and the new test well was drilled
24 to a depth of 900 feet. Once the test well was completed, Stone House performed a step
25 pump test and a twenty-four (24) hour constant pump test. Once the engineer received the
26 pump test data from the driller, it was determined that there was sufficient water to continue
27 work at this location. Water quality sampling was collected and analyzed by a certified lab

1 for water quality. When the analytical reports were received back from the lab, it was
2 determined that arsenic was detected slightly above the Maximum Contaminated Level
3 (MCL). GBWC reached out to BESST, Inc. as a consultant to initiate a dynamic flow and
4 chemistry profiling of Well 8.

5
6 After BESST performed their dynamic flow and chemistry profiling, it was determined the
7 best location for setting the pumping equipment would be near the bottom of the well.
8 BESST determined this by reviewing all the data of Well 8 and discussion with Lumos.
9 GBWC reached out to NDEP for a meeting to determine if the liner that was installed in
10 the new test well 8 would be acceptable as it was not NSF-61 compliant. Through
11 discussions with NDEP, GBWC was able to obtain a waiver from NDEP to use the new
12 test well as a production well to verify that the arsenic levels would be below the MCL
13 over a period of years.

14
15 After GBWC finished discussions with NDEP, GBWC reached back out to the residents
16 of 317 Scrub Oak Dr to finalize the easement agreement and record the easement
17 documents with the Elko County. GBWC had Lumos draft the plan set which was to
18 include the electrical, pumping equipment, and discharge assembly, and required permits
19 and approvals from NDEP, Elko County, and the SCA to construct.

20
21 GBWC had to locate three phase power, which was not available at the site location.
22 GBWC reached out to NV Energy to inquire the closest location of three phase power. NV
23 Energy provided three connection points options: 1) Overhead power from Horse Palace
24 to Scrub Oak, 2) Overhead power from Lamoille Hwy to Scrub Oak, 3) Underground
25 power from Lamoille Hwy to Scrub Oak. GBWC reached out to the SCA to see if overhead
26 power would be acceptable. The SCA returned with a letter stating that all power within
27 the SCA service area must be underground power. Due to SCA's position, the only option
28

1 that GBWC had was to install the new power line underground. The selected NV Energy
2 route included a property that is not within the SCA boundaries, so GBWC reached out to
3 the owner of that property to negotiate an easement for the underground power line. The
4 property owner returned to GBWC with a letter stating that he will not allow NV Energy
5 to place the underground power on his property and declined to provide an easement.
6 GBWC was then required to ask NV Energy to provide a new underground route to install
7 the three-phase power. Once the new proposed underground power line route was
8 obtained, GBWC issued an RFP to install underground power from Lamoille Hwy to Scrub
9 Oak Dr. via the new route. Once all proposals were received and reviewed by GBWC, the
10 contract was awarded to Faulstich & Rand Construction (“FRC”). FRC had the route staked
11 and began trenching and installing the 4-inch conduit. NV Energy and GBWC performed
12 oversight of the conduit installation and backfilling of the entire three phase power project.
13

14 GBWC then issued an RFP to four contractors for pricing to complete the development of
15 the New Well 8 Site. GBWC received only one proposal back (from FRC) out of the four
16 RFPs that were issued, and GBWC did not receive responses back from Shay or Floyds
17 Construction, and then the RFP was declined by High Mark due to their current workload.
18 GBWC spoke with FRC and executed a contract to complete the development of the new
19 Well 8 site.
20

21 **Q.289 DID THIS PROJECT RECEIVE A PRUDENCY DETERMINATION FROM THE**
22 **COMMISSION THROUGH AN IRP PROCESS?**

23 A.289 Yes. The project was recommended as part of the Action Plan in the 2015 SCUC IRP and
24 received approval from the Commission. See August 26, 2015, order issued in the 2015
25 IRP (Docket No. 15-03004) at p. 13 ¶ 41. The project was re-approved in the 2018
26 Consolidated IRP proceeding. See 2018 IRP Order at p. 9, ¶b(xvi).
27

1 **Q.290 WHAT WAS THE CLASS 3 ESTIMATED PROJECT COST IN THE IRP?**

2 A.290 The most recent estimated project cost set forth in the 2018 IRP was \$1,509,408.

3
4 **Q.291 WERE THERE SUBSTANTIAL CHANGES TO THE PROJECT SINCE IT WAS**
5 **APPROVED BY THE COMMISSION?**

6 A.291 Yes, there were substantial changes to this project as the project timeline was extended out
7 over several years to address issues that arose with NDWR (as outlined above in relation
8 to the Glover Analysis and transfer of water rights within the Basin). When a suitable site
9 was located, there were water quality issues that needed to be addressed, and GBWC was
10 required to negotiate an easement with the property owner. GBWC also had to bring in
11 three phase power to the site after it was determined that no suitable power available within
12 the 400 Tract. The combination of these unanticipated issues along and inflation in pricing
13 for materials and labor have contributed to the final actual costs for this project exceeding
14 the estimates set forth in prior IRP filings.

15
16 **Q.292 DID THE UTILITY SOLICIT BIDS FOR THIS PROJECT?**

17 A.292 Yes, the utility issued an RFP for drilling the test hole and test well, another RFP for the
18 construction of the NV Energy 3-phase power line extension, and a third RFP for
19 construction and site development. The results of the various RFP responses are set forth
20 below.

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22

WELL DRILLING BIDS				
Hydro Resources	Stonehouse Drilling	McKay Drilling	Premier Drilling	Budget Drilling
No Response	\$192,170	No Response	No Response	No Response

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NV ENERGY POWER INSTALLATION	
High Mark Construction	FRC
Declined	\$701,256

CONSTRUCTION SITE DEVELOPMENT BIDS			
FRC	High Mark Construction	Shey Construction	Floyd Construction
\$1,005,462	Declined	No Response	No Response

Please see Dataroom, Eason Testimony, folder entitled ___, “SCD New Well 8 RFP BIDS CONTRACTS”.

Q.293 DID THE UTILITY AWARD TO THE LOWEST BIDDER?

A.293 Yes. GBWC received only one bid in response to each of the RFPs it issued and, after review and consideration of the qualifications of the bidder and reasonableness of the bid, awarded each of the project phases to the lowest and only bidder for that phase.

Q.294 DID THE UTILITY SOLICIT BIDS FOR THE ENGINEERING FOR THIS PROJECT?

A.294 Yes, GBWC reached out to three (3) engineering firms and GBWC did receive three (3) proposals back and GBWC selected Lumos and Associates even though they were not lowest bidder. GBWC rejected the proposal from Farr West due to an incomplete scope of work for the total project completion and understanding of the Spring Creek area.

ENGINEERING BIDS		
Lumos & Associates	Farr West	Tetra Tech Engineering
\$165,100	\$70,00	\$257,425

1 Please see Dataroom, Eason Testimony, folder entitled ____, “SCD New Well 8 RFP
2 ENGINEER BIDS CONTRACTS”.

3

4 **Q.295 HAS ENGINEERING BEEN PERFORMED, MATERIALS ORDERED, AND**
5 **CONSTRUCTION COMMENCED ON THE SCD – NEW WELL 8 PROJECT?**

6 A.295 Yes, all engineering has been performed, all materials have been ordered and the
7 construction has commenced and is currently about 90% complete.

8

9 **Q.296 PLEASE PROVIDE ALL EXECUTED CONTRACTS FOR THE SCD NEW WELL**
10 **8 PROJECT.**

11 A.296 Please see JTE-03 to Exhibit ____, “SCD New Well 8 RFP ENGINEER BIDS
12 CONTRACTS.”

13

14 **Q.297 PLEASE PROVIDE ALL PERMITS FOR THE SCD NEW WELL 8 PROJECT.**

15 A.297 Please see JTE-04 to Exhibit ____, “SCD New Well 8 Permits”.

16

17 **Q.298 WHAT OTHER INFORMATION CAN THE COMPANY PROVIDE ABOUT THE**
18 **STATUS OF THE SCD NEW WELL 8 PROJECT?**

19 A.298 Please see Dataroom, Eason Testimony, folder entitled ____, “SCD New Well 8 REPORTS
20 PHOTOS MISC”.

21

22 **Q.299 WHAT IS THE STATUS OF THE PROJECT?**

23 A.299 The current status of the SCD – New Well 8 project is as follows:

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Engineering Items				
Task	Contractor	Status	Comments	% Work Complete
Engineering/Site Location/Test Well Site 1	Lumos	Executed/Completed	Complete/NDEP Approved	100%
Engineering/Site Location/Test Well Site 2	Lumos	Executed/Completed	Complete/NDEP Approved	100%
Engineering Well Design	Lumos	Executed/Completed	Complete/NDEP Approved	100%
Engineering Test Hole Water Quality Analysis	BESST	Executed/Completed	Complete	100%
Engineering Well Development	Lumos	Executed/In Progress	Oversight/project close out	95%
Engineering Site Development	Lumos	Executed/In Progress	Oversight/project close out	90%
Engineering Site Development Oversight	Summit	Executed/In Progress	Oversight/project close out	80%
Engineering NV Energy/LEA	Lumos	Executed/Completed	Electrical LEA	100%
Water Rights Transfer Temp	FarrWest	Executed/Completed	NDWR Approved	100%
Water Rights Transfer Perm	Faque Conslt	Executed/In Progress	NDWR Pending Approval	75%

Construction Items				
Task	Contractor	Status	Comments	% Complete
Drilling Test Hole #1	Hydro	Executed/Completed	Complete/NDWR Approved	100%
Drilling Test Hole #2	Stonehouse	Executed/Completed	Complete/NDWR Approved	100%
Drilling Test Hole	Stonehouse	Executed/Completed	Complete/NDWR Approved	100%
Drilling Test Well/Production Well	Stonehouse	Executed/Completed	Complete/NDWR Approved	100%
Well development	Carson Pump	Executed/Completed	Complete	100%
NV Energy Line Extension Construction	FRC	Executed/Completed	Complete/NV Energy Accepted	100%
Well Site Development	FRC	Executed/In Progress	NDEP/Elko County & SCA Approved	80%
Generator Procurement	GBWC	Executed/Completed	Complete	100%

Well Site Development Subs (General Contractor: FRC)				
Task	Contractor	Status	Comments	% Complete
Onsite Electrical/SCADA	I&E	Executed/In Progress	Material Delay (480/600v Panel)	60%
Building	Tuff Shed/FRC	Executed/In Progress	On Schedule	60%
Installation of Pftless Adaptor	Stonehouse	Executed/In Progress	On Schedule	90%
Pumping Equipment	Stonehouse	Executed/In Progress	Possible Delay Due to Panel Delay	0%
Generator Installation	I&E	Executed/In Progress	Possible Delay Due to Panel Delay	0%
Concrete Work	High Mark	Executed/In Progress	On Schedule	99%

Please see JTE-05 to Exhibit ____, “SCD Well 8 Project Status”.

Q.300 IS THE PROJECT A “SPECIFIC AND IDENTIFIABLE EVENT OR PROGRAM AS OPPOSED TO A GENERAL TREND, PATTERN, OR DEVELOPMENT”?

A.300 Yes, notwithstanding that it has taken some time to complete, this is a specific and discrete project that was identified and approved by the Commission in the 2015 and 2018 IRPs.

Q.301 ARE THE EXPECTED COSTS OF THE PROJECT KNOWN WITH A HIGH DEGREE OF CERTAINTY?

A.301 Yes, GBWC expects that the final actual costs for this project will total approximately \$3,414,021 and believes that it can give this estimate with a very high level of certainty, pending any unforeseen change orders.

1 **Q.302 IF THE COSTS OF THE PROJECT ARE PROJECTED TO BE DIFFERENT**
2 **THAN AN AMOUNT PROVIDED IN AN APPROVED IRP, PLEASE PROVIDE**
3 **THE AMOUNTS AND AN EXPLANATION OF THE DIFFERENCE IN COSTS.**

4 A.302 As noted above, GBWC expects that the final actual costs for this project will total
5 approximately \$3,414,021, broken down as set forth below. The last approved IRP
6 estimate (as set forth in the 2018 IRP) was \$1,509,408.

7
8 The total project costs will ultimately exceed the estimate that was formulated in 2018
9 (based on the information available at that time) by a significant amount. This is
10 attributable to several factors, including general inflationary and other upward pressures
11 on labor and material, in combination with substantial changes to the scope and
12 requirements of the project as it evolved over the nearly 10-year project span, including
13 additional project components required to overcome unforeseen difficulties in permitting,
14 easements, and project site development.

15
16 One of the primary drivers of the increased costs was the need to bring 3-phase power to
17 the site. The Spring Creek HOA's regulations require all power be placed underground,
18 which escalated this phase of the project. The need to address water quality issues added
19 further increased costs, once it was discovered the well produces arsenic slightly above the
20 MCL limits. As described, GBWC contracted with BESST to conduct zone water sampling
21 to determine optimal pumping equipment placement based on water quality and flow data.
22 Additional costs were incurred in negotiating potential easements for the well site and also
23 for the underground power route, including costs for the purchase of an easement from a
24 property owner in the amount of \$32,500. Additionally, the purchase and installation of a
25 Hach Arsenic Analyzer to monitor arsenic levels in real time also added to the final project
26 costs.

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SC NEW WELL 8 PROJECT	
Activity	Actual Costs
Design and Permitting	\$419,833
Construction	\$2,555,381
Captive	\$63,177
Misc.	\$12,864
AFUDC	\$362,766
Total Project Cost	\$3,414,021

Please see JTE-6 to Exhibit ____, "Project Cost SCD-Well 8 Project".

Q.303 HOW HAVE THE EXPECTED COSTS TO COMPLETE THE SCD – NEW WELL 8 PROJECT BEEN VERIFIED?

A.303 The general contractor (FRC) has submitted and executed a contract for all the labor and material costs to complete the SCD – New Well 8 project and GBWC expects final costs to be in line with the above stated amount.

Q.304 WHY SHOULD THE COMMISSION CONCLUDE THAT THE COSTS FOR THIS PROJECT WERE REASONABLE?

A.304 The Commission deemed this project prudent in two separate IRP dockets (the SCUC 2015 IRP (Docket 15-03004) and GBWC’s 2018 Consolidated IRP (18-03005)). GBWC has kept the Commission apprised of status and the various unforeseen circumstances that have extended and complicated the project completion timeline, including updates provided in GBWC’s Consolidated 2021 IRP

1 The extended time frame to complete the project is attributable to numerous factors that
2 were unforeseen when the project was first presented to the Commission, including the
3 water rights issues that become pertinent when third party litigation arose in relation to the
4 Humboldt River Basin and the delay during negotiations with NDWR regarding a suitable
5 well site. Further delays (and costs) are attributable to other circumstances outside
6 GBWC's control, including the need to address water quality issues that were discovered
7 during the drilling project and the need to run an underground line to supply 3-phase power
8 to the well site in a manner that addressed requirements of NV Energy, the SCA, and
9 private property owners. Despite these challenges, GBWC employed best practices at all
10 times in an effort to minimize costs to the furthest extent possible, including that it
11 employed thorough oversight and followed best business practices in bidding, decision-
12 making, invoice review, as well as cost-saving measures.

13
14 Most importantly, the costs incurred are reasonable in relation to the importance of this
15 project to the Company's objective to continue providing safe and reliable water service to
16 its Spring Creek customers. As described in GBWC's 2018 Consolidated IRP, Well 8 was
17 originally drilled in 1981 and the static water level had dropped substantially, causing
18 quality issues and giving rise to the need to explore other locations for deeper aquifers that
19 meet drinking water standards. The completion of the new Well 8 is expected to also
20 alleviate high water pressure issues in Spring Creek's 400 tract. GBWC submits that, given
21 the need for this important project and GBWC's watchful management of project costs, the
22 Commission may deem that the actual costs incurred are reasonable.

23

24 **Q.305 WHEN WILL GBWC COMPLETE AND PLACE INTO SERVICE THE SCD –**
25 **NEW WELL 8 PROJECT?**

26 A.305 The project is expected to be completed and place into service on or before March 30,
27 2025.

28

1 **Q.306 HOW DID GBWC ESTABLISH THE COMPLETION DATE FOR THE SCD –**
2 **NEW WELL 8 PROJECT?**

3 A.306 The anticipated completion date has been established through numerous discussions with
4 the general contractor and sub-contractors to confirm and determine the most accurate final
5 timeline for the project. GBWC’s contractor is familiar with the well drilling process and
6 this timeline reflects the parties’ significant experience in completing similar projects.

7
8 **Q.307 DO THE CONTRACTS FOR THE SCD – NEW WELL 8 PROJECT HAVE**
9 **LIQUIDATED DAMAGES PROVISIONS?**

10 A.307 Yes, the contract between GBWC and the general contractor does have a liquidated
11 damages clause, which originally set forth a project completion deadline of December 30,
12 2024. However, due to an uncontrollable delay on delivery of a large electrical service
13 panel (480v/600amp), GBWC has extended the completion date of the project, and the
14 trigger of the liquidated damages provision, March 30, 2025, consistent with the estimated
15 project completion date set forth above. Should the project be delayed beyond that date,
16 GBWC can begin enforcing the liquidated damages clause for qualifying delays. FRC will
17 be held to liquidated damages as stated in the contract of \$500 a day every day after the
18 revised completion date.

19
20 Please *see* Attachment JTE-7 to Exhibit ____, “Liquidated damages”.

21
22 **Q.308 BASED ON THE FOREGOING, IS IT REASONABLE FOR THE COMMISSION**
23 **TO CONCLUDE THAT THE SCD – NEW WELL 8 PROJECT WILL BE**
24 **COMPLETED WITHIN 210 DAYS OF THE APPLICATION FILING DATE?**

25 A.308 Yes, based on all of the foregoing, it is reasonable for the Commission to conclude that the
26 SCD-Well 8 Project will be completed and used and useful within the required 210 days
27 after GBWC’s 2024 Rate Case submittal date of December 4, 2024.

28

1 **Q.309 ARE THERE ANY OFFSETS OR COST SAVINGS ATTRIBUTABLE TO THE**
2 **COMPLETION OF THE SCD – NEW WELL 8 PROJECT?**

3 A.309 GBWC has not quantified any expected offsets or costs savings associated with this
4 project. The Company expects, however, that installation of the SCD – New Well 8 project
5 will improve pressures in the system, fire flows, provide more options for the Operations
6 staff to move water between the tracts in case of a main break, and most importantly,
7 provide a source of more reliable safe drinking water to the Spring Creek customers.
8

9 **Q.310 ARE THERE ANY EXPECTED INCREASES IN O&M COSTS ASSOCIATED**
10 **WITH THE SCD – NEW WELL 8 PROJECT?**

11 A.310 Yes, there will be an increase to O&M costs in the Spring Creek system due to the SCD –
12 New Well 8 project to the following items:

- 13 • Chlorine (weekly)
- 14 • Hach Arsenic Analyzer Reagents (monthly)
- 15 • NV Energy Power (monthly)
- 16 • Generator Maintenance (annually)
- 17 • Cla-Val Maintenance (annually)
- 18 • Facility Electrical Inspections (annually)
- 19 • Backflow Inspection (annually)
- 20

21 **Q.311 PLEASE DESCRIBE ANY ASSETS WHICH WERE RETIRED AS A PART OF**
22 **THIS PROJECT.**

23 A.311 There were no assets retired for this project.
24

25 **Q.312 PLEASE SUMMARIZE WHY THE PROJECT MEETS THE CRITERIA**
26 **SPECIFIED IN NRS 704.110(4) AS AN EXPECTED CHANGE THAT IS**
27

28

1 **REASONABLY KNOWN AND MEASURABLE WITH REASONABLE**
2 **ACCURACY?**

3 A.312 As stated above, substantial portions of the SCD – New Well 8 project has already been
4 completed and the final well site development phases are in progress, with the main
5 components ordered and being installed as they are received from the vendors. This project
6 is necessary to maintain the needed pumping capacities required by the Spring Creek
7 Community as well as to replace the currently aging and failing Well 8.

8
9 **Pahrump Division John Deere 331G Skid Steer and Attachments**

10
11 **Q.313 PLEASE PROVIDE A BRIEF DESCRIPTION WHY THE UTILITY NEEDS TO**
12 **PROCURE A NEW TRACK LOADER?**

13 A.313 GBWC has certain responsibilities for maintaining the open space areas and for distributing
14 treated effluent water within Discovery Park, located in the Pahrump Division. GBWC
15 currently uses a John Deere 5100E utility tractor, which was purchased in 2015, for
16 mowing Discovery Park open space areas, digging and removing debris, installing new
17 irrigations line or valves, loading/unloading equipment and materials for wastewater
18 operations and maintaining the RIBs. GBWC proposes to purchase a new John Deere
19 331G Track loader (with a mulching head/bucket and scarification dual ripper) for the
20 purposes of vegetation removal and cleanup, general maintenance and for resolving Nye
21 County Code and Compliance complaints issued to GBWC, for Discovery Park. The new
22 equipment will provide safer and additional benefits, which are different then the currently
23 used utility tractor, as outlined below.

24
25 **Benefits of the Track Loader:**

- 26 • Access to the low-lying drainage areas and creek sidewalls and bed when saturated
27 and overgrown.

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- The ability to grind stumps and overgrown saplings or vegetation, providing for access into areas with uneven terrain and unstable soil conditions.
- The smaller equipment allows for increased maneuverability around obstacles encountered within Discovery Park, tracked equipment provides less impact to the soil conditions and infrastructure, while providing better traction and safer conditions while working in wet areas.
- The safety features include a closed cab to protect the operator from debris, other sensors and features such as a back-up camera to protect the operators and the public that may be utilizing the park during maintenance tasks.
- With the purchase of the Track Loader, it eliminates the need to hire third party contractors to complete this type of work.

Benefits of the mulching head/bucket:

- Creates a weed barrier by mulching the vegetation and leaving it in place to minimize soil erosion and dust control complaints, while reducing flying projectiles that typically occur with the use of rotary mowers.
- Removes up to 203-mm (8-in.) trees, 305-mm (12-in.) stumps, and shreds underbrush and woody materials into beneficial mulch in minutes.
- Two-speed hydraulic system efficiently uses available horsepower. When preset pressure level is attained, the motor automatically shifts to a higher displacement, increasing torque for reduced stalling and faster rotor-speed recovery time.
- Redesigned mulching chamber provides more efficient material flow and reduces wear points for optimized shredding performance. Internal counter-combs help shatter incoming material, creating a finer mulch.
- 30 double-carbide-tipped teeth on the MH60D, and 36 of the same teeth on the MH72D, take big bites out of trees and stumps to deliver superior large-material knockdown. Also works well below soil level for chewing out stumps.

- 1 • Optional knife tools (available through parts) allow smoother cutting and finer chip
- 2 size.
- 3 • Bucket will be used to spread mulching or other material
- 4 • With the purchase of the mulching head, it eliminates the need to hire third party
- 5 contractors to complete this type of work.

6

7 **Benefits of the scarification dual ripper:**

- 8 • GBWC will be able to rip the RIBS at WWTP 3 twice a year to turn soils to allow
- 9 the proper percolation.
- 10 • With the purchase of the ripper, it eliminates the need to hire third party contractors
- 11 to complete this type of work.

12

13 With the purchase of the 331G and its capabilities, GBWC will be able to reduce if not

14 eliminate Nye County Code and Compliance complaints in and around the Discovery Park

15 area that relate to maintenance of the open space. In addition, this will eliminate the need

16 to rent this type of equipment in the future and reduce the need for vegetation removal,

17 dumpsters and the cost associated with hauling vegetation and or debris to the landfill.

18

19 **Q.314 DESCRIBE MOST RECENT NYE COUNTY CODE VIOLATIONS IN**

20 **DISCOVERY PARK?**

21 A.314 Below are the current Code and Compliance Violation issues, and progress in resolving the

22 same.

23

23 **1. 9/25/2023 Compliance Case File CC-23-297.**

24

- 24 ▪ APN-03951131

25

- 25 ▪ Location – Discovery Park Creek to Twin Ponds.

26

- 26 ▪ Status – Complete.

27

28

1 Case File CC-23-297 was on the East Pahrump Valley side of Discovery Park, GBWC was
2 deemed out of compliance due to weeds over 12” tall in and around the Creek. This has
3 been resolved.

4
5 **2. 1/3/2024 Compliance Case File CC-23-485**

- 6 ▪ 12000 Red Butte
- 7 ▪ Location - Discovery Park Pond 8.
- 8 ▪ Status – Ongoing.

9 Case File CC-23-485 is still active. This compliance case was focused on Pond 8 Wetlands
10 and the cattails being above 12” and partially dead. Nye County deemed GBWC out of
11 compliance due to weeds in a Pond Wetland being a potential fire hazard, GBWC has been
12 sending its Operators out into the wetland to remove dead or partially dead cattails by hand.

13
14 **3. 11/13/24 Compliance Case File CC-24-502**

- 15 ▪ APN-03951131.
- 16 ▪ Location – Discovery Park Creek to Twin Ponds.
- 17 ▪ Status – Ongoing.

18 Case File CC-24-502 is a repeat from 9/25/2023. GBWC utilized a creek to fill the Twin
19 Ponds. The creek has been deemed out of compliance due to overgrown weeds. This will
20 continue to be a problem area for GBWC, due to the utilization of the creek to fill the Twin
21 Ponds. There have been no fines issued to GBWC at this time.

22
23 In addition, to the Nye County Code Violations described above, GBWC staff has had to
24 address fire issues associated with overgrown vegetation and had to remove homeless
25 encampments in overgrown vegetation areas. There have been fires that GBWC staff has
26 had to assist in extinguishing with the fire department, which were started by some of the
27 homeless living in this overgrown vegetation on Discovery Park.

1 **Q.315 DESCRIBE HOW THE EXISTING JOHN DEER TRACTOR WILL CONTINUE**
2 **TO BE USEFUL FOR THE UTILITY?**

3 A.315 The John Deere 5100E with a brush hog, forks, grapple, excavator and bucket attachments
4 will continue to be utilized in Discovery Park area as outlined below.

- 5
- 6 • Scarification of RIBS at WWTP 3 annually.
 - 7 • Loading/unloading heavy equipment. (Pumps, Motors, Odor Scrubber Media)
 - 8 • Grapple Attachment for cleaning up debris.
 - 9 • Mowing spray fields at WWTP
- 10

11 **Q.316 WHAT IS THE ANTICIPATED COST TO PROCURE THE NEW JOHN DEERE**
12 **331G SKID STEER AND ATTACHMENTS?**

13 A.316 The expected total cost associated with the 331G Track Loader and 5100E Attachment is
14 as follows:

- 15 • 331G Track Loader, Forestry Mulcher and Bucket attachment \$128,172.17
 - 16 • 5100E Two Shank Ripper attachment is \$2,017.50
 - 17 • Total Costs: \$130,189.67
- 18

19 Please *see* - JTE 8 to Exhibit ____, “Project Cost PD- Skid Steer and Accessories”.

20

21 GBWC reached out directly to John Deere Stotz to ask for a proposal on the 331G Track
22 Loader, Forestry Mulcher, Bucket and 5100E two shank ripper attachment. GBWC did not
23 request additional bids to procure the Track Loader or attachments for the 5100E. John
24 Deere Stotz is GBWC’s local distributor for John Deer equipment and attachments. We
25 have an existing maintenance program with them and previously purchased a ripper
26 attachment for the existing tractor from them. The new track loader will also be added to
27

1 our maintenance program. GBWC believes the total costs for the purchase are reasonable
2 in relation to market rates.

3

4 **Q. 317 HAS GBWC EXECUTED ANY CONTRACTS FOR PURCHASE OF THE SKID**
5 **STEER AND ATTACHMENTS?**

6 A.317 Yes. Please *see* JTE-9 to Exhibit ___, "PD- Skid Steer and Accessories Executed
7 Contracts".

8

9 **Q. 318 WHEN DOES GBWC EXPECT TO TAKE DELIVERY OF THE SKID STEER**
10 **AND ATTACHMENTS?**

11 A.318 January 6, 2025.

12

13 **Q. 319 BASED ON THE FOREGOING, IS IT REASONABLE FOR THE COMMISSION**
14 **TO CONCLUDE THAT THE SKID STEER AND ATTACHMENTS WILL BE**
15 **PROCURED AND PLACED INTO SERVICE WITHIN 210 DAYS OF THE**
16 **APPLICATION FILING DATE?**

17 A.319 Yes.

18

19 **Q. 320 PLEASE SUMMARIZE WHY THE PROJECT MEETS THE CRITERIA**
20 **SPECIFIED IN NRS 704.110(4) AS AN EXPECTED CHANGE THAT IS**
21 **REASONABLY KNOWN AND MEASURABLE WITH REASONABLE**
22 **ACCURACY?**

23 A.320 This project involves the anticipated procurement of a vehicle/equipment that is necessary
24 to assist the Company in better meeting its obligations with respect to maintenance at
25 Discovery Park and will help the Company avoid future compliance issues. The
26 procurement of the skid steer and attachments will also add efficiency benefits in
27 completing the work that will save costs in the future. GBWC has an executed contract for

28

1 the purchase at an anticipated price and expects to take delivery of the equipment during
2 the ECIC period.

3
4 **ISHANI RIDGE**

5 **Q.321 HAS THE ISHANI RIDGE DEVELOPMENT BEEN COMPLETED YET?**

6 A.321 No. As described in the Company’s 2024 IRP Filing, Ishani Ridge is a long-planned
7 development in the Pahrump Division service territory that encountered financial
8 difficulties during the Great Recession. As of this filing, the community remains
9 undeveloped, however there are plans for build-out in the next three years. Currently,
10 GBWC is working with Nye County in the Nevada State 5th Judicial District Court (“The
11 District Court”) relating to the dispersal of bond money related to the water and wastewater
12 infrastructure that had been collected for upgrades to the planned development. GBWC has
13 presented to The District Court a plan for the phasing (Phases 1-6) of the water and
14 wastewater infrastructure to be inspected, upgraded, reconstructed as needed and as
15 approved by NDEP for the service to the lots in phases 1-4. The District Court approved
16 the phasing approach submitted by GBWC and directed GBWC to start the work on phases
17 1-4. Once the acceptance and dedication of the water and wastewater infrastructure in
18 phases 1-4 by GBWC is completed, Nye County, GBWC and the District Court will
19 reevaluate the remaining bond funds and then develop plans for construction, NDEP
20 approval and funding for phases 5-6. To date all costs associated with most inspection and
21 construction for the water and wastewater infrastructure have been funded through the
22 bond. Additional testimony regarding Ishani Ridge is set forth in the Direct Testimony
23 Stella Rosell. Ms. Rosell breaks down the costs incurred by GBWC to date, which have
24 been associated with past inspections and engineering proposals, current engineering
25 review and submittals and attorney’s fees to present our plan to The District Court.

1 Should parties to this proceeding seek additional information about the status of the Ishani
2 Ridge project, GBWC would be happy to facilitate an appropriate site visit or provide
3 additional information.

4
5 **CONCLUSION**

6 **Q.322 PLEASE PROVIDE A LIST OF ATTACHMENTS TO THE PREPARED DIRECT**
7 **TESTIMONY OF JAMES T. EASON.**

8 A.322 Please *see* Attachment JTE-10, *Eason Attachments Index*.

9
10 **Q.323 DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

11 A.323 Yes. However, I reserve the right to supplement or make corrections to this testimony at
12 the time of the hearing in this proceeding.

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AFFIRMATION

Pursuant to Section 703.710 of the Nevada Administrative Code, I hereby affirm that the foregoing testimony was prepared by me or under my direction and is correct to the best of my knowledge.

Signed: James Carson
Dated: 12/04/2024

Attachment JTE-1 to Exhibit _____

Attachment JTE-1 to Exhibit _____

JOB TITLE	BU President
DEPARTMENT	Executive
STATUS	Exempt
SUPERVISOR'S TITLE	Executive Vice President & COO, Corix US Regulated Utilities
JOB SUMMARY	Serves as the President and an Officer of the Corporate entities in the region to achieve the overall objectives established by the Board. Provide visionary and strategic leadership and direction to all functions of the Business Unit (BU) to achieve customer, investor, regulator and employee satisfaction. Responsible for all facets of the business including culture, operations, finance, business development, health, safety, and environmental compliance, legislative and regulatory matters, brand improvement, stakeholder relationships, and customer engagement and experience. This includes responsibility for support service quality, assurance, delivery and costs from direct, internal and external support groups. Represents all subsidiary companies within the BU in federal, state, and local governmental and other stakeholder matters.
ESSENTIAL FUNCTIONS	<ul style="list-style-type: none"> ▪ Provide day-to-day leadership and management that mirrors the mission and core values of the Company. ▪ Responsible for complete profit and loss (P&L) accountability for respective BU. ▪ Oversees the direction of all operations of the respective BU. ▪ Oversees the development of the annual expense budget, forecasts, and financial strategic plans for the BU. ▪ Oversees the development and execution of the capital expenditure plan and budget for the BU. ▪ Develops a comprehensive business development plan through identifying and executing acquisitions, recognizing development opportunities, and completing divestments. ▪ Monitors BU financial performance; approves the forecast needed for staffing, equipment, materials and supplies; oversees water and wastewater rates, fees and charges; approves expenditures and implements budgetary adjustments, as appropriate and necessary, to achieve BU objectives. ▪ Maintain an accurate revenue, expense, EBITDA and capital spending forecast. ▪ Manages, supports, leads and empowers BU staff to ensure all HSE guidelines and policies are continually met including the operation compliant utility systems. ▪ Drives profitability by effectively challenging and motivating employees. ▪ Supervises the planning and preparation of rate filings, resolution of rate applications, transfer proceedings, territory extensions, tariff and rule changes, Commissions audits and other regulatory activities for the BU. ▪ Organizes and develops operations, finance and BU support staff to provide effective and efficient operations for the BU and create a

	<p>leadership capacity for growth.</p> <ul style="list-style-type: none"> ▪ Provides effective feedback to staff that allows for identification of key performers and promotes internal growth opportunities. ▪ Develops and cultivates relationships with stakeholders, including politicians, legislators, regulators, staff and community leaders. ▪ Creates and manages relevant programs for increased customer satisfaction appropriate organizations and individuals. ▪ Constant, independent regular travel between worksites on Company time.
<p>ADDITIONAL RESPONSIBILITIES</p>	<ul style="list-style-type: none"> ▪ Performs strategic planning for operations and provides input and assists the Executive Management Team on policy issues. ▪ Supports the initiatives of Shared Services to improve the BU's and Company as a whole. ▪ Provide advice or guidance to other Business Unit Presidents to ensure all BUs have support necessary to run an effective operation. ▪ Serve as a backup BU President, as needed, in other Business Units to ensure smooth transitions and to assist with knowledge transfer. ▪ Evaluate the Operations and Financial teams to strive for continued improvement of effective operations. ▪ Meet with Regulators and Staff to discuss complex regulatory issues and explain the Company's position. ▪ Oversees local media interactions and manages relationships. ▪ Stays abreast of relevant BU business environment and potential or actual legislative, regulatory, or other impacts to the BU. ▪ Meets BU and Company goals and objectives in conformance with budgetary guidelines. ▪ Performs other related duties as assigned.
<p>COMPUTER SKILLS</p>	<p>Proficiency with Microsoft Office Suite, J.D. Edwards, SharePoint, One Drive.</p>
<p>ADDITIONAL SKILLS</p>	<ul style="list-style-type: none"> ▪ Willingness to lead and take full responsibility and accountability for BU performance. ▪ Able to maintain confidential information. ▪ Ability to establish and maintain effective working relationships with stakeholders, including the general public, customers, co-workers, employees, and federal, state, and local governmental organizations. ▪ Experience in strategic planning and execution. Knowledge of contracting, negotiating and change management. Knowledge of finance, accounting, budgeting, and cost control principles including Generally Accepted Accounting Principles (GAAP). ▪ Exceptional organizational and analytical skills and experience interpreting a strategic vision and leadership into an operational model. ▪ Ability to provide vision and leadership. ▪ Ability to effectively supervise, mentor, evaluate, and guide staff to increase skill level, morale and efficiency. ▪ Ability to objectively coach employees and managers through complex, difficult and emotional issues.

	<ul style="list-style-type: none"> ▪ Ability to define specific problems and offer variable solutions. ▪ Ability to implement recommendations to effectively resolve problems or issues by using judgment that is consistent with standards, practices, policies, procedures, regulation or government law. ▪ Ability to specify goals and effectively achieve them. ▪ Exceptional verbal and written communication skills. ▪ Understand and implement a variety of the field’s concepts, practices and procedures. ▪ Ability to keep accurate records and prepare and submit accurate reports. ▪ Detail-oriented with ability to see the “big picture.” ▪ Demonstrated cross-functional expertise and an in-depth knowledge of the utility industry. ▪ Meaningful participation in industry and sector events and activities, including NARUC, NAWC, AWWA, and WEF.
EDUCATION	Required: Bachelor’s degree Preferred: MBA, J.D., or Ph.D.
CERTIFICATIONS/LICENSES	N/A.
EXPERIENCE	Minimum 15 years diverse and progressively more responsible leadership experience, preferably within a related industry, which includes but is not limited to: proven ability to build and lead teams, develop and clearly communicate a strategic vision and build positive internal and external relationships across all levels of staff, among key stakeholders and executive team members; demonstrated ability and financial acumen to meet budgetary goals and objectives; an in-depth, cross-functional understanding of an organizations key performance drivers.
PHYSICAL DEMANDS	Light to moderate physical activity, requires normal hearing and vision.
EQUIPMENT USED	Cellphone, PC and/or laptop, copy/fax/scan machine, telephone and other general office equipment. Operates a Company-issued motor vehicle.
TRAVEL REQUIRED	Frequent travel is likely required.
ADDITIONAL COMMENTS	This document describes typical duties and responsibilities and is not intended to limit management from assigning other work as desired.

Management maintains the right to assign or reassign duties and responsibilities at any time.

Attachment JTE-2 to Exhibit _____

Attachment JTE-2 to Exhibit _____

Career Profile

Established and proven results-oriented senior level leader of business operations and affairs with over 15 years of management experience in municipal government, public utilities, and the private utilities industries with business and political acumen and is able to build trust, confidence, creditability and respect. Demonstrative responsibilities include team building, providing short and long-term strategic planning and execution of company vision; budget and overall company financial health management, and the allocation and implementation of resources, resulting in the success of multi-million dollar projects from initial concept to completion by being creative and innovative; developing and cultivating relationships in both the government and private sectors. Strengths and expertise includes visionary and strategic leadership with critical, scientific and technical decision-making skills, initiative, flexibility, strong ethics, excellent communication skills, dedication and determination, with a strong public presence and professional image.

Professional Experience

Director, State Operations, Great Basin Water Co. and Bermuda Water Co., Reno, Nevada	2021 – Present
Vice President of Operations, Great Basin Water Co. and Bermuda Water Co., Reno, Nevada	2015 – 2020

- Create and maintain a high performing organizational culture aligned with the company values while making challenging, technical and scientific decisions.
- Manages and directs the day-to-day operations and responsibilities of key resources, conducting regular employee performance evaluations and monitoring resources in line with operational needs and workforce demands with an emphasis safety, cost control and regulatory compliance a well as development of leadership necessary for future growth and succession planning.
- Works supportively, collaboratively, efficiently, and effectively with internal business partners and advisors in overseeing all strategic objectives and initiatives especially the preparation and execution of all rate cases , pass-through and indexing activities, changes to service and other PUCN related activities.
- Provides management oversight and recommend actions to ensure development, compliance and execution of developer agreements, payment of fees are in alignment with local, state and federal guidelines, rules, policy and procedures as well as providing guidance over legal issues.
- Actively participates with internal business partners to plan, identify and manage strategic relationships who have an interest in preserving, protecting, conserving, recharging, and preventing waste of ground water resources while executing all business initiatives, potential acquisitions and divestures.
- Develop, review and monitor budgets and financial planning to ensure financial operations and program effectiveness in accordance with overall companies fiscal policies.
- Act as a liaison, facilitate or and mediator between water users and key stakeholder groups, including residents, government agencies, business owners, environmental groups and major industry companies.
- Actively monitors and provides local and regional information related to proposed legislation, regulatory changes, studies, and reports, advising the company of potential impacts to the company and relevant responses involving groundwater resources and related topics.

Town Manager, Town of Tonopah, Tonopah, NV	2005 – 2015
---	--------------------

- Developed, presented and implemented the strategic plan and vision for the Town of Tonopah, Tonopah Public Utilities, and the Tonopah Library District, with the Tonopah Town Board and staff, which included the responsibility for budgeting, departmental coordination, economic development, and long-term community sustainability while managing the town administrative departments and employees.

- Drove and executed economic development with businesses; promoted community development; and acted as the liaison between the town and various federal, state, and county agencies; administered, managed, and developed new and existing town infrastructure and facilities.
- Acted as a liaison between the community, town staff, and town board members, conducted assessments, procurement, administration; and management of federal, state, and county grants; set deadlines; monitored projects; prepared reports, delineated resources, supervised and organized multi-competing projects.
- As Town Manager, turned around the Town of Tonopah’s beginning-ending fund balance increasing from \$130,000 to \$1.5 million; the Tonopah Public Utilities (TPU) beginning-ending fund balance increasing from a negative \$170,000 to a positive of \$400,000 and the Tonopah Public Library District had been saved from going into receivership by the Nevada Department of Taxation and continues to operate with a positive beginning-ending fund balance today. The Town of Tonopah was also able to create a community endowment fund to help reduce future operational and maintenance costs while providing scholarships for furthering the education of their citizens.
- Managed and directed the coordination and development of government projects, town swimming pool, volunteer firehouse, convention center, community water and sewer infrastructure, and job creation in the private sectors of retained, lodging, mining, and renewable energy. Extensive experience working with federal and state agencies and funding programs, including USDA, GDBG, EPA (Brownfield), and BLM.

Outside Plant Design Engineer and Project Manager, Southwestern Bell Corporation (SBC), Reno, NV 1997-2005

- Responsible for the detailed economic design and implementation of outside plant facilities in Northern Nevada wire centers. Specializing in commercial, residential and transmission projects; coordinating with large land developers, government agencies, elected officials, small business owners and residential customers regarding telephone facilities. This included organizing, administrating supervising meetings and negotiations involving placement, removal, rearrangement and new construction. This was accomplished through the development of relationships with developers, government officials, local government and residential customers which addressed issues that affected both the customer and SBC.
- Member of a fast paced, self-directed and results oriented team dedicated to providing customer service to both internal and external customers with the implementation of the 1996 TELCO Act for Nevada Bell, which involved disassembling various parts of the network to be leased to competitive local exchange carriers (CLEC) along with the metrics to track CLEC usage and established regulatory guidelines in Nevada.

Education

- University of Nevada, (UNR), Reno – Bachelor of Science, Business Logistics with a Political Science minor, 1995

Skills, Professional Groups and Achievements

- Experienced professional in leadership and management of municipal government and utilities with knowledge of financial analytics, systems management, government affairs and long-range planning to meet current and future growth, modernization and redevelopment of infrastructure.
- Appointed Board Member of the University of Nevada Alumni Council, Past Member 2006 – 2012
- Nevada Insurance Pool/Pac, Past Board Member 2006 – 2015
- Appointed Board Member of the Nye County Water District, Past Member 2009 – 2015
- Member of Nye County’s Renewable Energy Team, Past Member 2009 – 2015
- Tonopah Historic Mining Park Foundation Executive Board, Past Member 2011 – 2017
- U. S. Forest Service Rural Schools, Past Board Member 2011 – 2015
- Achieved the Nevada Rural Water Association - “2012 Manager of the Year” for Tonopah Public Utilities

Attachment JTE-3 to Exhibit _____

Attachment JTE-3 to Exhibit _____

CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT

This Contract is by and between **Great Basin Water Company** (Owner) and **[Contractor]** (Contractor). Owner and Contractor hereby agree as follows:

ARTICLE 1—THE WORK

1.01 *Work*

- A. Work includes all labor, materials, equipment, services, and documentation necessary to construct the Project defined herein. The Work may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
- B. The Contractor shall complete all Work as specified or indicated in the Contract Documents. The Project is generally described as follows:
 1. The development of the new Well 8 Site: This work will include all items in the attached scope of work (Attachment F), which includes some of the following items: All necessary labor, machinery, tools, apparatus, any other means of construction and contractor will also furnish all the materials required to construct the project to a satisfactory manner per the approved attached plans.
 2. The Site of the work includes property, easements, and designated work areas located at 317 Scrub Oak Dr. (APN- 047-001-061) in Spring Creek NV., which is described in greater detail in the attached Contract Documents.

ARTICLE 2—CONTRACT DOCUMENTS

2.01 *Intent of Contract Documents*

- A. It is the intent of the Contract Documents to describe a functionally complete Project. The Contract Documents do not indicate or describe all of the Work required to complete the Project. Additional details required for the correct installation of selected products are to be provided by the Contractor and coordinated with Owner and Engineer. This Contract constitutes the entire agreement between Owner and Contractor, and supersedes prior negotiations, representations, and agreements, whether written or oral. The Contract Documents are complementary; what is required by one part of the Contract Documents is as binding as if required by other parts of the Contract Documents.
- B. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work under the Contract Documents. During the performance of the Work and until final payment, Contractor and Owner shall submit to Engineer all matters in question concerning the requirements of the Contract Documents or relating to the acceptability of the Work. Engineer will render a written clarification, interpretation, or decision on the issue submitted, or initiate a modification to the Contract Documents.
- C. Contractor, and its subcontractors and suppliers, shall not have or acquire any title to or ownership rights to any of the Drawings, Specifications, or other documents (including copies or electronic media versions) prepared by Engineer or its consultants.

Attachment - E

- D. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- E. Nothing in the Contract Documents creates any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity.

2.02 *Contract Documents Defined*

- A. The Contract Documents consist of the following documents:
 - 1. This Contract for Construction of a Small Project.
 - 2. Performance bond.
 - 3. Payment bond.
 - 4. Scope of Work (Attachment F)
 - 5. Exhibits to this Contract (enumerated as follows):
 - a. Exhibit 1 – Approved Civil Plan Set.
 - b. Exhibit 2 – Approved Electrical Plan Set.
 - c. Exhibit 2 – Approved Structural Plan Set.
 - d. Exhibit 4 – Approved Structural Calc’s.
 - 6. The following which may be delivered or issued on or after the **Effective Date** of the Contract:
 - a. Notice to Proceed (EJCDC® C-550).
 - b. Change Orders (EJCDC® C-941).

ARTICLE 3—ENGINEER

3.01 *Engineer*

- A. The Engineer for this Project is Mike Hardy P.E., PG, WRS, Lumos and Associates.

ARTICLE 4—CONTRACT TIMES

4.01 *Contract Times*

- A. The Work will be substantially complete on or before December 15, 2024, and completed and ready for final payment on or before December 25, 2024.

4.02 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence in the performance of the Contract, and that Owner will incur damages if Contractor does not complete the Work according to the requirements of Paragraph 4.01. Because such damages would be difficult and costly to determine, Owner and Contractor agree that as liquidated damages for delay

Attachment - E

in completion (but not as a penalty) Contractor shall pay Owner \$500.00 for each day that expires after the Contract Time for substantial completion.

4.03 *Delays in Contractor’s Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times or Contract Price.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor or its subcontractors or suppliers.
- C. If Contractor’s performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times.
- D. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor or Contractor’s subcontractors or suppliers.

4.04 *Progress Schedules*

- A. Contractor shall develop a progress schedule and submit it to Engineer for review and comment before starting Work on the Site. Contractor shall modify the schedule in accordance with Engineer’s comments:
- B. Contractor shall update and submit the progress schedule to Engineer each month. Owner may withhold payment if Contractor fails to submit the schedule.

ARTICLE 5—CONTRACT PRICE

5.01 *Payment*

- A. Owner shall pay Contractor, in accordance with the Contract Documents, at the following unit prices for each unit of Work completed:

Equipping					
Item	Description	Est. Qty.	U/M	Unit Price	Total
1	Mobilization/Demobilization of equipment and materials including site restoration (not to exceed 10% of total project cost)	1	LS		\$2,500
2	Permits (State, County, and SCA County)	1	LS		\$18,600
3	Preparation of Storm Water Pollution Prevention Plan	1	LS		\$1,500
4	Site Preparation and grading	1	LS		\$18,600
5	Furnish and install 8-inch Pitless Adapter unit with 4-inch Discharge	1	LS		\$18,000

Attachment - E

6	Furnish and install 150# flange adapter and 6"X4" Reducer (Fig. X MJR).	1	EA		\$1,250
7	Furnish and Installation of pumping system including S.S. column pipe, submersible cable, check valve, electrical equipment and all ancillary equipment for a functioning submersible pumping system	1	LS		\$239,000
8	Buried 6-inch Ductile Iron Class 150 piping, gate valve and fittings.	40	LF		\$9,400
9	Furnish and Install 8"X6" ductile iron MJR reducer w/ foster adapter.	1	EA		\$1,250
10	Furnish and Install 8-inch ductile Iron Class 150 45° Wye (8"X8"X8"); Gate Valves and fittings.	1	LS		\$5,000
11	Furnish and Install 8-inch ductile Iron Class 150 22.5° Flange.	1	EA		\$1,500
12	Furnish and Install 8-inch Ductile Iron Class 150 piping and fittings.	150	LF		\$38,400
13	Furnish and install the 8-inch ductile iron discharge piping assembly with appurtenant equipment.	1	LS		\$70,291
14	Furnish and Install 12" X 8" Hot Tap with 8-inch Flange X MJR Gate Valve	1	LS		\$16,350
15	Furnish and install water service line off 12" water main into building with all appurtenances (include PRV).	1	LS		\$14,450
16	Furnish and install conduits and plumbing Chlorination System	1	LS		\$6,000
17	Well Building with foundation and drain plumbing.	1	LS		\$84,998
18	4-inch drain piping, fittings, and discharging subsurface drain sump.	1	LS		\$12,000
19	Furnish all materials and construct Infiltration Basins A and B with Rip-Rap base per design.	1	LS		\$18,000
20	Furnish all material and labor to construct access road per design	1	LS		\$32,188
21	Furnish all materials and labor to construct concrete pads at access doors of building, electrical exterior pad, generator pad, and additional bollards.	1	LS		\$18,165
22	Furnish all materials and labor to construct fencing with access gate.	1	LS		\$34,620
23	Furnish and Install Insulation and AC ½" plywood inside building.	1	LS		\$23,400

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24	Furnish and Install all Conduit, Electrical, Power, Controls, Instrumentation and Lighting.	1	LS		\$300,000
25	Furnish and install Space Heaters, Exhaust Fan, and Louver systems.	1	LS		\$20,000

TOTAL BID PRICE: \$ 1,005,462

Payment will be made in an amount equal to the total of all extended prices for actual Work completed. The extended price is determined by multiplying the unit price times the actual quantity of that Work item completed. Actual quantities installed will be determined by the Engineer.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Bonds*

- A. When Contractor delivers the signed counterparts of the Contract to Owner, Contractor shall also deliver the performance bond and payment bond to Owner. Each bond must be in an amount equal to the Contract Price, as security for the faithful performance and payment of all of Contractor’s obligations under the Contract. These bonds must remain in effect until the completion of the correction period specified in Paragraph 7.12 but, in any case, not less than one year after the date when final payment becomes due.
- B. Upon request, Owner will provide a copy of the payment bond to any person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work.

6.02 *Insurance*

- A. When Contractor delivers the signed counterparts of the Contract to Owner, Contractor shall furnish certificates, endorsements, and any other evidence of insurance requested by Owner. Insurance is to be provided by companies that are duly licensed or authorized in the jurisdiction in which the Project is located with a minimum A.M. Best rating of A-VII or better. Contractor shall provide insurance in accordance with the following:

- 1. Contractor shall provide coverage for not less than the following amounts, or greater where required by Laws and Regulations:

a. *Workers’ Compensation and Employer’s Liability*

Workers’ Compensation	Statutory
Employer’s Liability	
Each Accident	\$1,000,000
Each Employee	\$1,000,000
Policy Limit	\$1,000,000

b. *Commercial General Liability*

General Aggregate	\$2,000,000
Products - Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$2,000,000

Bodily Injury and Property Damage—Each Occurrence	\$2,000,000
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c. *Automobile Liability*

Bodily Injury	
Each Person	\$2,000,000
Each Accident	\$2,000,000
Property Damage	
Each Accident	\$2,000,000
[OR]	
Combined Single Limit (Bodily Injury and Property Damage)	\$2,000,000

d. *Excess or Umbrella Liability*

Per Occurrence	\$5,000,000
General Aggregate	\$5,000,000

- B. All insurance policies required to be purchased and maintained will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days after notice has been received by the purchasing policyholder. Within three days of receipt of any such notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.
- C. Automobile liability insurance provided by Contractor will be written on an occurrence basis and provide coverage against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle.
- D. Contractor’s commercial general liability policy will be written on a 1996 or later ISO commercial general liability occurrence form and include the following coverages and endorsements:
 - 1. Products and completed operations coverage maintained for three years after final payment;
 - 2. Blanket contractual liability coverage to the extent permitted by law;
 - 3. Broad form property damage coverage; and
 - 4. Severability of interest; underground, explosion, and collapse coverage; personal injury coverage.
- E. The Contractor’s commercial general liability and automobile liability, umbrella or excess, and pollution liability policies will include and list Owner and Engineer and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each as additional insureds; and the insurance afforded to these additional insureds will provide primary coverage for all claims covered thereby (including, as applicable, those arising from both ongoing and completed operations) on a non-contributory basis.
 - 1. Additional insured endorsements will include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO

endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.

2. Contractor shall provide ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent for design professional additional insureds.
- F. Umbrella or excess liability insurance will be written over the underlying employer's liability, commercial general liability, and automobile liability insurance. The coverage afforded must be at least as broad as that of each and every one of the underlying policies. Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy.
- G. The Contractor shall provide property insurance covering physical loss or damage during construction to structures, materials, fixtures, and equipment, including those materials, fixtures, or equipment in storage or transit.
- H. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 15.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 Contractor's Means and Methods of Construction

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures; or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 Supervision and Superintendence

- A. Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without notice to and approval by the Owner and Engineer except under extraordinary circumstances.
- C. Contractor shall maintain good discipline and order at the Site.

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- D. Except as otherwise required for the safety or protection of the Work or persons or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday.

7.03 *Other Work at the Site*

- A. In addition to and apart from the Work of the Contractor, other work may occur at or adjacent to the Site. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
- B. Contractor shall notify Owner, the owners of adjacent property, the owners of underground facilities and other utilities (if the identity of such owners is known to Contractor), and other contractors and utility owners performing work at or adjacent to the Site when Contractor knows that prosecution of the Work may affect them; and Contractor shall cooperate with them in the protection, removal; relocation; and replacement of their property or work in progress.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for everything necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work must be new and of good quality, and be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable supplier, except as otherwise may be provided in the Contract Documents.

7.05 *Subcontractors and Suppliers*

- A. Just as Contractor is responsible for its own acts and omissions, Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of suppliers and subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work. The Contractor's retention of a subcontractor or supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

7.06 *Licenses, Fees and Permits*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to performing the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others.
- B. Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy, unless otherwise provided in the Contract Documents.

7.07 *Laws and Regulations; Taxes*

- A. Contractor shall give all notices required by, and shall comply with, all local, state, and federal laws and regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any laws or regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to laws or regulations, Contractor shall bear all resulting costs and losses,

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and to the fullest extent permitted by law Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all such claims, costs, losses, and damages.

- C. Contractor shall pay all applicable sales, consumer, use, and other similar taxes.

7.08 *Record Documents*

- A. Contractor shall maintain one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved shop drawings in a safe place at the Site. Contractor shall annotate them to show changes made during construction. Contractor shall deliver these record documents to Engineer upon completion of the Work.

7.09 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
1. All persons on the Site or who may be affected by the Work;
 2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and underground facilities not designated for removal; relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, or anyone for whose acts the Contractor may be liable, will be remedied by Contractor at its expense (except damage or loss attributable to the fault of the Contractor Documents or to the acts or omissions of Owner or Engineer and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor).
- E. Contractor shall be responsible for coordinating any exchange of safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with laws or regulations.
- F. In emergencies affecting the safety or protection of the Work or persons or property at the Site or adjacent thereto, Contractor shall act to prevent damage, injury, or loss. Contractor shall give Engineer prompt notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.10 *Submittals*

- A. Contractor shall review and coordinate shop drawings, samples, and other submittals with the requirements of the Work and the Contract Documents, and shall verify all related field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information. Contractor shall confirm that the submittal is complete with respect to all related data included in the submittal.
- B. Shop drawings and samples must bear a stamp or specific written certification that Contractor has satisfied its obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
- C. With each shop drawing or sample submittal, Contractor shall give Engineer specific written notification, in a communication separate from the shop drawing or sample, of any variations that the shop drawing or sample may have from the requirements of the Contract Documents.
- D. Engineer will provide timely review of submittals. Engineer's review and approval of submittals will not extend to the means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs.
- E. Engineer's review of shop drawings and samples will be only to determine if the items covered will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole.
- F. Engineer's review and approval of a separate item in a shop drawing or sample does not indicate approval of the assembly in which the item functions.
- G. Contractor shall make corrections required by Engineer, return the required number of corrected copies of shop drawings, and submit new samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
- H. Shop drawings are not Contract Documents.

7.11 *Warranties and Guarantees*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its consultants are entitled to rely on Contractor's warranty and guarantee.

7.12 *Correction Period*

- A. If within one year after the date of substantial completion, any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements, or otherwise, or other adjacent areas used by Contractor as permitted by laws and regulations, is found to be defective, then Contractor shall promptly correct any such defective Work and repairs, at no cost to Owner.

7.13 *Indemnification*

- A. To the fullest extent permitted by law, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and

Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from all losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

ARTICLE 8—OWNER'S RESPONSIBILITIES

8.01 *Responsibilities*

- A. Except as otherwise provided in the Contract Documents, Owner shall issue all communications to Contractor through Engineer.
- B. Owner shall make payments to Contractor as provided in this Contract.
- C. Owner shall provide the Site and easements required to construct the Project.
- D. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- E. Owner shall furnish copies of any applicable Owner safety programs to Contractor.
- F. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, unless stated elsewhere in the Contract Documents, Owner shall have sole authority and responsibility for such coordination.
- G. Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or for related safety precautions and programs, or for any failure of Contractor to comply with laws and regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

ARTICLE 9—ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Engineer's Status*

- A. Engineer will be Owner's representative during construction.
- B. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility; or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, its subcontractors, suppliers, or sureties, or to any employee or agent of any of them.

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- C. Engineer will make visits to the Site at intervals appropriate to the various stages of construction. Engineer will not be required to make exhaustive or continuous inspections to check the quality or quantity of the Work.
- D. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or for related safety precautions and programs, or for any failure of Contractor to comply with laws and regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

ARTICLE 10—CHANGES IN THE WORK

10.01 *Authority to Change the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work.

10.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in the Work which are: (a) ordered by Owner or (b) agreed to by the parties or (c) resulting from the Engineer's decision, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 - 3. Changes in the Contract Price or Contract Times or other changes which embody the substance of any final binding results under Article 12.
- B. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.03 *Work Change Directive*

- A. A Work Change Directive may be issued to Contractor ordering an addition, deletion, or revision in the Work. A Work Change Directive will not change the Contract Price or Contract Times but is evidence that the parties expect that the modification ordered or documented by the Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on Contract Price or Contract Times.

10.04 *Field Orders*

- A. Engineer may issue a Field Order to authorize minor changes in the Work, provided that the changes do not involve an adjustment in the Contract Price or Contract Times.

- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then Contractor shall request such adjustment before proceeding with the Work.

ARTICLE 11—DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS

11.01 *Differing Site Conditions Process*

- A. If Contractor believes that any subsurface or physical condition (including but not limited to utilities or other underground facilities) that is uncovered or revealed at the Site either (1) differs materially from that shown or indicated in the Contract Documents, or (2) is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents, then Contractor shall promptly notify Owner and Engineer about such condition. Contractor shall not further disturb such condition or perform any Work in connection with the condition (except with respect to an emergency) until receipt of authorization to do so.
 - 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if Contractor knew of, or should have known of, the existence of the condition prior to entry into the Contract.
- B. After receipt of notice regarding a possible differing subsurface or physical condition, Engineer will promptly:
 - 1. Review the condition in question;
 - 2. Determine if it is necessary for Owner to obtain additional exploration or tests with respect to the condition;
 - 3. Determine whether the condition falls within one of the two differing site condition categories described in Paragraph 11.01.A.;
 - 4. Obtain any pertinent cost or schedule information from Contractor;
 - 5. Advise Owner of Engineer's findings, conclusions, and recommendations, including recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question; the need for any change in the Drawings or Specifications, and possible Contract Price or Contract Times adjustments.
- C. After receipt of Engineer's findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part, and granting any equitable adjustment in Contract Times or Contract Price to which Contractor is entitled.

ARTICLE 12—CLAIMS AND DISPUTE RESOLUTION

12.01 *Claims Process*

- A. The party submitting a claim shall deliver it directly to the other party to the Contract and the Engineer promptly (but in no event later than 10 days) after the start of the event giving rise thereto.
- B. The party receiving a claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the claim through the exchange of information and direct negotiations. All actions taken on a claim must be stated in writing and submitted to the other party.
- C. If efforts to resolve a claim are not successful, the party receiving the claim may deny it by giving notice of denial to the other party. If the receiving party does not take action on the claim within 45 days, the claim is deemed denied.
- D. If the dispute is not resolved to the satisfaction of the parties, Owner or Contractor shall give notice to the other party of the intent to submit the dispute to a court of competent jurisdiction unless the Owner and Contractor both agree to an alternative dispute resolution process.

ARTICLE 13—TESTS AND INSPECTIONS; CORRECTION OF DEFECTIVE WORK

13.01 *Tests and Inspections*

- A. ~~Owner and Engineer will have access to the Site and the Work at reasonable times for~~ observation, inspection, and testing. Contractor shall provide proper and safe conditions for such access.
- B. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- C. Except as otherwise provided in the Contract Documents, Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required: (1) by the Contract Documents; (2) by codes, laws, or regulations; (3) to attain Owner's and Engineer's acceptance of materials or equipment; and (4) to obtain Engineer's approval prior to purchase of materials, mix designs, or equipment.
- D. ~~If any Work that is to be inspected, tested, or approved is covered by Contractor without~~ written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense.

13.02 *Defective Work*

- A. Contractor warrants that the Work is not defective.
- B. Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. The Contractor shall promptly correct all defective Work.

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- E. When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's warranty and guarantee on said Work.
- F. If the Work is defective or Contractor fails to supply sufficient skilled workers or suitable materials or equipment or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

ARTICLE 14—PAYMENTS TO CONTRACTOR

14.01 *Progress Payments*

- A. Contractor shall prepare a schedule of values that will serve as the basis for progress payments. The schedule of values will be in a form acceptable to Engineer. Lump sum items will be broken into units that allow for measurement of Work in progress. For unit price work, the unit price breakdown in Article 5 will be used as the schedule of values.

14.02 *Applications for Payments*

- A. Contractor shall submit signed applications for payment to Engineer monthly, in a form acceptable to the Engineer. Contractor shall provide supporting documentation required by the Contract Documents. Owner will pay for Work completed as of the date of the application for payment.
- B. Beginning with the second application for payment, each application must include an affidavit of Contractor stating that all previous progress payments have been applied to discharge Contractor's obligations associated with the prior applications for payment.

14.03 *Retainage*

The Owner shall retain 10% of each progress payment until the Work is substantially complete.

14.04 *Review of Applications*

- A. Within 10 days after receipt of each application for payment, Engineer will either recommend payment and present the application for payment to Owner, or return the application for payment to Contractor indicating Engineer's reasons for refusing to recommend payment. The Contractor will make the necessary corrections and may resubmit the application for payment.
- B. Engineer will recommend reductions in payment (set-offs) which, in the opinion of the Engineer, are necessary to protect Owner from loss because the Work is defective and requires correction or replacement.
- C. The Owner is entitled to impose set-offs against payment based on any claims that have been made against Owner, or any incurred costs, losses, or damages, on account of Contractor's conduct in the performance of the Work; for defective Work; or for liquidated damages that have accrued as a result of Contractor's failure to complete the Work.

14.05 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all liens and other title

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defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

14.06 *Substantial Completion*

- A. When Contractor considers the Work ready for its intended use, Contractor shall request that Engineer issue a certificate of substantial completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's request, Engineer will inspect the Work with Owner and Contractor to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor and Owner of the reasons for Engineer's decision.
- C. If Engineer considers the Work substantially complete, or upon resolution of all reasons for non-issuance of a certificate, Engineer will deliver to Owner and Contractor a certificate of substantial completion that will fix the date of substantial completion and include a punch list of items to be completed or corrected before final payment.

14.07 *Final Inspection*

- A. Upon notice from Contractor that the entire Work is complete, Engineer will promptly make a final inspection with Owner and Contractor, and will notify Contractor of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work and remedy such defects.

14.08 *Final Payment*

- A. Contractor may make application for final payment after satisfactorily completing all Work, including providing all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents, and other documents.
- B. The final application for payment must be accompanied (except as previously delivered) by:
 - 1. All documentation called for in the Contract Documents;
 - 2. Consent of the surety to final payment;
 - 3. Satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any liens or other title defects, or will so pass upon final payment;
 - 4. A list of all pending claims; and
 - 5. Complete and legally effective releases or waivers (satisfactory to Owner) of all lien rights arising out of the Work, and of liens filed in connection with the Work. . .
- C. The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

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14.09 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding claim, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a claim.

ARTICLE 15—SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 60 consecutive days by notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or Contract Times, to the extent directly attributable to any such suspension.

15.02 *Owner May Terminate for Cause*

- A. Contractor's failure to perform the Work in accordance with the Contract Documents or other failure to comply with a material term of the Contract Documents will constitute a default by Contractor and justify termination for cause.
- B. If Contractor defaults in its obligations, then after giving Contractor and any surety 10 days' notice that Owner is considering a declaration that Contractor is in default and the termination of the Contract, Owner may proceed to:
 - 1. Declare Contractor to be in default, and give Contractor and any surety notice that the Contract is terminated; and
 - 2. Enforce the rights available to Owner under any applicable performance bond.
- C. Owner may not proceed with termination of the Contract under Paragraph 15.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- D. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- E. In the case of a termination for cause, if the cost to complete the Work, including related claims, costs, losses, and damages, exceeds the unpaid contract balance, Contractor shall pay the difference to Owner.
- F. If Contractor has provided a performance bond, the provisions of that bond will govern over any inconsistent provisions of Paragraph 15.02.

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15.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for the following, without duplication of any items:
1. Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, less any set-offs, and including fair and reasonable sums for overhead and profit on such Work;
 2. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 3. Other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits, or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 60 consecutive days by Owner or under an order of court or other public authority, or (2) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' notice to Owner, and provided Owner does not remedy such suspension or failure within that time; either stop the Work until payment is received; or terminate the Contract and recover payment from the Owner.

ARTICLE 16—CONTRACTOR'S REPRESENTATIONS

16.01 *Contractor Representations*

- A. Contractor makes the following representations when entering into this Contract:
1. Contractor has examined and carefully studied the Contract Documents.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 4. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that, without exception, all prices in the Contract are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 17—MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of notice to Owner, Engineer, or Contractor, such notice must be in writing, and delivered in person (by

Attachment - E

commercial courier or otherwise); by registered or certified mail; or by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

17.02 *Cumulative Remedies*

- A. The duties and obligations expressly imposed by this Contract, and the rights and remedies expressly available to the parties under this Contract, are in addition to, and are not to be construed in any way as a limitation of, any duties, obligations, rights, or remedies otherwise imposed or available by laws or regulations, by warranty or guarantee, or by other provisions of the Contract.

17.03 *Limitation of Damages*

- A. Neither Owner, Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

17.04 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

17.05 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

17.06 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or entering into the Contract.

17.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

The Effective Date of the Contract is [date to be inserted at the time of execution].

Owner:

Great Basin Water Company

By: James Eason
(typed or printed name of organization)
(individual's signature)

Date: 06/17/2024
(date signed)

Name: James Eason
(typed or printed)

Title: GBWC President
(typed or printed)

Attest: Sean Ashcraft
(individual's signature)

Title: Project Manager
(typed or printed)

Address for giving notices:
1240 East State Street, Suite #115
Pahrump, NV 89048

Designated Representative:

Name: Sean Ashcraft
(typed or printed)

Title: Project Manager
(typed or printed)

Address:
1240 East State Street, Suite #115
Pahrump, NV 89048

Phone: 775-537-8207

Email: Sean.ashcraft@greatbasinwaterco.com
Agreement.)

Contractor:

Faulstich + Rand Const. Co. Inc.

By: Martha Rand
(typed or printed name of organization)
(individual's signature)

Date: 6/10/24
(date signed)

Name: Martha Rand
(typed or printed)

Title: Owner/President
(typed or printed)

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: ReNae McCabe
(typed or printed)

Title: Secretary/Treasurer
(typed or printed)

Address:
P.O. Box 2703
Elko, NV 89803

Phone: 775-738-7463

Email: frc-rand@frontiernet.net

License No.: NV 0020769
(where applicable)

State: NEVADA

BID ITEM CLARIFICATION**GENERAL INFORMATION**

Unless indicated otherwise within the specific bid item as described in this section, the Engineer's estimated quantity, as contained in the bid schedule, shall be the final pay quantity.

The Engineer's estimated quantity, as contained in the bid schedule, is based on the details and dimensions shown on the plans and no guarantee is made that the quantity, which can be determined by computations, will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations does not equal the estimated quantity.

In case of discrepancy between the quantity contained in the bid schedule and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity contained in the bid schedule.

If the quantity of a particular item of work is intentionally increased or decreased during construction; the final pay quantity of that item will be adjusted to reflect the change.

There shall be no additional payment for changes in the traffic control plan required as a result of changes in the Contractor's work method or schedule.

BID SCHEDULE**BID ITEM 1 – Mobilize/Demobilize/Cleanup**

Work to be performed under this item shall consist of mobilization, demobilization, and cleanup. Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; temporary power, water, sanitation facilities, and signage; and for all other work and operations, which must be performed or costs incurred prior to beginning work on the various contract items on the project site. Demobilization shall consist of all preparatory work and operations to remove all the facilities and personnel included in Mobilization. Cleanup shall consist of neatly finishing the entire construction area after all the work indicated on the Plans and Specifications is completed and before final acceptance of the project.

1: Payment

Payment for Bid Item No. 1 will be made as follows:

- A. When the monthly partial payment estimate of the amount earned, not including the amount earned for Item No. 1, is 10 percent or more of the original contract amount, 70 percent of Item No. 1 will be included in said estimate for payment.
- B. When the monthly partial payment estimate of the amount earned, not including the amount earned for Item No. 1, is 100 percent or more of the original contract amount, 100 percent of Item No. 1 will be included in said estimate for payment.

BID ITEM 2 – Permits and Laws (City, County, State and Federal Laws)

The CONTRACTOR shall comply with the requirements of all city, county, state and federal laws, whether or not stated herein, having specific control over this type of construction and operation.

Meet all federal, state, and local pollution control regulations for all work performed under this contract. No lime, wet concrete, petroleum products, silt, organic material, or other deleterious materials are allowed to fall, flow, leach, or otherwise enter public waters.

Observe all statues, ordinances, and regulations pertaining to the prevention of environmental pollution and the preservation of public natural resources. All such statutes, ordinances, regulations, or portions thereof pertaining to work performed under this contract are hereby incorporated with and made a part of this contract.

The CONTRACTOR shall be aware of these provisions and coordinate with the specific controlling agencies.

The CONTRACTOR shall furnish all bonds and insurance required by the controlling agencies and shall, if requested, pay for any inspections and testing accomplished or furnished by them.

PERMITS:

- A. The CONTRACTOR shall obtain the following permits:
 - 1. All permits required by regulatory agencies, if any, including but not limited to:
 - a. Storm Water Pollution Prevention Plan (SWPPP);
 - b. Dust Control Plan.
 - 2. Local permits which will be required, but may not be limited to these include:
 - a. Elko County Right-of-Way Encroachment Permit;
 - b. Elko County Building and Safety Division permit (Includes Electrical);
 - c. Spring Creek Association (SCA) Accessory/Auxiliary Building Permit;
 - d. SCA consent to proceed with submittal of Elko County Public Right-of-Way Encroachment Permit.
- B. The CONTRACTOR shall furnish all bonds and insurance required by the controlling agencies, and shall, if requested, pay for any inspection and testing accomplished or furnished by them.
- C. All work performed within the jurisdiction of the controlling agencies, such as river banks and public waters, including restoration of surfaces, opening, and closing of excavations and other work which could affect the hydraulics or fish life of the receiving waters, shall conform to the requirements and regulations of the various controlling agencies, and shall be subject to their approval. The CONTRACTOR shall coordinate all work with the controlling agencies.

2: Payment

Payment for Bid Item 2 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, and incidentals necessary to complete the work as specified.

BID ITEM 3 – Preparation of Storm Water Pollution Prevention Plan

The contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the Standard Specifications.

The contractor shall adhere to all local, State and Federal regulations. **The contractor shall follow all NDEP (Nevada Department of Environmental Protection) construction/permit requirements and submit a BMP (Best Management Practices) Plan to NDEP for approval prior to construction. All modifications to an approved BMP Plan must be approved by NDEP prior to implementation.**

3.1 Payment

Payment for Bid Item 3 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, and incidentals necessary to complete the work as specified.

BID ITEM 4 – Site Preparation and Grading

This bid item includes all labor, materials, tools, and equipment required for clearing, grubbing, and disposal offsite of obstructions such as rocks, brush, vegetation, debris, and miscellaneous structures as necessary for preparation of the site.

This bid item also includes all labor, materials, tools, and equipment required for the movement, cut, fill, placement, and compaction of soils for the site and for the preparation of the subgrade for the well house concrete slab and building as required in the plans and specifications.

4.1 Work included in this section shall include furnishing of all materials and labor necessary to complete Earthwork as indicated, specified herein or on the Plans. The work of this section includes, but is not necessarily limited to, the following:

1. Stripping and clearing.
2. Scarifying and re-compaction of native soils.
3. Excavation for footings.
4. Engineered fill and backfill.
5. Base fill under slabs on grade.
6. Finish site grading.
7. Temporary site drainage.
8. Dust control.
9. Quality control.

4.2 Payment

Payment for Bid Item 4 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, and incidentals necessary to complete the work as specified.

BID ITEM 5 - Furnish and Install 8-Inch Pitless Adapter Unit on Well Head with a 4-inch Discharge.

5.1 Pitless Unit Dimensions

Casing Diameter, inch	8"
Bury Depth	As required for installation depth
Accessories	2" Half Coupling
Discharge Connection Size, inch	4" 150# flange
Materials	Heavy duty gray iron, ductile iron, or steel. All water passages shall be hot dip galvanized with lead free zinc.

A. Manufacturers

1. The Pitless Unit shall be a Standard Pitless Unit, Supplied by Baker Manufacturing Company, LLC - Monitor Division, Evansville, WI, no equal
 - i. Pitless Unit must be NSF 61 & 372 Certified. NSF 61 certified coatings are not an equivalent certification and will not be accepted.
 - a. 2" Half Coupling located 45 degrees from cap conduit
 - b. Epoxy Powder Coat ALL surfaces, 3-5 MIL, AkzoNobel Resicoat HLF93QF, Gray
 - c. Cable passages must allow (2) 1" PVC Sounder Tube

5.2 Payment

Payment for Bid Item 5 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, and incidentals necessary to complete the work as specified.

BID ITEM 6 – Furnish and Install 150 # Flange Adapter and 6"X4" Reducer, Flange X Mechanical Joint Restraint (MJR).

For the furnishing and installation of a 6"X4" reducer attached to the pitless adaptor 4" NPT outlet as provided in Sheet C5.1/Detail 2.

6.1 Payment

Payment for Bid Item 6 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, and incidentals necessary to complete the work as specified.

BID ITEM 7 – Furnish and Install Pumping System.

Work performed under this item shall consist of furnishing all equipment, labor, materials, required to install a newly functional pumping system in the new well. All equipment must be NSF-61 certified.

7.1 Major Materials

- Submersible Turbine Pump (Goulds Model 7CLC, 6-Stage, 5.25" trim impellers or Approved equal, submersible pump);
- Submersible Motor (Grundfos Electric 60 Hp, 460 volt, 3-phase, 60 Hz, 6-inch diameter);
- Submersible Pump Cable (75° C Insulation, 3 –wire w/ ground, 0 AWG Copper Wire Size Neoprene-covered);
- 7-Inch Steel shroud over pumping system and motor;
- Electrical Conduit and Wire for Power Feed to Well Head
- In-Line Check Valve (304/304L Stainless Steel, Threaded, or equal)
- Disconnect Box (NEMA 3, weather tight)
- Column Pipe (New 4-Inch 304/304L Stainless Steel pipe, threaded and collars)
- Any Ancillary materials not mentioned for complete properly functioning submersible pumping system.

The pumping system shall be installed with a 7-inch steel shroud with an intake depth of approximately 860-feet deep inside the nominal 8" well casing.

7.2 Payment

Payment for Bid Item 7 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, installation, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 8 – Furnish and Install 6-Inch Ductile Iron Class 150 piping and fittings.

Work performed under this item shall consist of furnishing all equipment, labor, materials, required to install approximately 40 linear feet of new 6-inch Ductile Iron, Class 150 pipe from well head to 8-inch transition piping including joint restraints and in-line 6-inch gate valve as provided on Sheet C4.0 with Material List and Sheet C5.0, Details W-1 and W-6.

8.1 Materials

- Piping (6-inch Ductile Iron, Class 150 psi)
- Gate Valve (6-inch, ductile iron body, meeting AWWA C509 or C515 Specification)
- Mechanical Joint Restraints
- Bedding Materials
- Any Ancillary materials as shown on plan set.

8.2 Payment

Payment for Bid Item 8 shall be made on a linear footage basis for total number of feet of 6-inch piping installed, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 9 – Furnish and Install 8”X6” Ductile Iron MJR Reducer w/ Foster Adapter

Work performed under this item shall consist of furnishing all equipment, labor, materials, required to install an 8”X6” ductile iron Reducer with MJR X Foster Adapter as provided on Sheet C4.0 with Material List and Sheet C5.0, Detail W-8.

9.1 Payment

Payment for Bid Item 9 shall be made on a lump sum basis, which shall be deemed full compensation for all labor, materials, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 10 – Furnish and Install 8-Inch Ductile Iron Class 150 45° Wye (8”X8”X8” Fitting with 8” Gate Valve and Blank Flange.

Work performed under this item shall consist of furnishing all equipment, labor, materials, required to install an 8”X8”X8” ductile iron Wye, Class 150 with one MJR X Flange adapter and two 8-inch Flange X-MJR Gate Valves and one 8-inch blank flange cap as provided on Sheet C4.0 with Material List and Sheet C5.0, Detail W-8.

10.1 Payment

Payment for Bid Item 10 shall be made on a Lump Sum basis, which shall be deemed full compensation for all labor, materials, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 11 – Furnish and Install 8-Inch Ductile Iron Class 150 22.5° Elbow, Flange, X Flange adapter.

This item shall include all labor, materials, and equipment to install an 8-inch ductile iron, Class 150, 22.5° Elbow, and appurtenant as specified on Sheet C4.0 with Material List and Sheet C5.0 Details W-1 and W-6.

11.1 Materials

As provided in the material list on Sheet C 4.0 of the plan set including incidental material necessary to complete work.

11.2 Payment

Payment for Bid Item 11 shall be made on a linear footage basis for total number of feet of 8-inch piping installed, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 12 – Furnish and Install 8-inch Ductile Iron Class 150 piping and fittings.

This item shall include all labor, materials and equipment required to install approximately 150

feet of 8-inch ductile iron, Class 150 piping with appurtenant below and above ground as specified on Sheet C4.0 in the plan set. This includes all underground ductile iron Class 150 MJR X MJR 90° Elbow fittings and other necessary materials.

11.1 Materials

As provided in the material list on Sheet C 4.0 of the plan set including incidental material necessary to complete work.

11.2 Payment

Payment for Bid Item 11 shall be made on a linear footage basis, which shall be deemed full compensation for all labor, materials, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 13 – Furnish and Install 8-inch Discharge Piping Assembly with Appurtenant.

This item shall include all labor, materials, and equipment necessary to install the complete discharge assembly inside the building as provided in Sheet C4.1 with equipment list and general notes. All materials and equipment in contact with municipal water must be NSF 61 Certified for municipal water.

13.1 Major Materials

- 8-inch restrained ductile iron pipe (Flange X Plan End); specific lengths provided;
- 8-inch restrained ductile iron pipe (Flange X Flange); specific lengths provided;
- 8-inch ductile iron Wafer Check Valve (Flange X Flange);
- Effluent Pump to Waste w/ Flapper Valve;
- 8-inch ductile iron 90° elbow (Flange X Flange)
- 8-inch ductile iron gate valves with hand wheels (Flange X Flange);
- 8-inch ductile iron blind flange with 2" threaded tap;
- 8-inch electromagnetic flow meter with remote mount (Flange X Flange), Ultra Mag by McCrometer;
- 8-inch ductile iron Tees (Flange X Flange);
- ½" threaded inlet for Chlorine injection and retractable injection quill (SAF-T-FLO, Model EB-146-B-P-4-0-FKM QAE);
- ARV with sample tap assembly (see detail 1/C5.1);
- 8-inch CLA Val Pump Control Valve (Model 61-2);
- Adjustable Galvanized pipe stands (See detail W-14/C5.0);
- ¾" threaded outlet sample tap with smooth nose sample port and pipe/nipples as required to extend beyond flanges;
- 8-inch restrained flanged coupling adapter;
- 1" PE (CTS) water service tubing, length as required (see sheet C4.0);
- ¼" PE (CTS) sampling line tubing, length as required (see sheet C4.0);
- ¾" PE (CTS) Analyzer drain line, length as required, (see sheet C4.1, Note 25);
- Any additional Ancillary equipment not mentioned in the material list required for a compliant discharge assembly.

13.2 Payment

Payment for Bid Item 13 shall be for a completed discharge assembly inside the building, which

shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 14 – Furnish and Install 12”X8” Hot Tap with 8-inch Flange X MJR Gate Valve.

Furnish and Install all materials, equipment, and labor necessary for completing a 12” X 8” hot tap with an 8-inch gate valve (Flange X MJR) on to the existing 12” water main in the Scrub Oak Street as provided in Sheet C4.0.

14.1 Payment

Payment for Bid Item 14 shall be for a completed hot tap connection into the existing 12” water main in the street, which shall be deemed full compensation for all labor, materials, traffic control, equipment and incidentals necessary to complete the work as specified.

BID ITEM 15 – Furnish and Install water service line Off 12” water main into building with all appurtenances. Include a PRV on the water service line.

Furnish and Install all materials, equipment and labor necessary for completing a water service line off the existing 12” water main in the street which includes all appurtenant materials and equipment associated with the service line as provide in Sheets C4.0 and Sheet C5.0 W-1, W-2, W-3, and W-19.

NOTE: One additional item will need to be installed with the service line assembly, which is not in the plan set. A PRV in the vault with the flow meter to reduce the operation pressure into the building due to the high pressures associated with the 12” water main in Scrub Oak Street.

15.1 Payment

Payment for Bid Item 15 shall be for a complete water service line installation with appurtenant equipment and materials, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 16 – Furnish and Install all Conduit and Necessary Plumbing for Chlorination Feed System.

NOTE: The Chorinsitu NaOCl system will not be furnished or installed at this time. In its place will be a standard 50-gallon poly tank (double lined) with a diaphragm pump to be approved by the owner to feed a concentration of sodium hypochlorite into the discharge piping when the pumping system is on.

What this Bid Item includes is all the original electrical conduit, with the 110 voltage receptacles and necessary plumbing for the operation of the two eye water stations and hose bib located outside the entrance door to the chlorination room. Furnish and install all the original electrical conduit with 110 voltage receptacles and above and below grade plumbing needed to convey municipal water to the two eyewash stations and outside hose bib located next to the access

door to the chlorination room. See Sheet C4.3.

16.1 Payment

Payment for Bid Item 16 shall be for a completed conduit and necessary plumbing installation with appurtenant equipment and materials, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 17 – Well Building with Foundation.

Furnish and construct with all necessary materials, equipment and labor for the building the foundation, including subgrade compaction (geotechnical report shall be provided), internal concrete floor, underground electrical conduits, floor drains systems with piping to outside of concrete floor and footing of the building and wood structural building as provide in the Civil, Structural and Electrical Plans Sheets C3.2, C4.0, C4.1, C4.2, C5.2/Details 4, 8, and 9; S1- S3; E1.1 – E1.3.

17.1 Payment

Payment for Bid Item 17 shall be for a completed building with the proper foundation, subgrade compaction (geotechnical report shall be provided), floor drain systems, electrical conduits, water service line installation with appurtenant equipment and materials, which shall be deemed full compensation for all labor, materials, traffic control, equipment and incidentals necessary to complete the work as specified in the plan set.

BID ITEM 18 – Furnish and Install all Floor Drain Piping and Appurtenances including Subsurface Drain Sump.

Furnish and install all the floor drain piping and appurtenances to convey drain water to the subsurface drain sump including the excavation and materials necessary to construct the complete drain sump as provided in Sheets C3.0, C3.2 and Sheet C5.2/Detail 5. This is all the piping that is located outside the footing of the building. Bid Item 18 includes all the floor drain materials and piping to convey the water to the subsurface drain sump.

18.1 Payment

Payment for Bid Item 18 shall be for all completed drain piping, subsurface drain sump and appurtenances associated with conveyance of drain water out to the subsurface drain sump (including the construction of the subsurface drain sump), which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 19 – Furnish all Materials and Construct of Infiltration Basins A and B with Rip-Rap bases.

Furnish all materials, equipment, and labor necessary to construct the two infiltrations basins (infiltration basins A and B) as provided in Sheet C3.0, C3.1 and Sheet 5.2/Detail 2 with

protective removal bollards adjacent to Basin A (Sheet C5.2/Detail 6. Please include permeable geo-fabric on top of subgrade soil that over-laps the basin and is permanently sealed/set into the subsoil.

19.1 Payment

Payment for Bid Item 19 shall be for the complete construction of the infiltration basins and 3 associated removable bollards, which shall be deemed full compensation for all labor, materials, traffic control, equipment and incidentals necessary to complete the work as specified.

BID ITEM 20 – Furnish all Materials and Labor for Construction of Access Road.

Furnish materials, equipment, and labor necessary to construct the access road off Scrub Oak into the Well-8 facility including the 6-inch RCP culvert for drainage under the road as provided in Sheet C3.0 and C3.1.

20.1 Payment

Payment for Bid Item 20 shall be for the complete construction of the access road and culvert system for drainage under the road; which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 21 – Furnish all Materials and Labor for the Construction of the Concrete Pads and Removable Bollards.

Furnish materials, equipment, and labor necessary to construct all the concrete pads for the exterior electrical, two (2) door entrance pads and generator pad and four (4) additional protective removable bollards as provided in Sheets C3.0 and Sheet 5.2/Detail 1 and 6.

21.1 Payment

Payment for Bid Item 21 shall be for the complete construction of the access concrete pads and bollards, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 22 – Furnish all Materials and Labor for the Construction of the Security Fencing and Access Gate.

Furnish all materials, equipment, and labor necessary to construct the security fencing (6' chain link w/privacy slats and 3 strands of barbed wire) and access gate into Well-8 facilities as provided in Sheets C3.0, C3.1 and Sheet C5.2/Detail 3 and 7.

22.1 Payment

Payment for Bid Item 22 shall be for the complete construction of the security fence and access gate, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 23 – Furnish and Install R-11 Rated Insulation (Walls) and R-19 Rated Insulation (Ceiling) of the Building and AC 1/2" Plywood for internal walls and ceiling of Building.

Furnish and install all materials, equipment and Labor to insulate the walls and ceiling of the building. The walls will be insulated with R-11 rated and the ceiling with R-19 rated insulation. The walls and ceiling inside the building will be covered with AC 1/2-inch plywood, primer base and painted white to ensure we have a good foundation for hanging conduit, plumbing, electrical and instrumentation equipment.

23.1 Payment

Payment for Bid Item 23 shall be for the complete installation of all the walls (R-11) and ceiling (R-19) and AC 1/2" plywood wall and ceiling, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 24 – Furnish and Install all Electrical Conduit, Electrical, Power, Controls, Instrumentation and Lighting.

Furnish and install all equipment and materials necessary, including all the electrical conduit, electrical, power, controls, instrumentation, and lighting as provided in the Civil and Electrical plan sets.

24.1. Payment.

Payment for Bid Item 24 shall be for the complete installation all the electrical conduit, electrical, power, controls, instrumentation, and lighting, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

BID ITEM 25 – Furnish and Install Space Heaters, Exhaust Fans, and Louver in Building.

Furnish all equipment, materials, and labor for the installation of the space heaters, exhaust fans, and louver systems in the building as provided in Sheets C4.1 and C4.2.

25.1 Payment

Payment for Bid Item 25 shall be for the complete installation and operation of the space heaters, exhaust fans, and louver systems inside the building in both rooms, which shall be deemed full compensation for all labor, materials, traffic control, equipment, and incidentals necessary to complete the work as specified.

TECHNICAL PROVISIONS

GREAT BASIN WATER CO. – SPRING CREEK DIVISION (WELL 8 REPLACEMENT PROJECT)

PART 1 – GENERAL

1.1 SCOPE

- A. It is the intent of these Specifications to obtain a pump and motor of heavy-duty construction for heavy-duty continuous service, or for intermittent service whichever impose the most severe service on the pump. The CONTRACTOR shall furnish, install, and test all pumps as indicated in the Drawings, or as specified herein.
- B. The pumping unit shall be furnished as a complete, ready-to-install by a single manufacturer. The pumping unit includes, but is not limited to, vertical turbine submersible pump, motor, pump column assembly, check valve, submersible cable, junction box and control panel.
- C. A Pump/Motor that has mechanical defects or do not meet the range of head-capacity characteristics, horsepower, and efficiency will be rejected after testing and shall be replaced without additional cost to the OWNER for furnishing, removal, reinstallation, and retesting. Mechanical defects shall include excessive vibration, improper balancing of any rotating parts, improper tolerances, binding, excessive bearing heating, defective materials, including materials that do not conform to the Specifications, improper fitting of parts, any other defect which will in time damage the pump or unreasonably impair the efficiency of the pump.

1.2 SUBMITTALS

- A. The CONTRACTOR shall submit one digital manufacturer certified copy of all cut-sheets and sufficient literature with detailed specifications, drawing indicating dimensions, make, style, size, type, specific materials used, design features weights, and any other information required. No pumping equipment shall be installed prior to approval by the ENGINEER.
- B. The CONTRACTOR shall include in the submittal all appropriate information for the Materials/Equipment that will be installed. The electrical control panel portion of the submittal shall be forwarded by the ENGINEER for review by the electrical engineer and SCADA controls contractor prior to submittal approval. The intent of this requirement is to assure the appropriate Input/Output/Communications equipment and options are provided with the VFD so as to accommodate proper control as well as assure compatibility with other control equipment used by the OWNER.
- C. Submission shall be accompanied by letter of transmittal enumerating the drawings submitted and all proposed variations from the Specifications and Drawings. The approval of shop drawings or schedules shall apply, in a general sense only and will not relieve the CONTRACTOR from responsibility for deviations from the Contract Specifications or Plans, unless such deviation is specifically approved in writing. Responsibility for agreement of Drawings with job dimensions and conditions for the correction or errors in shop drawings with schedules shall rest with the CONTRACTOR.

- D. Complete fabrication and assembly drawings together with detailed specifications and data covering materials, parts, devices and accessories forming a part of the equipment furnished, shall be submitted in accordance with the submittal sections. The data and specifications for the pumping equipment shall include, but not be limited, to the following:
1. Name of the manufacturer.
 2. Type and model.
 3. Design rotation speed.
 4. Number of stages.
 5. Type of bowl bearings.
 6. Size of shafting.
 7. Size of pump column.
 8. Size of suction inlet and discharge outlet.
 9. Outside diameter of bowls.
 10. Impeller Diameter.
 11. Maximum overall dimensions.
 12. Total weight.
 13. Data on shop painting.
 14. Complete performance curves showing capacity versus head, NPSH required, efficiency, and brake horsepower plotted on scales consistent with performance requirements.

It is important that the vertical dimensions are accurately detailed to assure compatibility with the specified pump and motor in the plan set.

1.3 QUALITY ASSURANCE

- A. The pumping equipment shall be installed in accordance with the requirements and guidelines of:
1. The Manufacturer.
 2. AWWA A100 and E100 standards.
 3. Hydraulic Institute standards.
 4. The Contract Documents.
- B. Standards. These specifications are intended to cover the furnishing of complete vertical turbine pumping systems. The pump shall be furnished with an electrical motor drive. The pump impellers shall be statically and dynamically balanced and shop assembled to assure component compatibility. The pump shall be designed, fabricated, assembled and tested in accordance with the following standards:

OSHA - Occupational Safety and Health Act
AFBMA - Anti-Friction Bearing Manufacturers Association
ANSI - American National Standards Institute, B16.5 Steel Flanges
AWWA - American Water Works Association
NEMA - National Electric Manufacturers Association
AWS - American Welding Society
ASTM - American Society for Testing and Materials
ASME - American Society of Mechanical Engineers
HI - Hydraulic Institute Standards

1.4 WARRANTY

- A. The manufacturer shall warrant their pumps/motors to be free of defects in materials and workmanship for a period of one (1) year after the product is first put into operation.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. The pumps, motors, and electrical equipment shall be adequately supported during transit to ensure the pumping unit and electrical equipment is not subjected to undue stresses.

PART 2 - PRODUCTS**2.1 ACCEPTABLE EQUIPMENT**

- A. Pump – Goulds Model 7CLC, 6-stage, 5.25" impeller trim, submersible pump, or approved equal.
- B. Motor – Grundfos Electric 60 Hp, 460 volt, 3-phase, 6-inch diameter submersible motor, or approved equal.

2.2 PUMP CONSTRUCTION

- A. Pump Bowl Assembly
 - 1. Pump bowls shall be ASTM A48 Class 30 cast iron and free of blow holes, sand holes and other detrimental defects. All bowls shall have water passages lined with enamel or epoxy for maximum efficiency and wear protection. Lining material shall conform to NSF 61 for potable water.
 - 2. Impellers shall be zinc-less bronze, 316 stainless steel, or aluminum bronze. Impellers shall be free from defects and must be accurately cast, machined, and filed for optimum performance and minimum vibration. The impellers are enclosed type and shall be statically and dynamically balanced.
 - 3. Bowl shaft material shall be ASTM A-582 Type 416 stainless steel.
 - 4. Wear rings shall be hard faced and replaceable. Wear-ring material shall not gall when used with the impeller alloy and shall contain a minimum difference of 50 in brinell hardness.
- B. Column Pipe
 - 1. The column pipe shall be of AWWA ASTM A312 304/304L stainless steel pipe. Column joints shall be threaded.
- C. Electric Motors
 - 1. The motor manufacturer shall be Goulds Electrical suitable for use on 460 volt, three phase, 60-Hz electrical service, or approved equal.
- D. Factory Coating
 - 1. The exterior surface of the bowl assembly, interior and exterior of the column shall be factory painted with a NSF 61 approved epoxy coating conforming to AWWA C 213-91. The coating shall be applied in two coats of 4-6 mils DFT, with a final dry film thickness no less than 10-12 mils. Prior to coating, all surfaces are to receive a commercial blast meeting SSPC-SP10 and shall be primed.

2.3 PUMP CONTROL PANEL

- A. The contractor will supply and install a new pump control panel for the new pumping system that meets the manufactures specifications for a new Franklin Electrical 125 Hp, 460 volt, 3-phase submersible motor. The Pump Control Panel will be equipped with a variable frequency drive for the new submersible motor and shall be a Franklin Control Model CIE3R-SUBP125-P4-3 or approved equal. If the contractor decides to specify a different VFD, it must meet the following criteria:

SECTION 52000 – PIPING AND PLUMBING

1.1 SCOPE

Treated Waterline Piping: Allowable treated waterline pipe materials shall be Ductile Iron Pipe and Polyvinyl Chloride (PVC) Pressure Pipe. Specifications for individual pipe materials are given below.

Design Conditions:

- A. Depth of cover to be a minimum of 42 inches except where located above ground.
- B. Trench width shall be a minimum of 1 pipe diameter plus 12 inches.
- C. 6" of sand under the pipe.
- D. Bedding tamped to 12 inches above pipe, load factor 1.5.
- E. Soil density 150 pounds per cubic foot.
- F. Bedding angle 90 degrees.
- G. Rigid pipe 1.5 factor of safety versus crushing.
- H. Flexible pipe allowable deflection – as specified by pipe manufacturer.
- I. Above design conditions apply to an empty conduit with no internal pressure.

1.2 Ductile Iron Pipe:

Ductile iron pipe shall be fully gauged and labeled

Material – Ductile iron water pipe shall conform to AWWA C151 specifications. Ductile iron pipe shall be pressure class 350 for pipe sizes 12 inch and smaller, pressure class 300 for 14 to 20 inch, pressure class 200 for 24 inch pipe, and pressure class 150 for pipes 30 inches and larger. Higher pressure class shall be used where the working pressure of the pipe exceeds the pressure class shown.

Joints – Lengths of ductile iron pipe shall be joined by flanged type joint or mechanical type joint as shown on the plans with rubber rings furnished by the manufacturer of the pipe and designed for use with the pipe being installed. Assembly of pipe and joints shall follow the manufacturer's instructions. After assembly of each flanged joint the final location of rubber rings within each joint shall be checked by gauge as recommended by the manufacturer.

Joints between ductile iron pipe and fittings shall be mechanical type or flanged as shown on the plans. Joints between ductile iron pipe and other types of pipe shall be made by means of the proper sized and type compression adapter.

Fittings – The fittings shall be designed to meet the design requirements of the adjacent pipe used. All fittings shall be smooth and free from defects.

Fittings shall be ductile iron or fabricated steel. Fittings shall be manufactured in accordance with AWWA Standard C110, 111, 115, and 153. Ductile iron fittings shall be protected with a petroleum asphaltic lining and coating. Fabricated steel fittings shall be fusion epoxy lined and coated. Bolts and nuts shall be carbon steel, ASTM A307, Grade A; hex head, or standard tee-head.

1.2 Polyvinyl Chloride (PVC) Pressure Pipe:

All PVC pressure pipe shall have cast-iron-pipe- equivalent outside diameters.

Small Diameter PVC – Polyvinyl Chloride (PVC) Pressure Pipe, 4 inches to 12 inches, shall conform to current AWWA C-900 and have Underwriters' Laboratories, Factory Mutual and NSF approval. All parts of C-900 not in conflict with these specifications shall apply in full force. PVC pipe shall be dimension ratio (DR) 18, class 150 for internal working pressures up to 130 psi; use DR 14, class 200 for internal working

pressures between 130 psi and 180 psi. For internal working pressures greater than 180 psi, pipe DR/class shall be determined by the Engineer.

PVC pipe that has been exposed to the sun and become discolored shall not be installed if the date printed on the pipe indicates the pipe was manufactured two or more years prior to the installation date. If the date printed on the pipe has been destroyed or altered and the pipe is discolored, the pipe shall not be installed.

Joints – Lengths of PVC shall be joined by a locked-in flexible elastomeric gasket coupling with bell and spigot configuration. Lubricants intended for use with PVC pipe shall be compatible with the plastic material and not adversely affect the potable quality of the water being transported.

Joints between PVC pipe and fittings shall be slip-on type or mechanical types as shown on the Plan Set. Slip-on type joints shall be sealed by means of rubber rings designated for use with the type of pipe being installed.

Joints between PVC pipe and other types of pipe shall be made by means of the proper sized compression type adaptor.

SECTION 53000 VALVES AND APPURTENANCES

1.1 SCOPE

Treated waterline valves two inch through twelve inch shall be gate type. Gate valves four inch and larger shall be flange by flange connected to one flange by mechanical joint coupling.

Raw waterline valves shall be gate type. Raw water gate valves sixteen inch and larger shall have a two-inch minimum by-pass.

1.2 GATE VALVE

Gate valves, 2 inch through 12 inch in diameter shall be resilient seated wedge type, 200 psi WOG rated, and conform to AWWA specification C509. All interior ferrous surfaces shall be protected against corrosion by factory applied fusion-bonded or thermal setting epoxy coating which shall be a minimum 8 mils thick and per AWWA C550.

Valves shall have a smooth inside bore on the bottom half so that sediment cannot accumulate. Valves shall open counterclockwise. Valves installed underground shall have a non-rising stem and a 2-inch square operating nut that is accessible through a valve box. Valves installed above ground shall have outside stem and yolk (OS&Y), rising stem, and be hand-wheel operated.

Treated waterline valves 2 inch through 10 inch shall be gate type. Gate valves 4 inch and larger shall be flange by flange accepted where specified on plan set.

For system compatibility, gate valves shall be manufactured by U.S. Pipe, Mueller, American Flow Control, or American AVK.

1.3 COMBINATION AIR AND VACUUM RELEASE VALVES

Air and vacuum release valves shall be combination air and vacuum release valves as manufactured by the Valve and Primer Corporation (APCO) 143-C, 145-C, etc, Crispin U-10, 20, etc. or Val-Matic 201C, 202C, etc., bronze or stainless-steel trim.

Size shall be per these specifications. Engineering calculations shall be submitted on each combination air and vacuum release valve installed on ductile iron pipe or plastic pipe greater than 12-inch diameter showing the adequacy of the valve to prevent pipe failure.

Pipe taps for AVRV shall always be at location on plan set. Where the pipeline raises suddenly to avoid another utility or other obstruction, an AVRV shall be placed at the high point if the centerline elevation rise of the high point is one pipe diameter above the centerline pipeline at the grade on either side of the high point.

1.4 PRESSURE GAUGES

Unless otherwise noted, pressure gauges shall be stainless steel bourdon type with a 4-1/2-inch diameter dial and black alumalite cases suitable for mounting as required. Calibration shall be in 2 psi increments. Pressure range and calibrations shall be as required, and the dial shall be engraved with the units in which the gauge is calibrated. All pressure gauges shall be equipped with bronze ball valve type shutoff cocks and glycerin filled.

Pressure gauges shall be rated for service intended, including negative pressure (vacuum gauge or compound gauge).

1.5 FLANGED COUPLING ADAPTERS

All flanged coupling adapters must be flanged by mechanical joint. Flanges, bolting, and gaskets shall conform to the requirements for the pipe or valve to which the adaptor is attached. The flange class shall match that of the pipe or valve. Flanges must be the same size as the valve flanges. Romac FCA501 or equal.

1.6 CHECK VALVES

Silent check valves for discharge assembly shall be flanged ductile iron body, and for column pipe threaded carbon steel, designed for a working pressure of not less than 350 psi. Silent check valves shall be, Apco, Valve and Primer Corporation, Mueller, or Crane.

1.7 RESTRAINED JOINTS

Restrained joints shall be designed such that the joint has the same lateral strength as the pipeline and/or can restrain the maximum test force exerted on the pipeline. All restraining systems shall be tightened with an adjustable torque wrench to the manufacturer's recommended torque. The location and minimum required development length shall be clearly identified on the plans. The Engineer shall certify the method and the required development length of restraint.

SECTION 54000 INSTALLATION AND TESTING

1.1 LOCATION OF EXISTING AND NEW UTILITIES

Location of all utilities shown on plans is approximate. At least 2 working days prior to starting work on the project, the Contractor shall contact Underground Service alert (USA) at (800) 227-2600 for location. The locations of various utilities shown on the plans are solely an accommodation to the Contractor without any representation or guarantee concerning completeness and/or accuracy. The Contractor is responsible for ascertaining the locations of, and providing protection for, all utilities to be encountered in the performance of the required work.

1.2 QUALITY CONTROL

The Contractor shall use appropriate quality control procedures to ensure that all pipe and fittings shall be of the first grade and quality conforming to these Specifications. Pipe shall be stored and transported in a proper manner and kept clean after delivery to the job site. All work on pipe shall be performed in a skillful and professional manner.

1.3 LAYING OF PIPE

Pipe shall be laid and joined in accordance with manufacturer's and/or Engineer's direction. Necessary facilities including slings shall be provided for lowering and properly placing pipe sections into trench without damage. A minimum of 42 inches compacted earth fill shall cover all main and service pipelines. Cover less than 42 inches or in vehicular traveled ways may require heavier walled pipe.

The pipe shall be laid in conformity to the prescribed line and grade. The prescribed grade shall be set using the appropriate surveying tools (i.e., transit, rod, laser, etc.). In case any discrepancy exists from the prescribed alignment, the work shall be stopped, and the discrepancy immediately corrected.

Each section of pipe shall be thoroughly cleaned before it is lowered into the trench.

If clean pipe sections and fittings cannot be placed in the trench without getting dirt into open pipe, the Engineer may require a piece of material to tie over the ends of the pipe or fitting until it has been lowered into position in the trench. After the pipe has been lowered into the trench, all foreign matter shall be completely brushed from the pipe ends before assembly.

The pipe shall be cut to provide closure pieces of correct lengths to permit the proper location of the pipe sections, or to locate valves, fittings, and appurtenant structures where specified on plans.

The pipe and fittings shall be laid to the lines and grades specified on plans, and centered in the trench. All pipe to be laid upgrade for grades in excess of 10%. All horizontal and/or vertical bends consisting of 11-1/4 degrees or more shall be thrust with concrete as shown in the Plan Set.

The alignment and elevation of the pipeline as shown on the drawings are designed to avoid conflict with new and existing underground utilities as far as their locations are known which is the responsibility of others.

Trenches must be kept dry until pipe has been laid, joints closed and backfill completed to a depth of 1 foot above top of pipe. Temporary water tight plugs shall be provided for closure of the open ends of the pipelines each time pipe laying activity stops and at the end of each working day to prevent the entry of dirt and/or other contaminants.

1.4 BEDDING AND BACKFILL PLACEMENT

All backfill shall be carefully placed and spread in uniform horizontal layers (lifts) not exceeding 12 inches per lift. Backfill shall be placed to about the same elevation on both sides of the pipe to prevent unequal loading and displacement of pipe. Backfill shall be placed to minimum depth of 30 inches above the top of the pipe unless shown otherwise on plans.

1.5 CONNECTION TO EXISTING PIPELINES

All connections to existing pipelines shall be made as shown on the plans and in accordance with these Specifications.

When deemed necessary by the Owners representative, shutdowns of existing in-service pipeline and other distribution facilities shall be made by the Owner as required to complete pipeline connections. A shutdown shall be for as short a period as possible and shall be scheduled by the Owner representative. The amount of lead-time necessary for shutdown and connection to existing mains varies with each job and must be planned accordingly. In no case shall a shutdown and/or connection be scheduled with less than 2-days notice. Absolutely no connection operations shall occur prior to passing pressure and bacteria tests. Interference with the operation of the Owner's distribution system shall be kept at a minimum. While an existing pipeline is shut down, the connection work shall be performed without interruption, continuing after regular working hours if necessary, until completed, unless otherwise directed by the Owner representative. In some cases, shutdowns must occur at times other than normal working hours and/or days.

In all cases, shutdowns shall be made under the direction of the Owner representative. The Owner shall close all valves in making a shutdown and shall open all valves to restore pressure to the existing main, as well as initiate pressure to the new installation.

The Owner representative shall be notified at least 3 working days prior to any connection operations so that advance preparation on the part of the Owner can be made, and shall confirm such advance notice in writing.

1.6 ABANDONMENT AND OR REMOVAL OF EXISTING FACILITIES

Existing facilities shall be abandoned as indicated on the plans and specifications. Ends of pipelines to be abandoned in place shall be mechanically restrained by flange or valve and cement thrust block installed if required. The old 6-inch discharge assembly piping and not salvaged appurtenances shall be disposed of offsite in a legal manner. The old Well 8 shall be abandoned in accordance with NAC 534.420 "Plugging of Well: General Requirements".

1.7 HYDROSTATIC TESTING

Backfill shall meet and pass all compaction requirements and subgrade shall be completed prior to hydrostatic testing. The Owners/Engineers representative shall be notified forty-eight (48) hours prior to testing and must approve any water placement in any portion of the pipeline. The pipeline shall be filled with water and all air evacuated.

For treated water lines the pressure shall then be slowly increased to 150 psi or 150% of working pressure, whichever is greater. The test pressure shall be maintained for at least 3 hours. Accurate means shall be provided for measuring the quantity of water required to maintain full pressure on the line for the test period. The maximum allowable leakage shall be per the pipe manufacturer's recommendations or as directed by the district representative.

All or part of the pipeline may be drained as necessary to repair leaks. All leaks shall be repaired in a manner approved by the district representative and retested before being accepted by the Agency. The Contractor shall provide all labor, equipment, and materials, required for filling and testing the pipelines. After successful completion of the hydrostatic test, the chlorination flushing, bacteriological test and high velocity flushing may be completed.

1.8 DISINFECTION/CHLORINATION AND FLUSHING

After successful completion of the hydrostatic test, the Contractor shall chlorinate the pipeline per AWWA C651-86 by completely filling the main and appurtenances with water having a minimum of 50 parts per million (ppm) and a maximum of 100 parts per million (ppm) of available chlorine from calcium hypochlorite. The only disinfection method allowed shall be the continuous-feed method. The chlorinated water shall be retained in the main for at least 24 hours. At the end of this 24-hour period the treated water in all portions of the main and appurtenances shall have a residual of not less than 25 parts per million (ppm).

After chlorination the pipeline shall be flushed per AWWA C651-86. The water shall then remain unmoved for a minimum of forty-eight (48) hours after which the Owner shall collect bacteriological samples which shall be tested for coliform of less than 2.2 parts per million (ppm) by an independent laboratory.

The number and location of samples shall be determined by the district representative and shall be randomly chosen. If emergency work is under way, disinfection is to be per AWWA C651-86.

The Contractor shall make the necessary piping, connections and furnish and install all necessary equipment required for the high velocity flushing operations. The Contractor shall provide for safe and legal disposal of water from flushing. The Contractor shall remove all temporary flushing facilities. All costs for chlorination and flushing shall be paid by the Contractor. Polyethylene pipe shall be allowed.

SECTION 55000 Earthwork

1.1 SCOPE OF WORK

This work shall consist of: performing all operations necessary to excavate earth, rock or other material of whatever nature including removal of water regardless of character or subsurface condition necessary for the construction of the project facilities; placing backfill for all facilities including site grading, structures, transmission piping; removing and replacing unsuitable material; placing and compacting material for all required project facilities; other earthwork shown on the plans and indicated in the specifications including excavating and backfilling all structures, trenches and depressions resulting from the removal of obstructions, removing and replacing unsuitable material.

1.2 BRACING AND SHORING

Sufficient bracing and shoring shall be installed in trenches to ensure the safety of workers, and to protect and facilitate the work. Where practicable all such bracing and shoring shall be removed from the trench as the backfilling proceeds. All bracing and shoring shall comply with current Construction Safety Orders of the Occupational Health and Safety Administration.

When shoring is used in the trench, the fill shall be carried to a height sufficient to prevent the surrounding ground from cracking or caving into the trench before the shoring is removed.

When for any reason, pipe laying is discontinued for an hour or more, the open end of all pipelines shall be closed with a close-fitting stopper or taped closed.

The jointing of pipe with this type of joints shall be made by approved methods and recommendations of the manufacturer care being used to prevent chipping or cracking of either end of the pipe during installation:

Pipe shall be protected during handling against impact shock and free fall. The rubber gasket joints shall be cleaned prior to the seating of the gasket. The gasket shall be wiped clean and shall be fitted snugly in the gasket seat. A thin film of lubricant shall be applied to the inside surface of the gasket which will come in contact with the plain end of the pipe, if necessary, apply the same lubricant to the plain end of the pipe. Use only a lubricant recommended by the pipe manufacturer and that meets NSF-61 certification.

Mechanical compactors shall not be used directly over the pipe with less than 1 foot of cover.

If at any time during the period of responsibility there shall be any settlement of the trenches requiring repairs to be or should any other defect appear in the system due to the contractor's operations, the owner or their agent shall promptly repair all defects in accordance with the requirements of the to the Owners satisfaction.

1.3 EXCAVATION AND BEDDING

Unless otherwise specified, the excavation for water pipe shall be an open trench, excavated to 12 inches below bottom of pipe grade and 12 inches from each side. The native soil in the trench bottom shall be compacted to 90 percent relative compaction before placement of Class "A" Backfill as shown in subsection 200.03.06 of the standards and specifications (Orange Book) for pipeline bedding.

Pipe trenches shall not be left open farther than 300 feet in advance of pipe laying operations or 200 feet to the rear thereof, unless otherwise permitted by the Inspector.

Whenever the bottom of the trench is soft, yielding, or unsuitable as a foundation for the pipe, sufficient crushed rock or coarse clean gravel shall be rammed into the soft material. If such treatment does not provide a proper foundation, the unsuitable material shall be removed to a depth such that when replaced with bedding material, it will provide a stable foundation.

Whenever the trench bottom is in rocky material, the trench shall be excavated to 12 inches below the bottom of the pipe and/or 6 inches below the outside diameter of the bell, whichever is greater, and backfilled to grade with imported bedding material thoroughly compacted into place.

1.4 TRENCH BACKFILL PIPELINES

Trench Backfill Pipelines: Class "A" Backfill "A" Backfill as shown in subsection 200.03.06 of the standards and specifications (Orange Book) for water system pipelines and related appurtenances that are constructed for the Owner shall have a minimum specific gravity of 2.5.

Backfill from a point at least 1 foot over the top of the pipe to finish grade shall be made with Class "E" as shown in subsection 200.03.06. of the standard and specifications (Orange Book) for water system pipelines and related appurtenances that are constructed for the Owner.

Material for Class "A" and Class "E" Backfill shall be placed in uniform horizontal layers not exceeding 1 foot in thickness before compaction and shall be brought up uniformly on all sides of the trench. If the contractor can satisfactorily demonstrate to the Inspector an alternative method of placing the backfill so that all requirements, other than the layer thickness, are met, the Inspector will permit the contractor to use the alternative method. Under no circumstance will the contractor use the alternative method unless the Inspector approval is obtained in writing.

The Owner reserves the right to perform compaction tests, or have compaction tests performed through a licensed, geotechnical, testing firm, to verify compaction of the backfilled trench section. All tests by the Owner will be performed in such a manner as will not unnecessarily delay the work.

The use of backfill material other than Class "A" and Class "E" is not permitted unless approval is granted, in writing, from the Inspector.

Groundwater may not be removed from the trench and by use of any part of the existing or new water system piping or facilities. Groundwater must be eliminated from trench prior to installation of water pipe and the pipe must be protected from groundwater at all phases of construction.

- The contractor must eliminate or control groundwater prior to pipe installation utilizing methods that meet or exceed Federal, State or local requirements.
- If high concentrations of silts are suspended in the groundwater, settling basins may be required before the water is pumped or diverted to daylight.

Initial backfill shall be to 1 foot of the vertical outside diameter of the pipe in 8-inch maximum lifts.

Backfill material shall be "shovel sliced" on both sides of the pipe, with care to assure that the spaces under the pipe haunches have been filled.

Field repairs to P.V.C. are not acceptable unless the Owner/Engineer has given his/her prior approval for each repair.

Mechanical compactors shall not be used directly over the pipe with less than 1 foot of cover.

1.5 TRENCH SECTION, UNPAVED AREAS

Pipeline shall be bedded on 6 inches of Class "A" Bedding compacted to 90 percent relative compaction. Class "A" material shall also extend a minimum 12 inches above top of pipe, compacted to 90 percent relative compaction. In the event that heavy groundwater is encountered in the excavated trench, Class "C" Bedding may be substituted for Class "A" Bedding with a filter fabric to support bedding. Native Backfill shall be placed from 12 inches above top of pipe to finished grade. Native Backfill shall be compacted to 90 percent relative compaction.

1.6 RAISED EARTHEN PAD

The raised earthen pad around the new Well 8 will consist of native soils over excavated and scarified to a depth of 12 inches and moisture conditioned to within 2% of optimum. The native soils shall be compacted to a minimum of 90% of the ASTM D1557 Standard as specified in the geotechnical report in Section 7. The native soils will be place in 8-inch maximum lifts. A 16-inch structural fill will be placed over the compacted native soils. The structural fill (imported) shall follow gradation spec on page 10 of the

geotechnical report (Section 7) and compacted to 95% of ASTM D1557. The raised earthen pad will be capped with a Type 2, Class "B" aggregate base, 8 inches thick, compacted to 95% of ASTM D1557 Standard.

SECTION 56000 CLEAN UP

1.1 GENERAL

During the progress of the work, the Contractor shall keep the entire job site in a clean and orderly condition. Excess or unsuitable backfill material, broken pipe or other waste material shall be removed from the job site. The contractor shall remove spillage resulting from hauling operations along or across existing streets or roads immediately. All gutters and roadside ditches shall be kept clean and free from obstructions. Any deviation from this practice shall have prior approval from the Owner.

Before final acceptance of the work, the contractor shall carefully clean up the work and premises, remove all temporary structures built for the work, and remove all surplus construction materials and rubbish of all kinds from the grounds which he has occupied and leave them in a neat condition.

SECTION 57000 ENVIRONMENTAL CONSIDERATIONS

1.1 WATER POLLUTION

The contractor shall exercise every reasonable precaution to protect ditch conduits, streams, lakes and reservoirs from pollution with fuels, oils, bituminous, chemicals, concrete and other harmful materials and shall conduct and schedule his/her operations so as to avoid or minimize muddying and silting of said conduits, streams, lakes and reservoirs.

Erosion control features shall be constructed concurrently with other work and at the earliest practicable time. Care shall be exercised to preserve vegetation beyond the limits of construction.

When borrow material is obtained from other than commercially operated sources, erosion of the borrow site during and after completion of the work shall not result in water pollution. The material source shall be constructed, where practicable, so that water will not collect or stand therein.

The requirements of this section shall apply to all work performed within the Elko County (County)/HOA and to all noncommercial operated borrow or disposal sites used for work within the County. The word "stream" as hereinafter used shall be construed to mean ditch, conduit, stream, river, lake or reservoir.

The owner or their agent shall be completely responsible for compliance with all local, District, town, county, state, and federal regulations pertaining to water pollution and soil erosion including the payment of any fines or penalties imposed by any governmental agency as a result of work performed by or for the owner or their agent.

SECTION 58000 STRUCTURAL CONCRETE

1.1 GENERAL

Provide and install all cast-in-place concrete, as shown and as specified on plan set, including but not limited to the following:

- Accessories to be embedded in cast-in-place concrete, anchor bolts, etc.;
- Cutting, patching, finishing and curing of cast-in-place concrete;
- Coordination with all trades with regard to requirements for special bases, sleeves, chases, inserts, finishes, or provisions of any nature;
- Treatment of finished concrete surface.

1.2 QUALITY ASSURANCE

Qualification of Workmen: experienced and skilled concrete workmen working under the supervision of an experienced concrete contractor shall complete all concrete work.

1.3 REFERENCE STANDARDS

The following references and standards are hereby made a part of this section. Nothing contained herein shall be construed as permitting work that is contrary to code requirements or governing rules and regulations.

ACI - American Concrete Institute.

- ACI 301 - "Specification for Structural Concrete for Buildings."
- ACI 304 - "Recommended practice for Measuring, Mixing and Placing Concrete."
- ACI 305 - "Recommended Practice for Hot Weather Concreting."
- ACI 306 - "Recommended Practice for Cold Weather Concreting."
- ACI 309 - "Recommendation Practice for Consolidation of Concrete."
- ACS 318 - "Building Code Requirements for Reinforced Concrete."
- ASTM - "American Society for Testing and Materials."
- C 31 - "Making and Curing Concrete Test Specimens in the Field."
- C 33 - "Standard Specification for Concrete Aggregates."
- C 39 - "Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens."
- C 88 - "Standard Specification for Method of Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate."
- C 94 - "Standard Specification for Ready-Mixed Concrete."
- C 143 - "Standard Method of Test for Slump of Portland Cement Concrete."
- C 150 - "Standard Specification of Portland Cement."
- C 157 - "Standard Method of Test for Length Change of Hardened Mortar and Concrete."
- C 171 - "Standard Specification for Sheet Materials for Curing Concrete."
- C 172 - "Sampling Fresh Concrete."
- C 233 - "Testing Air-Entraining Admixtures for Concrete."
- C 260 - "Standard Specifications for Air-Entraining Admixtures for Concrete."
- C 309 - "Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete."
- C 494 - "Standard Specifications for Chemical Admixtures for Concrete."
- C 2419 - "Standard Specification for Method of Test for Sand - Equivalent Value of Soil and Fine Aggregate."
- E 329 - "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction."

1.4 SLAB ON GRADE AND FOOTING

Vapor Barrier: Place completely over capillary break material subgrade. Lap joints 6 inches minimum, and continuously tape. Fit tightly to penetrations; and continuously tape. Install continuous tape at all edge conditions.

Sand Cushion: Place a 2-inch sand cushion on top of membrane immediately after placing membrane.

Clean and roughen all construction joint surfaces by removing laitance and exposing sound aggregate. Thoroughly clean and moisten contact surfaces before placing fresh concrete.

Cleaning and wetting forms and subgrade: Remove foreign matter accumulated in forms, rigidly close ports and openings left in the form work immediately prior to starting concrete placing. Wet wood forms sufficiently to tighten up cracks. Wet other materials sufficiently to reduce suction and maintain workability of the concrete mix. Thoroughly clean tools used in transporting, placing, and consolidating concrete immediately after each use. Wet subgrade surfaces, immediately prior to placing slabs on grade.

1.5 PLACING CONCRETE

Transport concrete from batching plant to place of final deposit as rapidly as practicable. Place concrete before initial set has occurred and in no event after it has contained water for more than 90 minutes and 45 minutes when concrete temperature exceeds 85 degrees Fahrenheit. Convey concrete from mixer to forms as rapidly as possible and deposit as nearly as practicable in its final position by methods, which will prevent segregation or loss of ingredients. Thoroughly vibrate and tamp concrete so that all parts of forms are filled and so that no voids remain in mass or on surface. Take special care to work concrete through and around reinforcing steel.

Deposit concrete in horizontal layers not over 8-inches deep. Use spouts, elephant trunks or other approved means as necessary to avoid segregation when dropping concrete. Free fall shall not exceed 5 feet unless approved by the Engineer prior to placement.

Use as many vibrators and tampers as necessary to secure desired results for different parts of structure. Make extra vibrators available during placing of concrete, ready for service in case any vibrator in use fails.

Where placing of concrete has been stopped for a sufficient period of time so that shrinkage or warp has separated forms and concrete, draw forms into firm contact with concrete before placing additional concrete. Prevent any shoulder or ledge being formed at a cold joint.

Bring surfaces to be finished to proper grade, strike off finish in a workmanlike manner. Ensure smooth level surfaces.

Add no water when placing concrete.

1.6 FINISHING CONCRETE

Exterior Slabs on Grade and Curbs:

- Compact, screed, level, and tamp with a grid tamper to raise a thin mortar bed to the surface. Steel trowel and medium broom after concrete has hardened sufficiently to prevent the drawing of moisture to the surface. Do not dust with dry materials. Avoid excessive tamping and surface mortar.
- Tool mark slabs where shown. Round all edges to a 1/2-inch radius.

1.7 CURING CONCRETE

During initial 7 days of curing, concrete and formwork shall be kept continuously moist so that a film of water remains on the concrete or form work surface. This may be accomplished through continuously fogging or spraying with water or with moisture retaining fabric coverings. Any covering must be free of any substance that would be harmful to the concrete or the curing process. New fabric coverings should be thoroughly rinsed in water prior to use.

1.8 WEATHER PROTECTION

Cold Weather Requirements:

- Provide adequate equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather in accordance with ACI 306. Use no frozen materials or materials containing snow or ice. All reinforcement, forms, fillers, and ground with which the concrete is to come in contact shall be free from snow or ice. Whenever the temperature of the surrounding air is below 40 degrees Fahrenheit, all concrete placed in the forms shall have a temperature of 45 degrees Fahrenheit or higher after placement. Provide adequate means for maintaining this temperature for 4 days. Provide any additional time necessary to ensure proper curing of the concrete as directed. The housing, covering, or other protection used in connection with curing shall remain in place and

intact at least 24 hours after the artificial heating is discontinued. No dependence shall be placed on salt or other chemicals for the prevention of freezing.

Hot-Weather Requirements:

- In hot weather, take suitable precautions to avoid drying of concrete prior to finishing operations. Provide windbreaks, sunshades, fog sprays, or other devices as directed and as required.
- Concrete deposited in hot weather shall not have a placing temperature that will cause difficulty from loss of slump, flash set, or cold joints. Concrete temperature shall be less than 90 degrees Fahrenheit unless the Engineer permits higher temperatures.

1.9 DEFECTIVE WORK

Any concrete work not formed as shown on the plan set or not true to the intended alignment or not plumb or level where so intended, or not true to the intended grades and levels or that has voids or rack pockets that have not been filled, or that has any sawdust, wood, or debris embedded in it, or does not fully conform to the Specifications will be deemed to be defective. Concrete finish, which is not properly surfaced as specified, or which varies more than 1/4 inch from the required finish grade (except floors having drains), or which has any roughened top surfaces, or which does not connect properly to the adjoining work will be deemed to be defective. Defective work shall be removed and be replaced with workmanship and materials complying with the requirements of the Contract Documents at no increase in Contract Price and with no time extension allowed.

1.10 PATCHING AND GRINDING

Formed Surfaces: Patch tie holes and defective areas immediately after form removal. Bonding grout approximately one part Portland Cement to one part fine sand passing a #30 sieve, mixed to creamy consistency. Patching mortar shall be made of the same material and approximately the same proportions as used for concrete, except that coarse aggregate shall be omitted, and mortar shall consist of not more than one part Portland Cement to 2-1/2 parts damp loose sand by volume. Combine white and gray Portland Cement as necessary to match color of surrounding concrete. Use no more mixing water than necessary for handling and placing. Mix patching mortar in advance and allow to stand with frequent mixing with trowel without adding water until it has reached the stiffest consistency that will permit placing. Remove honeycombed and other defective concrete down to sound concrete. Dampen area to be patched and at least 6 inches surrounding the area. After water has evaporated from surface, a coat of bonding grout shall be well brushed into the surface. When the bonding grout begins to lose water sheen, apply patching mortar, thoroughly consolidate and strike off slightly higher than surrounding surface. All patching mortar shall set undisturbed for at least 1 hour before final finishing. Do not finish patches for 7 days. Tie holes shall be cleaned, dampened, and solidly filled with patching mortar. All areas to be repaired or grouted are to be inspected by the owner and architect prior to repair.

Slabs on Grade: After entire slab is finished, shrinkage cracks may appear which shall be patched as follows:

- Where the slab is not exposed or where appearance is not important, fill cracks larger than 1/32 inch wide with cement grout and strike off level with surface.
- Where slab is exposed and appearance is important, repair all unsightly cracks in a manner satisfactory in appearance to the Owner. If this cannot be accomplished, then the concrete shall be considered defective.

1.11 CLEAN UP

Wash and mop clean all interior finish surfaces and sweep and hose clean exterior surfaces after removal of protective covering. Leave all finish surfaces clean and free from oil, paint, plaster, stain and foreign substances and in approved condition.

1.12 REINFORCEMENT

Bar reinforcement shall be deformed and shall be intermediate grade conforming to the plan set and be of the shape and dimensions shown on the improvement plans. Before any reinforcing steel is delivered to the job site, two sets of prints of the shop drawings shall be submitted to the Inspector for his/her approval, showing the number, length, and a dimensioned bending diagram of all steel bars and rods. Such approval is intended only as an additional precaution against errors and the responsibility for furnishing and placing steel in accordance with the details shown on the improvement plans and as specified shall still remain with the contractor.

SECTION 59000 ELECTRICAL WORK

1.1 GUARANTEE

The contractor shall leave the entire electrical system in proper working order and shall, at their own expense, replace any work, material, or equipment furnished by him which develops defects within 1 year from the date of acceptance.

1.2 GENERAL

The Drawings and General provisions of the Contract including the "General Conditions", "Supplementary Conditions", and "General Requirements" of the Contract as written and referred to here are adopted and made part of Subsection 59000.

The Contract Agreement, Bidding documents, and all Addenda issued prior to Contract Agreement execution form a part of these specifications and apply to all Contracts or Subcontracts relating to the electrical systems.

The work under this Division shall consist of all labor, materials, equipment, services and related accessories; etc., necessary and required to complete all work as shown or inferred on the Drawings and in the Specifications. Provide fixed electrical equipment, except where specifically noted otherwise.

Provide equipment and/or wiring normally furnished or required for complete electrical systems but not specifically specified on the drawings and/or in specifications, as though specified by both. All equipment and wiring shall be new, except where specifically shown or specified otherwise.

1.2 ELECTRICAL WORK

Electrical work includes, but is not limited to:

1. Arranging and coordinating with owner for owned utility services required as shown or specified.
2. Removal or relocation of electrical services and electrical work located on or crossing through project property, above or below grade, obstructing construction of project or conflicting with completed project or any applicable code.
3. Alterations and additions to existing electrical systems.
4. Provide panelboards; circuit breakers; switches; and/or other equipment forming part of system.
5. Complete grounding system.
6. Complete temporary facilities for construction power.

1.3 REFERENCES

NEC:	National Electrical Code (latest edition adopted by local authorities unless otherwise noted).
NFPA:	National Fire Protection Association.
OSHA:	Occupational Safety and Health Administration.
UL:	Underwriters Laboratories, Inc.
NEMA:	National Electrical Manufacturer's Association.
IEEE:	Institute of Electrical and Electronic Engineers.
ACI:	American Concrete Institute.
ADA:	American Disabilities Act.
ANSI:	American National Standards Institutes.
ASTM:	American Society for Testing Materials.
AWS:	American Welding Society.
FM:	Factory Mutual Insurance Association.
IBC:	International Building Code
IES:	Illumination Engineering Society.
ISA:	Instrument Society of America.
LPI:	Lightning Protection Institute.
NACE:	National Association of Corrosion Engineers.
NETA:	International Electrical Testing Association.
NECA:	National Electrical Contractors Association
NETA:	National Electrical Testing Association.

1.4 ADOPTED CODES

- A. International Building Code (IBC) published by the International Code Council (ICC).
- B. National Electrical Code (NEC) published by the National Fire Protection Association (NFPA).
- C. International Fire Code (IFC) published by the International Code Council.
- D. National Fire Codes (NFPA Standards) published by the National Fire Protection Association (NFPA) as referenced in the 2006 International Fire Code.
- E. International Energy Conservations Code (IECC) published by the International Code Council. ASHRAE/ IESNA Standard 90.1-2004 is incorporated by reference.
- F. All applicable provisions of the Nevada Revised Statutes (NRS) and the Nevada Administrative Code (NAC), including those listed below.
- G. The most current regulations of the State Fire Marshal, Nevada Department of Public Safety, Carson City, Nevada (NAC Chapter 477, State Fire Marshal).
- H. The most current edition of the Americans with Disabilities Act (ADA) published by the United States Department of Justice including the Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- I. Other codes, regulations, and standards referenced in the body of this document.
- J. Local codes and ordinances do not apply to projects constructed on state-owned land, except for zoning requirements pursuant to Nevada Revised Statutes Section 278.580.

1.5 REQUIREMENTS OF REGULATORY AGENCIES

- A. Obtain and pay for all permits and inspections required for the work. Comply with all ordinances pertaining to work described herein. Pay all expenses arising from the procurement of these certificates and include in the base Contract Price.
- B. Install work under this Division per drawings, specifications, latest adopted edition of the National Electrical Code, (NFPA-70) including local amendments and interpretations, Local adopted Building Codes, and any special codes having jurisdiction over specific portions of work within complete installation. In event of conflict, install work per most stringent code requirements determined by Engineer. This does not relieve the

Contractor from furnishing and installing work shown or specified which may exceed the requirements of such ordinances, laws, regulations and codes.

- C. All materials, products, devices, fixtures, forms or types of construction included in this project shall meet or exceed the published requirements of National Electrical Code (NEC), American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE) and National Electrical Manufacturers Associations (NEMA). All equipment shall bear the Underwriter's Laboratories (UL) label or equivalent from approved independent testing laboratory.
- D. Arrange, pay fees for and complete work to pass required tests by agencies having authority over work. Deliver to Engineer copies of the Certificates of Inspection and approval issued by authorities and provide original copy of each certificate to Owner.
- E. When required by law or regulations, the governmental agency having jurisdiction for inspections shall be given reasonable notice and opportunity to inspect the work. Any work that is enclosed or covered up before such inspection and test shall be uncovered at the Contractor's expense; after it has been inspected, the Contractor shall restore the work to its original condition at his own expense.

1.6 DRAWINGS AND SPECIFICATIONS

- A. Drawings and specifications are complementary. Work called for by one is binding as if called for by both. Any discrepancies between drawings and specifications shall be brought to the attention of the Engineer for clarification during the bidding period. No allowance shall subsequently be made to the Contractor by reason of his failure to have brought said discrepancies to the attention of the Consultant during the bidding period or by reason of any error on the Contractor's part.
- B. Drawings are schematic and diagrammatic in nature. Drawings show general run of circuits and approximate location of equipment. The contractor shall review drawings of all trades to assure coordination prior to placement of work. Right is reserved to change location of equipment and devices, and routing of conduits within 10 feet, without extra cost to Owner (prior to rough-in).
- C. Use dimensions in figures, shop drawings, etc. and actual site measurements in preference to scaled dimensions. Do not scale drawings for exact sizes or locations – use dimensioned details or actual field conditions. Verify item mounting heights as required by project conditions prior to rough-in.
- D. The Engineers drawings shall take precedence over all other drawings in matters of dimensions. Discrepancies between different drawings or between drawings and specifications, or regulations and codes governing the installation shall be brought to the attention of the Engineer in writing for determination.
- E. Layout equipment as shown on drawings as close as possible. Verify access requirements for equipment actually furnished and adjust layout to comply with NEC 110. Right is reserved to change layout within 10 feet without additional cost (prior to rough-in).
- F. The Contractor is responsible to field measure and confirm the mounting heights and location of electrical equipment with respect to counters, doorways, and other architectural, mechanical or structural work. Do not scale distances off the electrical drawings: Use actual facility dimensions.

- G. Execution of Contract is evidence that Contractor has examined all existing conditions, drawings and specifications related to work, and is informed to extent and character of work. Later claims for labor and materials required due to difficulties encountered, which could have been foreseen had examination been made, will not be recognized.
- H. All work called for in this Subsection of the plans and specifications shall be performed under this Subsection, regardless of whether such work may also have been called for in other Subsection(s). Discrepancies in or conflicts among the various parts of the contract drawings shall not relieve Contractor of his obligation to perform.
- I. No attempt has been made to establish the required sections or splits of equipment relative to the size of access into the space, building, etc. Contractor shall establish all said splits, sections, etc. necessary to install equipment complete without undue disassembly of equipment or demolition of facility parts at site of work.
- J. Charges for extra work are not allowed unless work is authorized by written order from the Owner's Representative approving charges for work.

1.7 SUBMITTALS

- A. Before ordering any equipment, contractor shall submit six copies of factory shop drawings for all lighting fixtures, lighting controls, switchgear, panels, circuit breakers, motor controllers, disconnects wiring devices, plates, raceways and fittings, etc. proposed for this project.

1.8 SUBSTITUTIONS

- A. Proposed substitutions shall be equal or superior to specified items in all respects. Determination of equality rests solely with Engineer. Substitutions must be submitted a minimum of 10 working days prior to bid for consideration. Proposed substitutions provided later will not be reviewed or allowed. Bid substituted material will only be allowed if accepted in writing by Engineer.

1.9 EXAMINATION OF SITE AND EXISTING CONDITIONS

- A. Before submitting a proposal, Contractor shall examine the site and familiarize himself with the existing conditions and limitations. No extras will be allowed because of the Contractor's misunderstanding of the amount of work involved or his lack of knowledge of any site conditions which may affect his work. Any apparent variance of the drawings or specifications from the existing conditions at the site shall be called to attention of the Engineer before submitting a proposal.

1.10 EXISTING SWITCHGEAR

- A. Reuse existing switchgear and panels in place where so indicated. Modify as required to accommodate new work. Provide new circuit breakers and/or fuses as required. Match AIC ratings. Rearrange existing circuits within panels to agree with new panel schedules. Trace and identify all existing circuits on new record panel schedules.

1.11 EXISTING PANELBOARDS

- A. Ring out circuits in existing panels. Where additional circuits are needed reuse circuits available for reuse. Install new breakers as indicated on drawings. Match AIC ratings
- B. Tag unused circuits as spare.

- C. Where existing circuits are indicated to be reused, use sensing measuring devices to verify circuits feeding Project area or are not in use, or overload.
- D. Remove existing wire no longer in use from panel to equipment.
- E. Provide new updated typed directories.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All material shall be new and have a UL label where available. If UL label is not available, material shall be manufactured in accordance with applicable NEMA, IEEE and Federal Standards. Use UL labeled components in assemblies that do not have overall UL label. All equipment shall comply with the terms "listed and labeled" as defined in the NEC 70, Article 100. Submit letter stating compliance with these requirements.
- B. Utilize one of the manufacturers listed to furnish all of the major equipment (i.e. panels, transformers, bus duct, switchgear, circuit breakers, etc.) required for this project.
- C. All material and equipment shall be new and of the highest quality available ("specification grade"). Service equipment shall be factory-assembled commercial-grade, configured per serving utility standards. Wiring devices shall be specification grade with nylon plates, white unless otherwise noted, raised steel box covers may be used in utility areas.
- D. All equipment and circuiting accessible by the public shall be tamper-proof and vandal resistant. Openable devices and equipment shall be padlockable.

2.2 DISTRIBUTION EQUIPMENT

- A. Distribution equipment shall be dead-front, panelboard or switchboard type as indicated, UL-Labeled and enclosed in a NEMA housing appropriate to its location and application with hinged wireway covers. Bussing, device fingers and lugs shall be copper unless indicated on drawings. AIC ratings shown on plans are minimum ratings; circuit breakers shall be in excess of the available fault current. Series-rating of upstream and downstream circuit breakers to achieve required fault current ratings is prohibited unless approved by Engineer in writing.

2.3 CIRCUITING

- A. All wiring shall be in conduit, concealed except where noted. EMT with steel set screw insulated-throat fittings shall be used in dry, protected interior locations. PVC schedule 40 shall be used below grade at minimum-24". Wrapped rigid elbows and risers shall be used for all through-grade and concrete slab transitions and stub-ups. RGS or IMC conduit with threaded fittings shall be used in all locations where exposed to the elements or subject to physical damage. All conduits shall have pull cord if otherwise empty. Connect pump motor with liquid tight flexible metal conduit.

2.4 WIRING

- A. Wire shall be copper unless otherwise indicated. Minimum wire size shall be as stated on the electrical plan set. Where aluminum is allowed, wire shall be terminated in an insulated CU/AL rated compression terminal fitting (MAC-Adapt or equal). Insulation shall be THW, THWN or THHN.

- B. Unless otherwise required by local ordinances, ground wires shall be green, neutral wires shall be white (120V) or grey (277V) and phase wires shall be black (Phase A), red (Phase B), and blue (Phase C) for a 120/208-volt system and brown (Phase A), orange (Phase B), and yellow (Phase C) for a 277/480 volt system.

PART 3 - EXECUTION

3.1 VISIT TO SITE

- A. Visit site, and survey existing conditions affecting work prior to bid. Include necessary materials and labor to accomplish the electrical work, including relocation of existing services and utilities on building site in bid. No consideration shall be given to future claims due to existing conditions. Any discrepancies or interferences shall be reported immediately to the Engineer.

1.2 WORKMANSHIP

- A. All work performed shall be first class work in every aspect. The work shall be performed by mechanics skilled in their respective trades, who shall at all times be under the supervision of competent persons. All work shall be installed to comply with NECA's "Standard of Installation."
- B. Work under this Subsection shall be first class with emphasis on neatness and workmanship. All work shall be installed square and plumb and concealed where possible. Work that is deficient, defective, poorly laid out, not perfectly aligned, or that is not consistent with the requirements generally accepted in the trade for "first class work" will not be acceptable.
- C. In addition to the materials specified elsewhere, furnish and install all other miscellaneous items necessary for the completion of the work to the extent that all systems are complete and operative.
- D. All work under this Subsection shall be performed in cooperation with the work performed under all other Subsections of the Specifications for the Project in order to avoid interference with other work and to secure the proper installation of all work. Refer the Drawings and Specifications covering the work to be performed under all Sections, so that the relation and extent of the work of this Section with respect to the work of all other Subsections is understood. Give right of way to raceways and piping systems installed at a required slope.
- E. Install work using competent mechanics, under supervision of foreman, all duly certified by local authorities. The installation shall be subject to the Engineer's observation, and final acceptance. The Engineer may reject unsuitable work.
- E. Conduit systems must be complete prior to installation of wiring.

3.3 CHANGE ORDERS

- A. Additional work may be required on the project which is outside the scope of the contract. Such additional work will be described in Supplemental Instructions and/or Clarifications, to be estimated and priced by the Contractor, and accepted by the Owner, prior to commencing work. Proposals shall include a list of quantities of all material being used with unit costs broken down into material and labor costs per unit. Contractor shall provide actual equipment quotes when requested by Engineer.

- B. Material costs and labor units shall not exceed the latest edition of RS Means Electrical Cost Data.
- C. See the General Conditions of the Specifications for acceptable charges.

3.4 GUARANTEE

- A. Furnish the Owner a written guarantee, stating that if the workmanship and/or material executed under this Division is proven defective within (1) year after the final acceptance by the Owner, such defects and other work damaged will be repaired and/or replaced. Submit with Operation and Maintenance Manuals.
- B. Obtain from the various manufacturers or vendors guarantees or warranties for their particular equipment or components and deliver them to the Owner. All guarantees and warranties provided shall be referenced to this project.
- C. In event that systems are placed in operation in several phases at the Owner's request, guarantee will begin on date each system or item of equipment is accepted for service by the Owner. Provide O&M manuals for all equipment when equipment is accepted for service by the Owner.
- D. All guarantees and warranties shall include labor and material at the site of installation for the duration of the guarantee period.

3.5 OBSERVATIONS OF WORK AND DEMONSTRATION OF OPERATION (ACCEPTANCE)

- A. At all observations of work, open panel covers, junction box covers, pull box covers, device covers, and other equipment with removable plates for observation as requested by Engineer. Provide sufficient personnel to expedite cover removal and replacement.
- B. Contractor to demonstrate operation of new equipment and/or systems to satisfaction of Owner/Engineer. Contractor to have manufacturer available for demonstration of equipment and/or systems were requested by Owner/Engineer. Furnish affidavit signed by Owner's representative indicating that demonstration of operation has been performed.

3.6 COOPERATION

- A. Carefully coordinate work with other contractors and subcontractors. Refer conflicts between trades to Engineer. Provide necessary information to other trades for such coordination. Such information shall include Shop Drawings, Product Data and all other required data. Provide a system erection/coordination drawing showing electrical, HVAC, plumbing and architectural for installation in congested areas, when requested.
- B. Whenever such information is not provided in a timely manner or whenever such information is incorrect, this contractor shall bear all costs for providing or correcting affected work of related trades with no change to the Contract Price or Construction Schedule.
- C. Work to be installed as progress of project will allow. Schedule of work determined by General Contractor, Owner, and/or Architect/Engineer.

3.7 PROTECTING

- A. Provide warning lights, bracing, shoring, rails, guards and covers necessary to prevent damage or injury. All persons working around electrical equipment shall have electrical shock and flash protection per OSHA 1910.301-309 & 331-335.
- B. Do not leave exposed or unprotected, electrical items carrying current. Protect visitors and workers from exposure to contact with electrically energized surfaces, parts, etc. in accordance with OSHA standards.

3.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver equipment and materials to job site in original, unopened, labeled container. Products shall be properly identified with names, model numbers, types, grades, compliance labels and other information needed for identification. Store to prevent damage and injury. Store materials to prevent corroding. Store finished materials and equipment to prevent staining and discoloring. Store materials affected by condensation in warm dry areas. Provide heaters. Contractor shall verify the availability of on-site storage space; if no on site storage space is available then the contractor shall cover the cost for off site storage. Materials stored at the project site that becomes soiled with construction dirt, concrete, or moisture shall be removed from the site and replaced with new. Do not install soiled material.
- B. Protect work and materials from damage by weather, entrance of water or dirt. Cap and mark conduit during installation.
- C. Avoid damage to materials and equipment in place. Repair, or remove and replace damaged work and materials.
- D. Protection and safekeeping of products stored on premises is responsibility of Contractor supplying products.
- E. Schedule of deliveries and unloading to prevent traffic congestion blocking of access or interference with work. Arrange deliveries to avoid larger accumulations of materials than can be suitably stored at site.
- F. Install equipment per manufacturer's recommendations. Conflicts between contract documents and these recommendations shall be referred to Engineer for remedy.
- G. Electrical or electronic equipment that has been damaged, exposed to weather or is, in the opinion of the Engineer or Architect, otherwise unsuitable because of improper fabrication, storage or installation shall be removed and replaced by this Contractor at his expense.

3.9 ANCHORS

- A. Provide anchors for all equipment; raceways; hangers, etc. to safely support weight of item involved plus 100% for dead loads. Live loads shall be considered in addition to dead loads.
- B. Anchors to consist of expansion type devices similar to "Redhead" or lead expansion anchors. Plastic anchors are not acceptable.
- C. Use preset anchor steel inserts in concrete slabs. Provide preset anchor size and type for anticipated or specified rod/bolt size and live/dead load.

3.10 CLEANING AND PAINTING

- A. Clean equipment furnished in this Division after completion of work. Clean wipe the interior of all conduits, pullboxes, junction boxes, outlet boxes, and panelboard backboxes, soiled with dirt and debris prior to installation of wiring.
- B. Touch-up or re-paint damaged painted finishes as determined by the Engineer.
- C. Remove debris, packing cartons, scrap, etc., from site daily.

3.11 TRAINING

- A. Training for operation and maintenance of new systems or modifications to existing systems is specified in technical sections. Contractor shall submit with record documents an itemized receipt signed by Owner's representative that all specified training has been received.

3.12 RECORD DRAWINGS

- A. Contractor shall provide, prior to final acceptance and observation, one-set of revised record electrical construction documents on reproducible medium. Also include the following information:
 - 1. Exact routing of all conduits larger than 1".
 - 2. Exact location of all service grounding/ bonding connections.
 - 3. Contractor's name, address, and telephone number.
- B. Record notations shall be clearly drawn at a drafting appearance equal to the original drawings. Contractor shall also provide all operating and maintenance manuals prior to final payment.

3.13 TESTING

- A. Prior to placing in services, all electrical systems shall be tested for opens, grounds, and phase rotation. The main service ground and all local transformers made grounds shall be megger-tested. Provide GFI testing for service switchboard.

3.14 IDENTIFICATION

- A. Provide engraved nameplates for all switchboards, panels, transformers, disconnects, motor starters, contactors, time switches and cabinets. Name plates shall be white letters on black for normal equipment and white letters on red for emergency equipment. Nameplates shall include the following information as applicable:
 - 1. Designation (i.e. Panel A).
 - 2. Function (i.e. Air Handler AH-1).
 - 3. Voltage, Phase, Wire (i.e. 480 volt, 3 phase, 4W).
 - 4. Feeder Size (i.e. 4-#4/0 THWN CU in 2" C).
 - 5. Source (i.e. Switchboards MSB)
- B. Junction, pull and connection boxes. Identification of systems and circuits shall indicate system voltage and contained circuits on outside of box cover. Use self-adhesive marking tape labels at exposed locations and indelible black marker at concealed boxes.

All fire alarm boxes shall have covers painted red. All temperature control boxes shall have covers painted blue.

- C. Branch circuit conductors shall be identified in each junction box and pull box with wire markers as manufactured by T&B, Panduit, 3M, or Ideal to indicate panel/circuit number.
- D. Junction box covers in branch circuit wiring shall be labeled with panel and circuit numbers. Junction box covers for special systems shall be labeled with system name and other identification as directed; for example, "fire alarm-zone 1". Where boxes are installed, flush mounted in finished areas or surface mounted in unfinished areas, labeling shall be with engraved plastic nameplate as specified herein. Where boxes are installed above accessible ceilings, labeling may be neat handwritten lettering with indelible marker.
- E. Device plates – Switched and receptacles. Identify the panelboard and branch circuit number from which served on the front of the device plate with Permanent Polyester Tape. Locate all labels at the bottom of the plate in the same location throughout.

3.15 ONGOING OPERATION

- A. Conduct work to minimize disruption of Owner's ongoing operations. Provide barricades, noise abatement and dust containment measures to ensure the safety and comfort of patrons, staff, and workers. Interruptions of existing power, communications or fire alarm systems shall be performed only at such times as directed by General Contractor/ Owner. Outages shall be momentary in nature. Each such outage (or operation, which may pose risk of an accidental outage) shall be scheduled 48 hours in advance.

3.16 FLEXIBLE CONNECTIONS

- A. Provide flexible electrical conduit and conductors having a slack, 90-degree bend or loop in any plane between connections at all vibration isolated equipment and the first attachment to building structure or cabinets, panels or boxes mounted thereon.

3.17 SALVAGE

- A. All existing equipment removed during the course of this project shall be offered to Owner for salvage. Any equipment selected by Owner shall be delivered to Owner on site. All remaining equipment becomes the property of this Contractor and shall be removed from the site.

GEOTECHNICAL REPORT (See Attachment)



DRAWING SCHEDULE		
SHEET	DESCRIPTION	
E0.1	ELECTRICAL LEGEND AND DRAWING SYMBOLS	
E0.2	ELECTRICAL SYMBOLS	
E0.3	ELECTRICAL SYMBOLS	
E0.4	ELECTRICAL SYMBOLS	
E0.5	ELECTRICAL SYMBOLS	
E0.6	ELECTRICAL SYMBOLS	
E0.7	ELECTRICAL SYMBOLS	
E0.8	ELECTRICAL SYMBOLS	
E0.9	ELECTRICAL SYMBOLS	
E1.0	ELECTRICAL SYMBOLS	
E1.1	ELECTRICAL SYMBOLS	
E1.2	ELECTRICAL SYMBOLS	
E1.3	ELECTRICAL SYMBOLS	
E1.4	ELECTRICAL SYMBOLS	
E1.5	ELECTRICAL SYMBOLS	
E1.6	ELECTRICAL SYMBOLS	
E1.7	ELECTRICAL SYMBOLS	
E1.8	ELECTRICAL SYMBOLS	
E1.9	ELECTRICAL SYMBOLS	
E2.0	ELECTRICAL SYMBOLS	
E2.1	ELECTRICAL SYMBOLS	
E2.2	ELECTRICAL SYMBOLS	
E2.3	ELECTRICAL SYMBOLS	
E2.4	ELECTRICAL SYMBOLS	
E2.5	ELECTRICAL SYMBOLS	
E2.6	ELECTRICAL SYMBOLS	
E2.7	ELECTRICAL SYMBOLS	
E2.8	ELECTRICAL SYMBOLS	
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NOTE: THIS IS A MASTER SYMBOL LIST. IT MAY BE THAT NOT ALL SYMBOLS SHOWN ARE USED WITHIN THIS SET OF PLANS. (CIRTS GIVEN ARE TO TOP OF BOX)



GREAT BASIN WATER COMPANY
SPRING CREEK WELL & REPLACEMENT
ELECTRICAL SPECIFICATIONS

PERMIT DOCUMENTS
NOT FOR CONSTRUCTION
APRIL 2022

E0.2



SECTION 16000 ELECTRICAL SPECIFICATIONS

16-0000 - GENERAL

1. SUMMARY

A. SECTION INCLUDES

1. ALL ELECTRICAL WORK

2. ALL ELECTRICAL MATERIALS AND EQUIPMENT

B. RELATED SECTIONS

1. 160000 - ELECTRICAL

2. 160000 - ELECTRICAL

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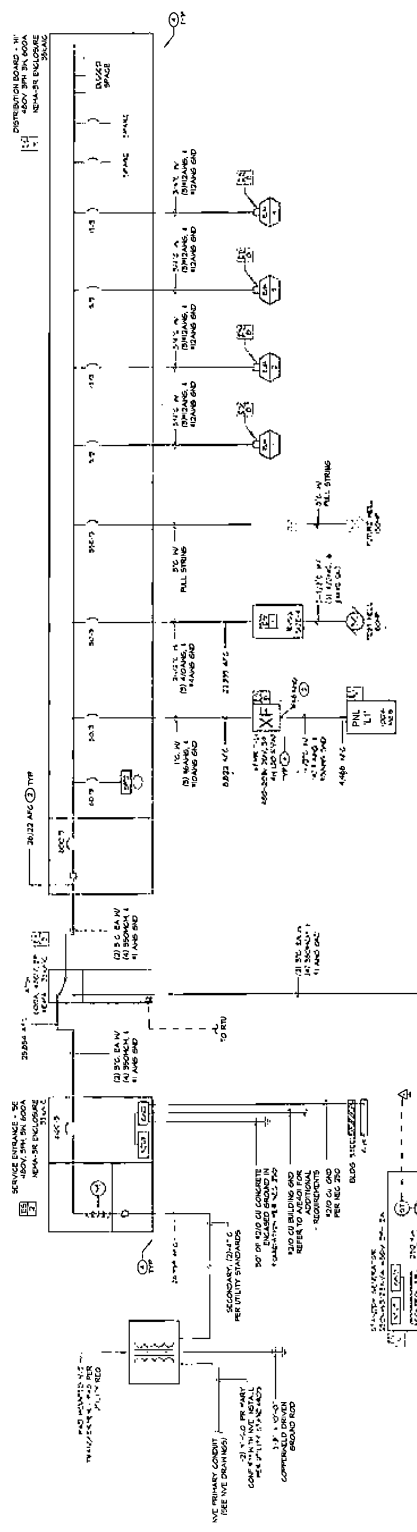
GREAT BASIN WATER COMPANY SPRING CREEK WELL 8 REPLACEMENT ONLINE DIAGRAM AND LOAD CALC.

PERMIT DOCUMENTS
NOT FOR CONSTRUCTION
APRIL, 2022

E0.3



A



- ### GENERAL NOTES
- PANELBOARD AND BREAKER INTERRUPTING CAPACITIES (AIC) SHALL BE RATED AS AN AIC RATED EQUIPMENT OF SUCH DESIGN AND CAPACITY AS REQUIRED.
 - ALL ELECTRICAL WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL ORDINANCES.
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- ### SHEET NOTES
- CONDUCTORS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL ORDINANCES.
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A ONELINE DIAGRAM

C PANEL SCHEDULE

TYPE	DESCRIPTION	LOAD SCHEDULE	TYPE
1	200A 480V		1
2	100A 480V		2
3	100A 480V		3
4	200A 480V		4
5	100A 480V		5
6	100A 480V		6
7	200A 480V		7
8	100A 480V		8
9	100A 480V		9
10	200A 480V		10
11	100A 480V		11
12	100A 480V		12
13	200A 480V		13
14	100A 480V		14
15	100A 480V		15
16	200A 480V		16
17	100A 480V		17
18	100A 480V		18
19	200A 480V		19
20	100A 480V		20
21	100A 480V		21
22	200A 480V		22
23	100A 480V		23
24	100A 480V		24
25	200A 480V		25
26	100A 480V		26
27	100A 480V		27
28	200A 480V		28
29	100A 480V		29
30	100A 480V		30

B SERVICE CALCULATION

LOAD CALCULATION: SERVICE ENTRANCE - SE

DESCRIPTION	WATT	VOLTS	AMPS	WATT	WATT
1					
2					
3					
4					
5					
6					
7					
8					
9					
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TOTAL					

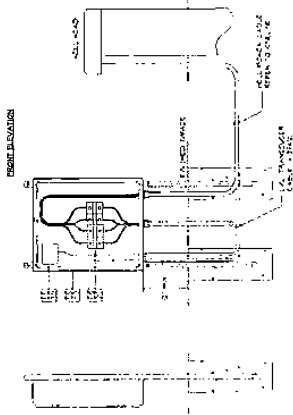


GREAT BASIN WATER COMPANY
 SPRING CREEK WELL 8 REPLACEMENT
 DETAILS

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 APRIL, 2022

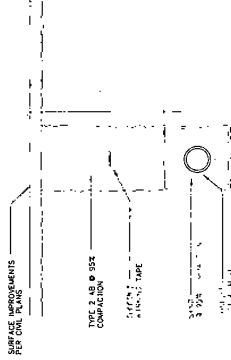
E0.4

DRAWN BY: [Redacted]
 DESIGNED BY: [Redacted]
 CHECKED BY: [Redacted]
 JOB NO.: [Redacted]



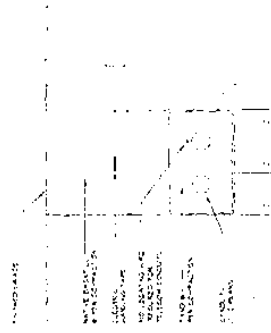
A WELL HEAD TERMINATION DETAIL

E0.4 SCALE: NONE



B TYP. NON-UTILITY TRENCH DETAIL

E0.4 SCALE: NONE



C TYPICAL 2 CONDUIT TRENCH DETAIL

E0.4 SCALE: NONE



PK Electrical, Inc.
 Engineering Design Consulting



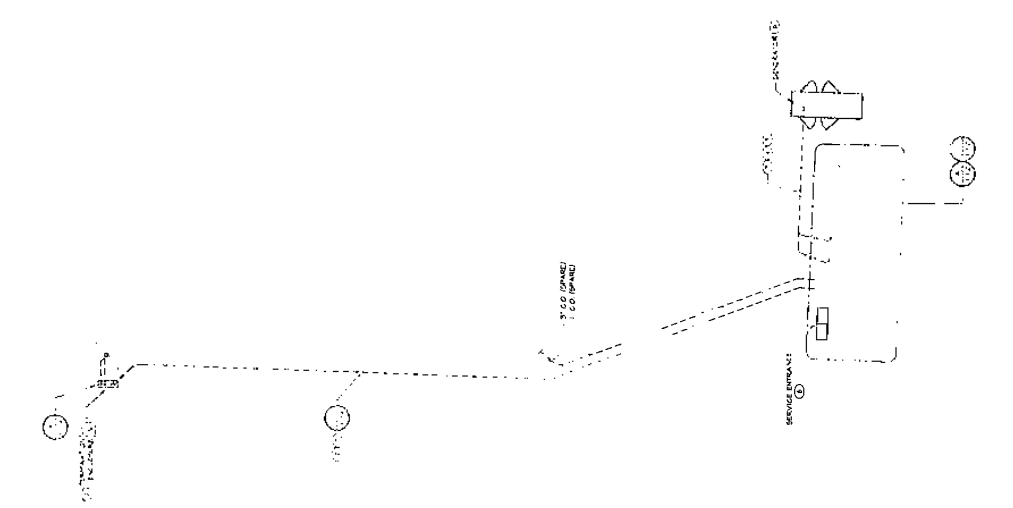
GENERAL NOTES

1. SEE SERVICE DIAGRAMS FOR CONDUIT, WIRE SIZES AND EQUIPMENT REQUIREMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR CONSTRUCTION FROM ALL AFFECTED AGENCIES AND AGENCIES OF LOCAL GOVERNMENT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR CONSTRUCTION FROM ALL AFFECTED AGENCIES AND AGENCIES OF LOCAL GOVERNMENT.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL 800-371-3600 FOR LOCATED WORK TO BE PERFORMED UNDER ANY EXISTING UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE ALL UTILITIES AND DEEPENING ITEMS.
5. THE MINIMUM NUMBER OF CONDUIT BENDS SHOULD NOT BE GREATER THAN TWO DEGREES PER BEND. ALL BENDS SHALL BE MADE WITH 90 DEGREE BENDS.
6. ALL CONDUIT, METEORIC, PULLBORES AND VALVES SHALL BE LABELED PER THE SPECIFICATIONS.
7. ALL CONDUIT SHALL BE INSTALLED AT A MINIMUM OF 18" FROM ALL EXISTING UTILITIES.
8. REMOVE AND REPLACE ALL LANDSCAPING AND HARDSCAPING DAMAGED BY INSTALLATION INCLUDING BUT NOT LIMITED TO REGULATION LINES, LAND PLANTING, SIDEWALKS, CURBS, BATTERIES, ETC.

SHEET NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES.
2. PROVIDE FEEDER CONDUIT/CONDUIT FROM GENERATOR TO THIS SECTION AS INDICATED ON THESE DIAGRAMS.
3. PROVIDE FEEDER CONDUIT/CONDUIT FROM GENERATOR TO THIS SECTION AS INDICATED ON THESE DIAGRAMS. PROVIDE CONNECTION AND MOUNTING ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND EQUIPMENT DATA SHEETS.
4. PROVIDE SMOOTH CONNECTION BETWEEN GENERATOR AND RAY AS INDICATED ON THIS DIAGRAM.
5. REFER TO SHEET E1.2 FOR THE ELECTRICAL SCHEMATIC AND CONDUIT SCHEDULES.

A.P.N. 047-001-061





ENLARGED POWER & SIGNAL PLAN

PERMIT DOCUMENTS
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APRIL 2022

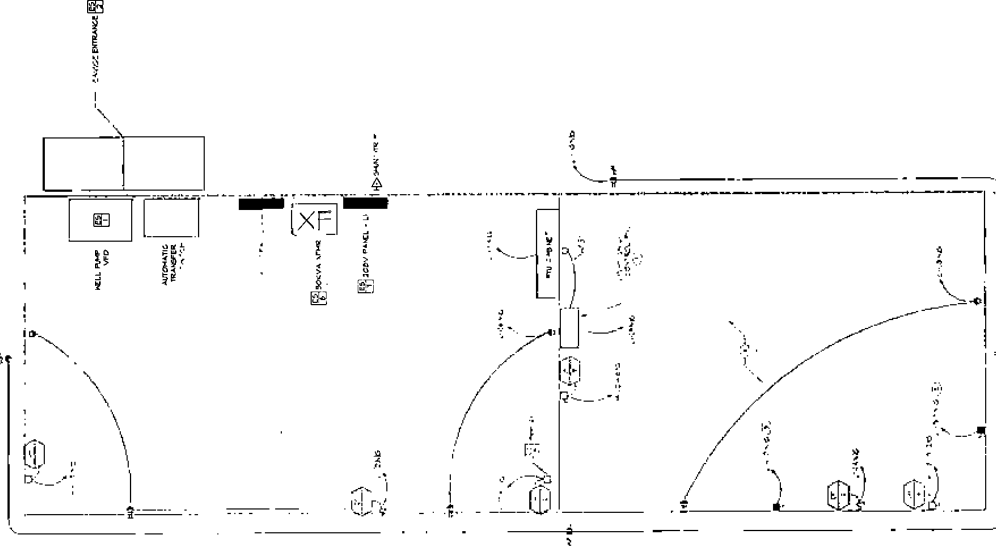
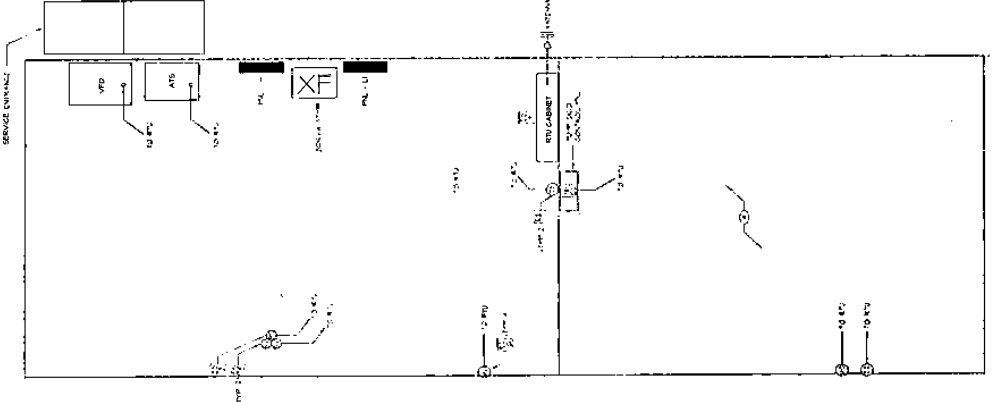
E1.2

GREAT BASIN WATER COMPANY

- GENERAL NOTES**
- 1. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ALL NECESSARY ASSIGNED WITH MECHANICAL EQUIPMENT CONTROL, SHALL BE PROVIDED AND INSTALLED AND CONTRACTORS REQUIRED FOR CONTROL, SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
 - 2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
 - 3. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
 - 4. INFORMATION ON VOLTAGE / MECHANICAL DRAWINGS SUPERSEDES INFORMATION SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR TO VERIFY ALL INFORMATION IS CORRECT.
 - 5. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING ELECTRICAL INFORMATION ON ALL MECHANICAL EQUIPMENT INSTALLED SHOULD THERE BE MECHANICAL DRAWING CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY FOR CORRECTIONS AND REVISIONS.

SHEET NOTES

- 1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
- 2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
- 3. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
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- 5. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.



B ENLARGED SIGNAL PLAN
E1.2

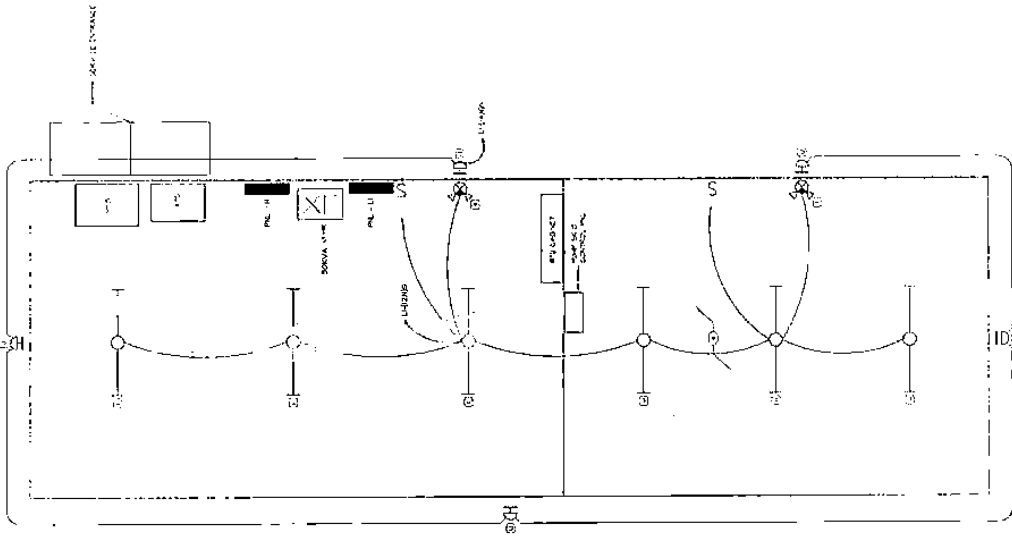
A ENLARGED POWER PLAN
E1.2





- GENERAL NOTES**
- 1. LIGHT FIXTURES FOR EXTERIOR BUILDING MOUNTED LIGHTING AND LIGHTING FIXTURES IS NOT PERMITTED TO BE BE PLACED ON THE EXTERIOR OF THE BUILDING FRONT OR SIDE.
 - 2. ALL LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - 3. LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - 4. ALL LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

- SHEET NOTES**
- 1. ALL LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
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 - 3. ALL LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



A ENLARGED LIGHTING PLAN
 E1.3



PK Electrical, Inc.



Structural Calculations

for

Site: Michael Hardy
317 Scrub Oak Drive
Spring Creek, NV 89815

Project: 12:0' x 36:0'
Shed
SO# 1913322

Store: 440 - Reno
1050 Matley Lane
Reno, NV 89502

Engineer: Richard J. Wills, P.E.
Tuff Shed Inc.
1777 South Harrison St., Ste. 600
Denver, CO 80210
(303) 753-8833 ext. 96315
RWills@tuffshed.com

Date: March 21, 2023

21 MAR 2023

Page 1 of 9



DESIGN CRITERIA

Building Code: 2018 IBC
Seismic Design Category: D
Basic Wind Speed: 110 mph
Wind Exposure: C

Building Specifications

Width: 12.0 ft.
Length: 36.0 ft.
Side Wall Height: 11.25 ft.
Stud Size: 2x4
Stud Spacing: 16 in. o.c.
Wall Sheathing: 3/8" Smartside Panel
Roof Sheathing: 7/16" OSB
Wall Wood Species & Grade: HF Stud
Wall "A" Overhang: 4.0 in.
Wall "B" Overhang: 3.0 in.
Wall "C" Overhang: 4.0 in.
Wall "D" Overhang: .0 in.
Foundation: Concrete - Monolithic Foundation with Curb
Anchor: J- or L-Bolts
Anchor Bolt Diameter: .5 in.

Trusses

Span: 12.0 ft.
Left Overhang: 3.0 in.
Right Overhang: .0 in.

Pitch: 3/12
Lumber: HF #2
Roofing: Metal Roofing
Top Chord Live/Snow Load: 30 psf
Top Chord Dead Load: 10 psf
Bottom Chord Live Load: 0 psf
Bottom Chord Dead Load: 0 psf

Risk Category: II-Regular

Header: Wall D, Hdr 1

Top Chord Live/Snow Load: 30 psf Top Chord Dead Load: 10 psf Bottom Chord Live Load: 0 psf Bottom Chord Dead Load: 0 psf		Tributary Width= 7.0 ft. Height of wall above Header= 5.50 ft. Moment= 8,550 in.-lbs. Reaction= 691 lbs	
Header Size: 2x4 Number of Headers: 2 Header depth= 3.50 in Total header width= 3.0 in Header span= 4.13 ft Bending S _x = 6.13 cu in. F _b = 1459 psi f _b = 1396 psi Good/No Good? O.K. Shear F _v = 173 psi f _v = 99 psi Good/No Good? O.K. Deflection E= 1,300,000 psi I= 10.719 Deflection Ratio= L/180 Allowable Deflection= .28 in. Δ= .16 in. Good/No Good? O.K.	OR	Header Size: 1½x3½ LVL Number of Headers: 2 Header depth= 3.50 in Total header width= 3.50 in Header span= 4.13 ft Bending S _x = 7.15 cu in F _b = 2979 psi f _b = 1197 psi Good/No Good? O.K. Shear F _v = 328 psi f _v = 85 psi Good/No Good? O.K. Deflection E= 1,900,000 psi I= 12.505 Deflection Ratio= L/180 Allowable Deflection= .28 in. Δ= .09 in. Good/No Good? O.K.	
Lumber HF #2 F _b = 850 psi F _t = 525 psi F _v = 150 psi F _{cp} = 405 psi F _c = 1300 psi E= 1,300,000 psi E _{min} = 470,000 psi Lumber Factors C _D = 1.15 Duration C _M = 1.00 Wet Service C _t = 1.00 Temperature C _L = 0.99 Beam Stability C _F = 1.50 Size C _{fu} = 1.00 Flat Use C _i = 1.00 Incising C _r = 1.00 Repetitive Member Form TL (L/x) L/240 LL(L/x) 12 in		Lumber LVL 2600Fb F _b = 2600 psi F _t = 1555 psi F _v = 285 psi F _{cp} = 750 psi F _c = 2510 psi E= 1,900,000 psi E _{min} = 965,710 psi Lumber Factors C _D = 1.15 Duration C _M = 1.00 Wet Service C _t = 1.00 Temperature C _L = 1.00 Beam Stability C _F = 1.00 Size C _{fu} = 1.00 Flat Use C _i = 1.00 Incising C _r = 1.00 Repetitive Member Form TL(L/x) L/240 LL(L/x) 28 in 07 in	

Header: Wall D, Hdr 2

Top Chord Live/Snow Load: 30 psf Top Chord Dead Load: 10 psf Bottom Chord Live Load: 0 psf Bottom Chord Dead Load: 0 psf		Tributary Width= 6.50 ft. Height of wall above Header= 5.0 ft. Moment= 19,646 in.-lbs. Reaction= 1008 lbs	
Header Size: 2x8 Number of Headers: 2 Header depth= 7.25 in Total header width= 3.0 in Header span= 6.50 ft Bending S _x = 26.28 cu in F _b = 1154 psi f _b = 748 psi Good/No Good? O.K. Shear F _v = 173 psi f _v = 69 psi Good/No Good? O.K. Deflection E= 1,300,000 psi I= 95.26953125 Deflection Ratio= L/180 Allowable Deflection= 43 in Δ= 10 in. Good/No Good? O.K.	OR	Header Size: 1½x7½ LVL Number of Headers: 2 Header depth= 7.25 in Total header width= 3.50 in Header span= 6.50 ft Bending S _x = 30.66 cu in F _b = 2947 psi f _b = 641 psi Good/No Good? O.K. Shear F _v = 328 psi f _v = 60 psi Good/No Good? O.K. Deflection E= 1,900,000 psi I= 111.1477865 Deflection Ratio= L/180 Allowable Deflection= 43 in Δ= .06 in. Good/No Good? O.K.	
Lumber HF #2 F _b = 850 psi F _t = 525 psi F _v = 150 psi F _{cp} = 405 psi F _c = 1300 psi E= 1,300,000 psi E _{min} = 470,000 psi Lumber Factors C _D = 1.15 Duration C _M = 1.00 Wet Service C _t = 1.00 Temperature C _L = 0.98 Beam Stability C _F = 1.20 Size C _{fu} = 1.00 Flat Use C _i = 1.00 Incising C _r = 1.00 Repetitive Member Form TL (L/x) L/240 LL(L/x) .33 in. 08 in.		Lumber LVL 2600Fb F _b = 2600 psi F _t = 1555 psi F _v = 285 psi F _{cp} = 750 psi F _c = 2510 psi E= 1,900,000 psi E _{min} = 965,710 psi Lumber Factors C _D = 1.15 Duration C _M = 1.00 Wet Service C _t = 1.00 Temperature C _L = 0.99 Beam Stability C _F = 1.00 Size C _{fu} = 1.00 Flat Use C _i = 1.00 Incising C _r = 1.00 Repetitive Member Form TL(L/x) L/240 LL(L/x) 43 in 05 in	

Trimmer for: Header: Wall D, Hdr 1		Trimmer for: Header: Wall D, Hdr 2	
<p>Load= 691 lbs width= 3.50 in thickness= 1.50 in No. of members= 1 Unbraced Length(x)(width)= 90.0 in Unbraced Length(y)(thickness)= 6.0 in Effective Length factor, K_{eff}= 1 Effective Length factor, K_{eff}= 1</p>		<p>Load= 1,008 lbs width= 3.50 in thickness= 1.50 in No. of members= 1 Unbraced Length(x)(width)= 90.0 in Unbraced Length(y)(thickness)= 6.0 in Effective Length factor, K_{eff}= 1 Effective Length factor, K_{eff}= 1</p>	
<p><i>HF Stud</i> F_b= 675 psi F_t= 400 psi F_v= 150 psi F_{cp}= 405 psi F_c= 800 psi E_{min}= 440,000 psi</p>		<p><i>HF Stud</i> F_b= 675 psi F_t= 400 psi F_v= 150 psi F_{cp}= 405 psi F_c= 800 psi E_{min}= 440,000 psi</p>	
<p><i>Lumber Factors</i> C_D= 1.15 Duration C_M= 1.00 Wet Service C_t= 1.00 Temperature C_L= 1.00 Beam Stability C_P= 1.05 Size C_u= 1.00 Flat Use C_i= 1.00 Incising C_r= 1.00 Repetitive Member C_f= 1.00 Form C_y= 1.00 Buckling Stiffness</p>		<p><i>Lumber Factors</i> C_D= 1.15 Duration C_M= 1.00 Wet Service C_t= 1.00 Temperature C_L= 1.00 Beam Stability C_P= 1.05 Size C_u= 1.00 Flat Use C_i= 1.00 Incising C_r= 1.00 Repetitive Member C_f= 1.00 Form C_y= 1.00 Buckling Stiffness</p>	
<p><i>Weak Axis Calculations (y)</i> F_{ce}= 22605.00 F^*_c= 966.00 F_{ce}/F^*_c= 23.40 $1+F_{ce}/F^*_c/2c$= 15.25 C_P= 0.99 F'_c= 957.53 $P_{allowable}$= 5,027 lbs.</p>		<p><i>Strong Axis Calculations (x)</i> F_{ce}= 546.99 F^*_c= 966.00 F_{ce}/F^*_c= 0.57 $1+F_{ce}/F^*_c/2c$= 0.98 C_P= 0.48 F'_c= 462.19 $P_{allowable}$= 2,426 lbs</p>	
<p>Good/No Good? O.K.</p>		<p>Good/No Good? O.K.</p>	



SEISMIC CALCULATIONS

Building Code: 2018 IBC

Seismic Design Classification: D

Site Class: D

$S_s = 0.634$	Figure 22-1
$F = 1$	Section 12.14.8.1
$F_a = 1.285$	Table 11.4-1
$R = 6.5$	Table 12.14-1
$I = 1$	Table 11.5-1
$\rho = 1.30$	
$W = 9,892 \text{ lbs.}$	
$S = \text{lbs.}$	20% of snow weight (if applicable)
$S_{DS} = 0.54$	Eq. 12.14-11
$V = 1,074 \text{ lbs.}$	Eq. 12.14-11

Wind Calculations (MWFRS)													
ASCE 7-16 Chapt. 28 Part 1													
Wind Speed, V_{ASD} : 85 mph Basic Wind Speed, V : 110 mph Wind Exposure: C Risk Category: II-Regular Roof Angle= 14.04 Gable Wall Span= 12.0 ft. Longitude Wall Span= 36.0 ft. Overall Roof Height= 12.75 ft. Mean Roof Height= 12.0 ft. Enclosure Classification: Enclosed													
Sections 26.12 & 26.13 Section 26.8 Table 26.10-1 Table 26.6-1 Table 26.9-1 Table 26.11-1 Eq. 26.10-1													
$K_d = 1$ $K_e = 0.85$ $K_z = 0.85$ $K_{d1} = 1$ $GC_{pi} = \pm 0.18$ $q_n = 22.38 \text{ psf}$													
U	1	2	3	4	5	6	1E	2E	3E	4E	5E	6E	
	0.48	-0.69	-0.44	0.37	N/A	N/A	0.72	-1.07	-0.63	-0.56	N/A	N/A	
U	-0.46	-0.69	-0.37	-0.45	0.40	-0.29	-0.48	-1.07	-0.53	-0.48	0.61	-0.43	
p	Load Case A (-GC _{pi})	6.68 psf	-19.47 psf	-13.79 psf	-12.41 psf	N/A	N/A	12.19 psf	-27.98 psf	-18.05 psf	-16.48 psf	N/A	N/A
	Load Case A (+GC _{pi})	14.73 psf	-11.41 psf	-5.74 psf	-4.35 psf	N/A	N/A	20.24 psf	-19.92 psf	-9.99 psf	-8.43 psf	N/A	N/A
	Load Case B (-GC _{pi})	-14.10 psf	-19.47 psf	-12.31 psf	-14.10 psf	4.92 psf	-10.52 psf	-14.77 psf	-27.98 psf	-15.89 psf	-14.77 psf	19.62 psf	-13.65 psf
	Load Case B (+GC _{pi})	-6.04 psf	-11.41 psf	-4.25 psf	-6.04 psf	12.98 psf	-2.46 psf	-6.71 psf	-19.92 psf	-7.83 psf	-6.71 psf	17.68 psf	-5.60 psf
max. $p_c = 20.24 \text{ psf}$ Side Wall, maximum wind pressure max. $p_r = 17.68 \text{ psf}$ Gable End Wall, maximum wind pressure max. $p_{roof} = -27.98 \text{ psf}$ $V_L = 756 \text{ lbs.}$ Max. Longitudinal Shear per wall $V_T = 2,596 \text{ lbs.}$ Max. Transversal Shear per wall Max. uplift pressure = -12,585-lbs. Max. uplift pressure on the building due to wind on roof													
Diaphragm Calculations													
Length (for shear) :- Wall A: 12.0 ft. Wall B: 36.0 ft. Wall C: 12.0 ft. Wall D: 26.0 ft.													
Sheathing*		Nail Size	Edge Nailing	Boundary Nailing	v_{allow}	RF	SPF Factor						
Roof	7/16" OSB	8d	6 in. o.c.	12 in. o.c.	$v = 180.0 \text{ plf}$	167.4 plf	0.93						
Wall	3/8" Smartside Panel	8d	6 in. o.c.	12 in. o.c.	$v = 200.0 \text{ plf}$	164.0 plf	0.82						
Wall	3/8" Smartside	8d	4 in. o.c.	12 in. o.c.	$v = 300.0 \text{ plf}$	246.0 plf	0.82						
*Must be Rated sheathing													
Wind		Seismic		V_{allow}	C_D	2b/h	edge nailing	Wall Sheathing					
Wall A:	129.8 plf	Wall A:	31.3 plf	164.0 plf	$C_D = 1.00$	1.00	6" o.c.	3/8" Smartside Panel					
Wall B:	12.6 plf	Wall B:	10.4 plf	164.0 plf	$C_D = 1.00$	1.00	6" o.c.	3/8" Smartside Panel					
Wall C:	129.8 plf	Wall C:	31.3 plf	164.0 plf	$C_D = 1.00$	1.00	6" o.c.	3/8" Smartside Panel					
Wall D:	17.4 plf	Wall D:	14.5 plf	116.6 plf	$C_D = 1.00$	0.71	6" o.c.	3/8" Smartside Panel					
Roof:	12.6 plf			167.4 plf									

Foundation Calculations	
<p>$F_b = 1500$ psf Foundation Stem above grade= 6.0 in Foundation Depth= 36.0 in $P_{max} = 362.5$ plf $b_{hg} = 2.9$ in $PL_{max} = 1,008$ lbs. $b_{hg} = 96.72$ sq in Rectangular pad= 1.15 in</p>	<p>Min. allowable bearing pressure Height of foundation from the top of the grade to the top of the foundation/stemwall Depth of the foundation from the top of the grade to the bottom of the footing Max. load per foot of wall min. required footing width Maximum point load Min. required footing area min. required footing width</p>
Overturning Calculations	
<p>Wall A Min. No. anchor bolts= 3 Width= 12.0 ft Height= 11.25 ft. $P_{wind} = 2,596$ lbs. $P_{seismic} = 537$ lbs. Wall Weight= 818.0 lbs. Uplift_{wind}= 1,051.34 lbs Uplift_{seismic}= 0 lbs.</p> <p>Allowable Service, wind: 1.09 Allowable Service, seismic: 0.06</p>	<p>Wall B Min. No. anchor bolts= 5 Width= 36.0 ft. Height= 11.25 ft. $P_{wind} = 756$ lbs. $P_{seismic} = 537$ lbs. Wall Weight= 2,467.50 lbs. Uplift_{wind}= .0 lbs. Uplift_{seismic}= .0 lbs.</p> <p>Allowable Service, wind: 0.05 Allowable Service, seismic: 0.03</p> <p style="text-align: center;">ok. No additional holddowns required.</p>
<p>Wall C Min. No. anchor bolts= 3 Width= 12.0 ft Height= 11.25 ft. $P_{wind} = 2,596$ lbs. $P_{seismic} = 537$ lbs. Wall Weight= 818.0 lbs. Uplift_{wind}= 1,051.34 lbs. Uplift_{seismic}= 0 lbs.</p> <p>Allowable Service, wind: 1.09 Allowable Service, seismic: 0.06</p>	<p>Wall D Min. No. anchor bolts= 4 Width= 26.0 ft Height= 11.25 ft $P_{wind} = 756$ lbs. $P_{seismic} = 537$ lbs. Wall Weight= 1,791.0 lbs. Uplift_{wind}= .0 lbs. Uplift_{seismic}= .0 lbs.</p> <p>Allowable Service, wind: 0.07 Allowable Service, seismic: 0.04</p> <p style="text-align: center;">ok. No additional holddowns required.</p>
Building Uplift	
<p>Wind uplift= -12,565.53 lbs Min. building weight= 5,935.0 lbs Additional min. dead load= 0 lbs. Net uplift= -6,630.53 lbs Total no. of anchor bolts (min.)= 15 Anchor bolt uplift= 34,804.69 lbs.</p> <p style="text-align: center;">OK. No additional anchors needed.</p>	<p>additional dead load due to steel floor, wood base, or other permanent loads, if any, (not including foundation) (Does not include additional holddowns for overturning of the walls)</p>
Max. Seismic Uplift	
<p>Seismic uplift= 5,935.0 lbs Total no. of anchor bolts (min.)= 15 Anchor bolt uplift= 34,804.69 lbs</p> <p style="text-align: center;">OK. No additional anchors needed.</p>	<p>($0.6-0.14S_{DS}$)D+0.7E (Does not include additional holddowns for overturning of the walls)</p>



Bearing Wall Calculations

Axial Load

Stud Spacing= 16 in o.c.
Max. Load on wall= 362.5 plf

depth= 3.50 in.
width= 1.50 in.

No. of members= 1

Length (depth)= 130.5 in.
Length (width)= 12.0 in.

$K_{e(x)} = 1$

$K_{e(y)} = 1$

$K_{CE} = 0.3$

$c = 0.8$

Load= 483 lbs.

unbraced length (depth)(x)(in.)

unbraced length (width)(y)(in.)

effective length factor (x)

effective length factor (y)

Load per stud

$A = 5.25 \text{ sq.in.}$

$(l/d)_x = 37.29$

$(l/d)_y = 8.00$

$E_{min} = 440,000 \text{ psi}$

Weak Axis Calculations(y)

$F_{CE} = 5651.25$

$F^*_c = 966.00$

$F_{CE}/F^*_c = 5.85$

$1 + F_{CE}/F^*_c/2c = 4.28$

$C_{PF} = 0.96$

$F'_c = 929.41$

$P_{allowable} = 4,879 \text{ lbs.}$

Good/No Good? **O.K.**

Lumber

HF Stud

$F_b = 675 \text{ psi}$

$F_t = 400 \text{ psi}$

$F_v = 150 \text{ psi}$

$F_{CP} = 405 \text{ psi}$

$F_c = 800 \text{ psi}$

$E_{min} = 440,000 \text{ psi}$

$E = 1,200,000 \text{ psi}$

Lumber Factors

$C_D = 1.15$ Duration for gravity load

$C_M = 1.00$ Wet Service

$C_t = 1.00$ Temperature

$C_L = 1.00$ Beam Stability

$C_P = 1.05$ Size for F_c

$C_{Fu} = 1.00$ Flat Use

$C_i = 1.00$ Incising

$C_r = 1.15$ Repetitive Member

$C_T = 1.00$ Form

$C_{T1} = 1.00$ Buckling Stiffness (NDS 4.4.2)

$C_{T2} = 1.10$ Size for F_b

$C_D = 1.60$ Duration for lateral load

$C_r = 1.50$ Repetitive Member (wind)

Strong Axis Calculations(x)

$F_{CE} = 260.16$

$F^*_c = 966.00$

$F_{CE}/F^*_c = 0.27$

$1 + F_{CE}/F^*_c/2c = 0.79$

$C_{PF} = 0.25$

$F'_c = 243.71$

$P_{allowable} = 1,279 \text{ lbs.}$

Good/No Good? **O.K.**

Wind Load

Wind load per stud= 27.0 plf
Moment= 4,788 in.-lbs.
Reaction= 147 lbs.

Header depth= 3.50 in.
Total header width= 1.50 in.
Header span= 8.0 ft.

Bending

$S_x = 3.06 \text{ cu.in.}$

$F_b = 1782 \text{ psi}$

$f_b = 1563 \text{ psi}$

Good/No Good? **O.K.**

Shear

$F_v = 240 \text{ psi}$

$f_v = 42 \text{ psi}$

Good/No Good? **O.K.**

Combined Bending and Axial Loading

$F'_c = 339.08$ combine allowable compressive stress

$f_c = 23 \text{ psi}$ combine compressive stress

Combined stress index= 0.97

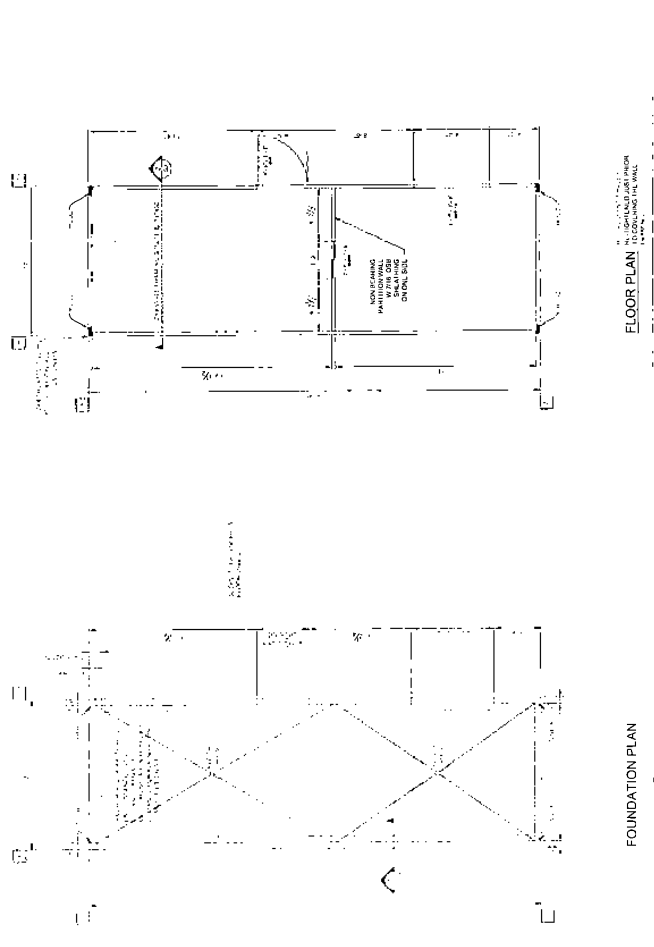
Good/No Good? **O.K.**

NAILING SCHEDULE	SHEAR WALL SCHEDULE	SHEAR WALL SCHEDULE	SHEAR WALL SCHEDULE
<p>MINIMUM BLOCKING TO TOP PLATE (1) 16" MINIMUM TOTAL 12" USED FOR SHEAR WALLING</p> <p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>	<p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>	<p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>	<p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>
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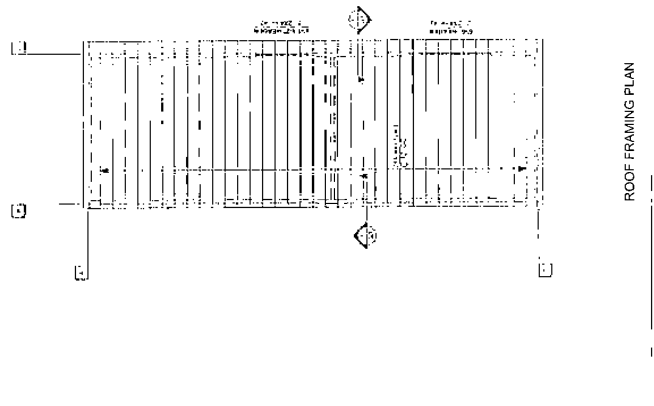
NAILING SCHEDULE	SHEAR WALL SCHEDULE	SHEAR WALL SCHEDULE	SHEAR WALL SCHEDULE
<p>MINIMUM BLOCKING TO TOP PLATE (1) 16" MINIMUM TOTAL 12" USED FOR SHEAR WALLING</p> <p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>	<p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>	<p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>	<p>2x4 FRAMING SHEATHED EXTERIOR WITH 3/8" SMARTSIDE WITH FOLLD BUCKING</p> <p>12" UP LONG TOTAL 12" USED FOR SHEAR WALLING</p> <p>FIELD 36" COMMON @ 12" OC</p> <p>NO HOLD DOWNS REQUIRED</p>
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WHEN PRESENTED SHEAR WALL DESIGN IS DESIGNATED AREAS ABOVE AND BELOW OF CHANGES ARE SHOWN IN SHEAR CALCULATIONS. REFER TO ANSWMAN SDWPS

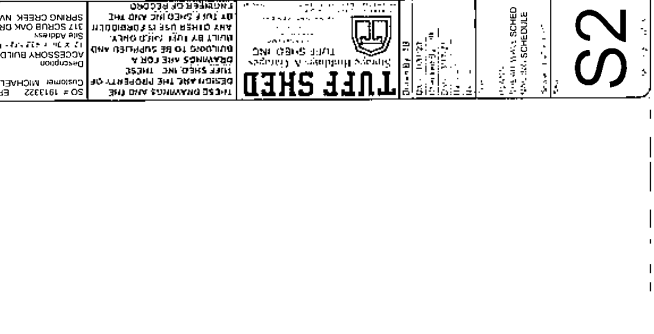
WHEN PRESENTED SHEAR WALL DESIGN IS DESIGNATED AREAS ABOVE AND BELOW OF CHANGES ARE SHOWN IN SHEAR CALCULATIONS. REFER TO ANSWMAN SDWPS



FOUNDATION PLAN



FLOOR PLAN



ROOF FRAMING PLAN

TUFF SHED
LIFE SHED INC.
1750 S. HARRISON STREET
SPRING CREEK, NV 89315

DESIGN AND THE PROPERTY OF
MICHAEL HANLEY
CONSUMER


20 # 103222 EP # 4533

S2

NO. 103222 EP # 4533

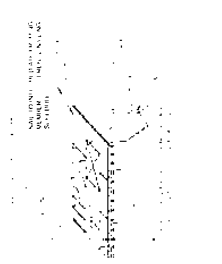
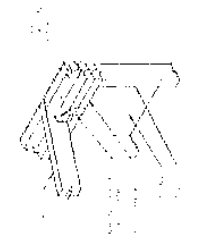
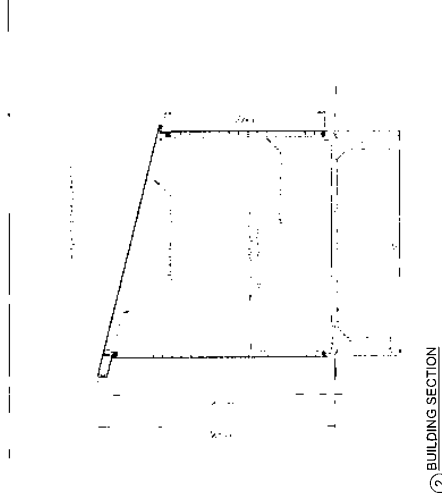
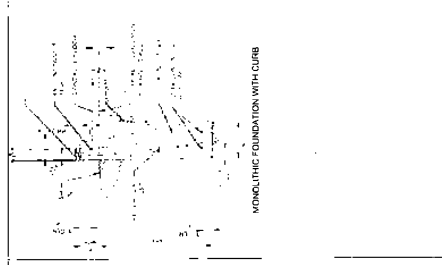
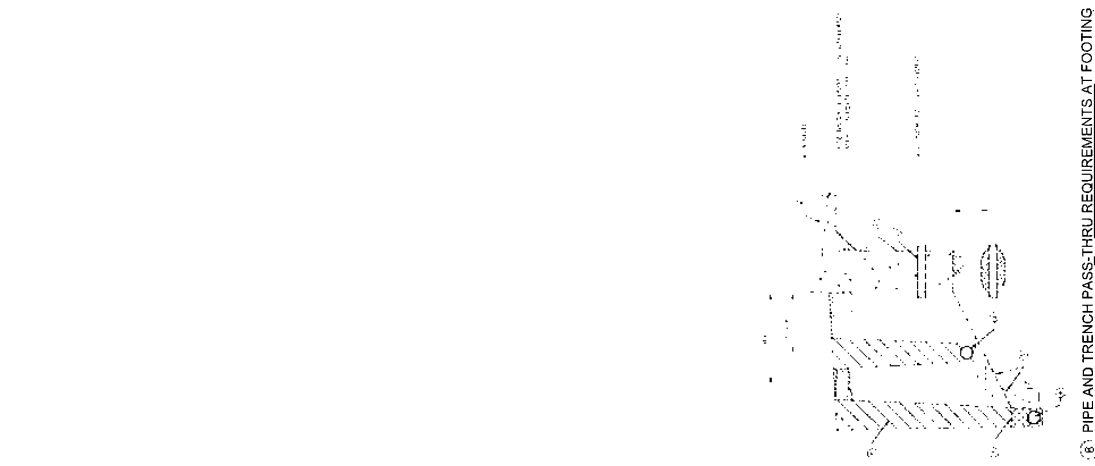
NO. 103222 EP # 4533

NO. 103222 EP # 4533

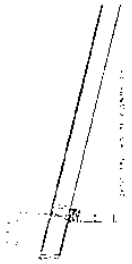
 TUFF SHED Tuff Shed Inc. 1256 E. 43rd St. Spring Creek, NV 89915	THESE DRAWINGS AND THE DESIGN ARE THE PROPERTY OF TUFF SHED, INC. THESE DRAWINGS ARE FOR A BUILDING TO BE SUPPLIED AND BUILT BY TUFF SHED ONLY. ANY OTHER USE IS FORBIDDEN BY TUFF SHED INC AND THE ENGINEER OF RECORD.
	SO # 191322 EP # 14513 Designer MICHAEL HARDY ACCESSORY BUILDING 1256 E. 43RD ST. SPRING CREEK, NV 89915
1. MAKE SURE TO... 2. MAKE SURE TO... 3. MAKE SURE TO...	THESE DRAWINGS AND THE DESIGN ARE THE PROPERTY OF TUFF SHED, INC. THESE DRAWINGS ARE FOR A BUILDING TO BE SUPPLIED AND BUILT BY TUFF SHED ONLY. ANY OTHER USE IS FORBIDDEN BY TUFF SHED INC AND THE ENGINEER OF RECORD.

S3
 SHEET 1 OF 3

SECTIONS



FOR OPENINGS IN...
 OTHERWISE NOTED



PIPE AND TRENCH PASS-THRU REQUIREMENTS AT FOOTING

BUILDING SECTION

SHEAR TRANSFER DETAIL

L

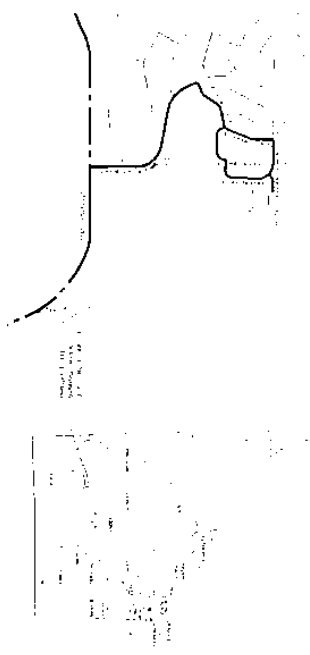
GREAT BASIN WATER COMPANY SPRING CREEK DIVISION

WELL 8 REPLACEMENT

APN: 047-001-061
WATER RIGHTS PERMIT NO. 91722T

OWNER
GREAT BASIN WATER COMPANY
ATTN: SEAN ASHCRAFT
448 TONKA LANE UNIT 3
SPRING CREEK, NV 89615
TEL: (775) 537-8207

ENGINEER
950 SANDHILL ROAD, SUITE 100
RENO, NEVADA 89521
TEL: 775.827.8111
INFO@LUMDSINC.COM



LOCATION MAP

VICINITY MAP

SHEET INDEX:

- 1. TITLE SHEET
- 2. BASIS OF BEARINGS
- 3. BASIS OF ELEVATIONS
- 4. REFERENCES
- 5. WELL 8 REPLACEMENT
- 6. WELL 8 REPLACEMENT
- 7. WELL 8 REPLACEMENT
- 8. WELL 8 REPLACEMENT
- 9. WELL 8 REPLACEMENT
- 10. WELL 8 REPLACEMENT
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- 49. WELL 8 REPLACEMENT
- 50. WELL 8 REPLACEMENT

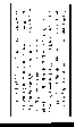
BASIS OF BEARINGS
THE BASIS OF BEARINGS FOR THIS SURVEY IS NEVADA STATE PLUMB COMPASS SYSTEM (NAD 83 ZONE 10N)

BASIS OF ELEVATIONS
THE BASIS OF ELEVATIONS FOR THIS SURVEY IS THE NATIONAL MEAN SEA LEVEL DATUM (MSSLD) OF 1988

REFERENCES
1. U.S. GEOLOGICAL SURVEY, RECORD OF LAND COUNTY STATE OF NEVADA



Know what's below
Call before you dig.



GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
SPRING CREEK WELL 8 REPLACEMENT
TITLE SHEET

PERMIT SET
JULY 2022

C1.0
DATE: 7/1/22
SCALE: AS SHOWN
BY: [Signature]

ABBREVIATIONS

BWS - Basin Water System
 C - Creek
 D - Division
 E - Existing
 L - Line
 M - Meter
 P - Pipe
 R - Replacement
 S - Station
 T - Tank
 W - Well

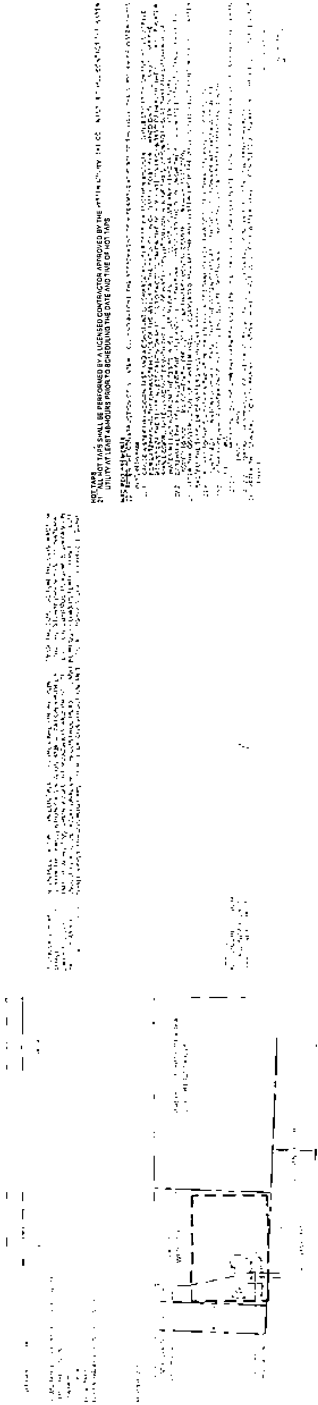
LEGEND

EXISTING

- 12" - 36" Pipe
- 48" - 72" Pipe
- 96" - 144" Pipe
- 180" - 240" Pipe
- 36" - 48" Conduit
- 60" - 72" Conduit
- 96" - 144" Conduit
- 180" - 240" Conduit
- 36" - 48" Tank
- 60" - 72" Tank
- 96" - 144" Tank
- 180" - 240" Tank
- 36" - 48" Well
- 60" - 72" Well
- 96" - 144" Well
- 180" - 240" Well
- 36" - 48" Valve
- 60" - 72" Valve
- 96" - 144" Valve
- 180" - 240" Valve

PROPOSED

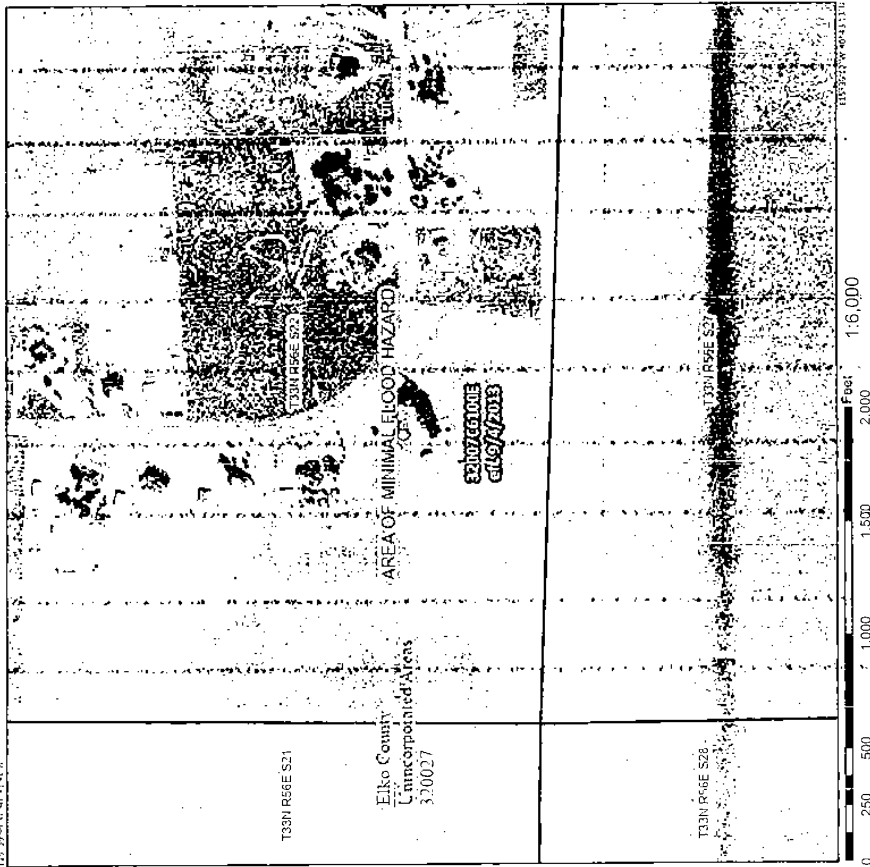
- - - - - 12" - 36" Pipe
- - - - - 48" - 72" Pipe
- - - - - 96" - 144" Pipe
- - - - - 180" - 240" Pipe
- - - - - 36" - 48" Conduit
- - - - - 60" - 72" Conduit
- - - - - 96" - 144" Conduit
- - - - - 180" - 240" Conduit
- - - - - 36" - 48" Tank
- - - - - 60" - 72" Tank
- - - - - 96" - 144" Tank
- - - - - 180" - 240" Tank
- - - - - 36" - 48" Well
- - - - - 60" - 72" Well
- - - - - 96" - 144" Well
- - - - - 180" - 240" Well
- - - - - 36" - 48" Valve
- - - - - 60" - 72" Valve
- - - - - 96" - 144" Valve
- - - - - 180" - 240" Valve



Notes and technical specifications for the well and replacement components, including material grades, sizes, and installation instructions.

National Flood Hazard Layer FIRmette

12/27/2023, 09:41:41



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP PER FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS**
 - Minimal Flood Elevation (BFE)
 - With BFE at Depth
 - Regulatory Floodway
- OTHER AREAS OF FLOOD HAZARD**
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with damage areas of less than one square mile
 - 1% Annual Chance Flood Hazard
 - Area with Reduced Flood Risk, due to Levees, See Notes
 - Area with Flood Risk due to Levees
- OTHER AREAS**
 - Area of Determined Flood Hazard
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall
- STRUCTURES**
 - Area of Minimal Flood Hazard
 - Effective LOHR
- OTHER FEATURES**
 - Cross Sections with 1% Annual Chance Water Surface Elevation
 - Channel, Culvert, or Storm Sewer
 - Regulatory Flood Elevation Line (BFE)
 - Line of Study
 - Anticipation Boundary
 - Coastal Elevation Baseline
 - Pierite Baseline
 - Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps. It is not void or less accurate than any other map. The map is not void or less accurate than any other map. The map is not void or less accurate than any other map. The map is not void or less accurate than any other map.

PERMIT SET

JULY 2023

C1.2

SPRING CREEK WELL & REPLACEMENT

FEMA FIRMETTE

GREAT BASIN WATER COMPANY SPRING CREEK DIVISION

LUMDS
7

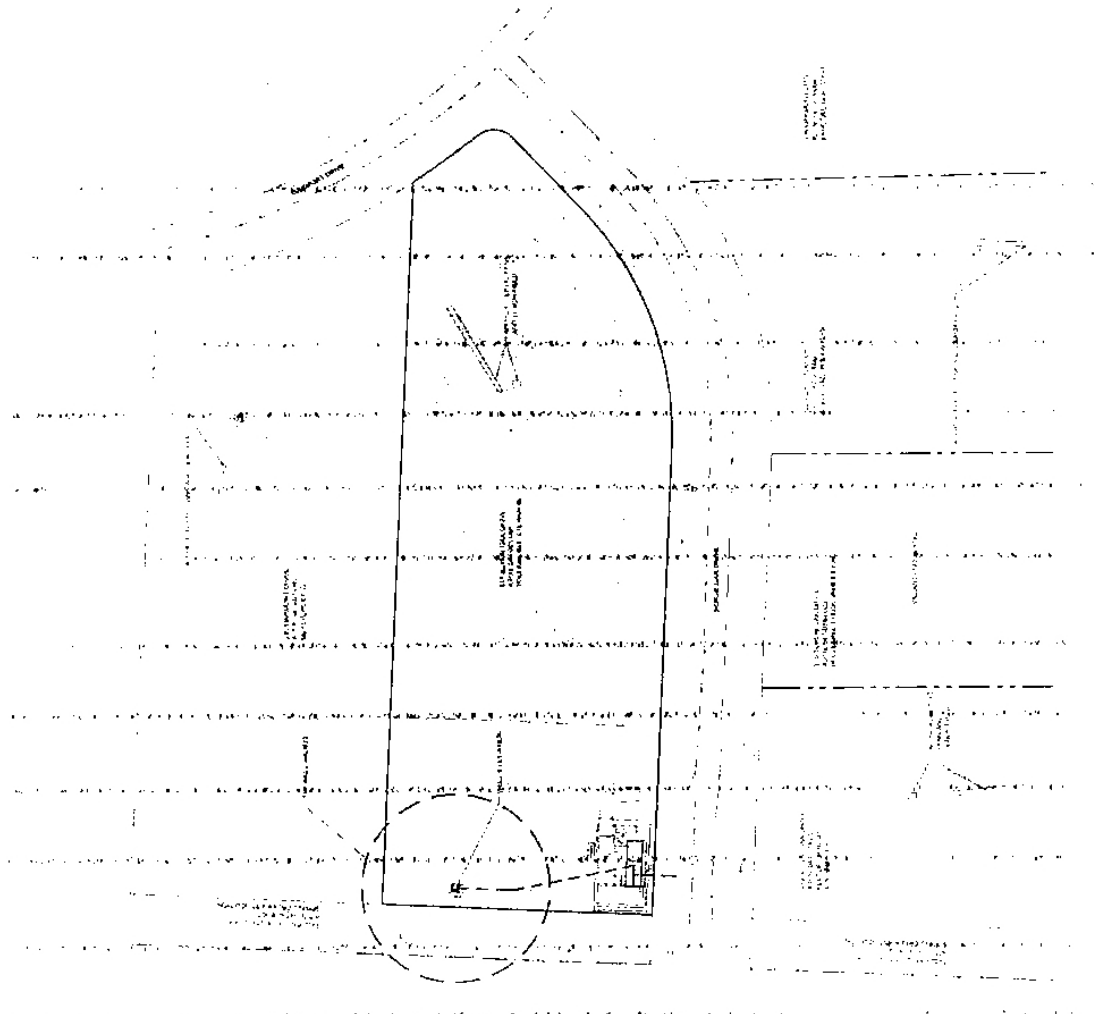
STATE OF MISSISSIPPI
DEPARTMENT OF REVENUE
TOLSONVILLE, MISSISSIPPI
REGISTERED PROFESSIONAL ENGINEER
No. 10000
EXPIRES 12/31/2024
JAMES H. SMITH, P.E.
10000
10000



GREAT BAYWATER WATER COMPANY - SPRING CREEK DIVISION
SPRING CREEK WELL & REPLACEMENT
WELL SITE GROUNDWATER POLLUTION

PERMIT SET

C1.3



GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
SPRING CREEK WELL & REPLACEMENT
HORIZONTAL CONTROL PLAN

PERMIT SET
 JULY 2023

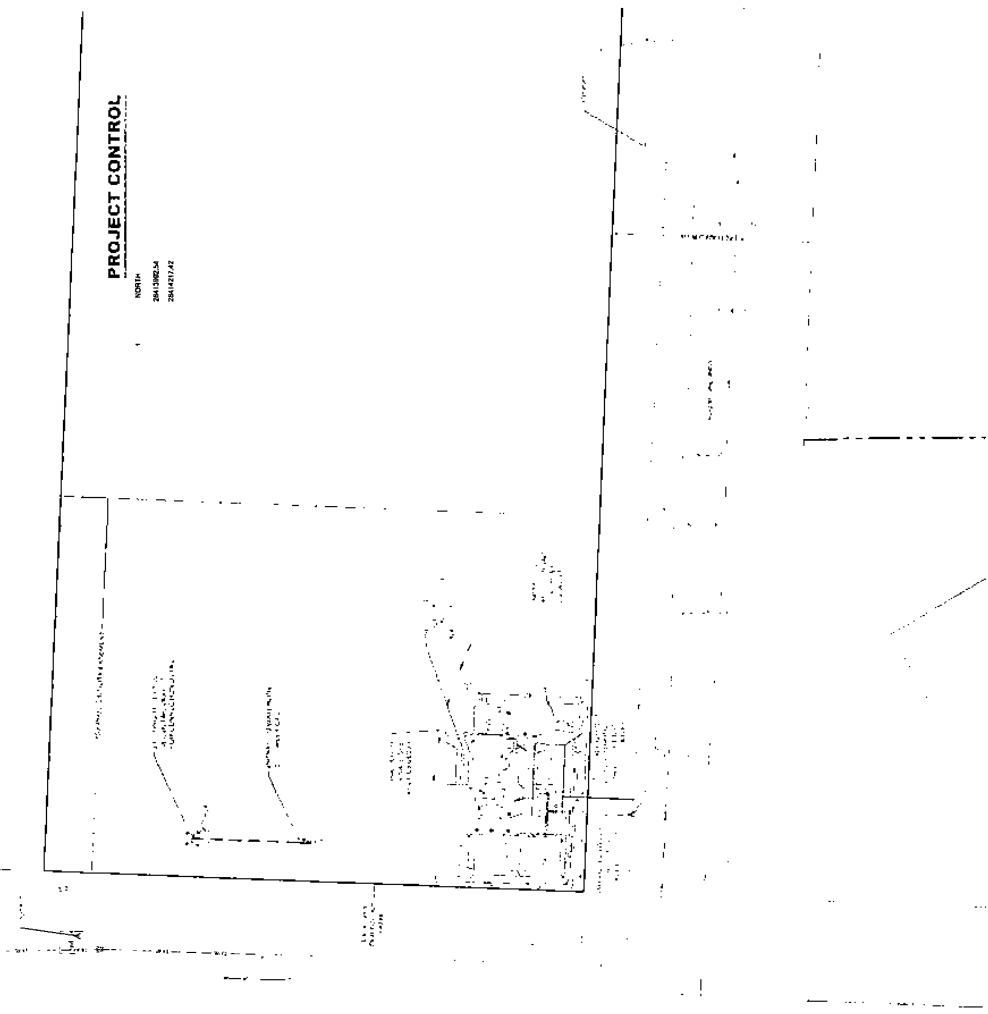
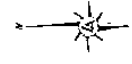
C2.0
 SHEET NO. 2 OF 2
 DATE: 7/13/23
 DRAWN BY: J. HARRIS
 CHECKED BY: J. HARRIS

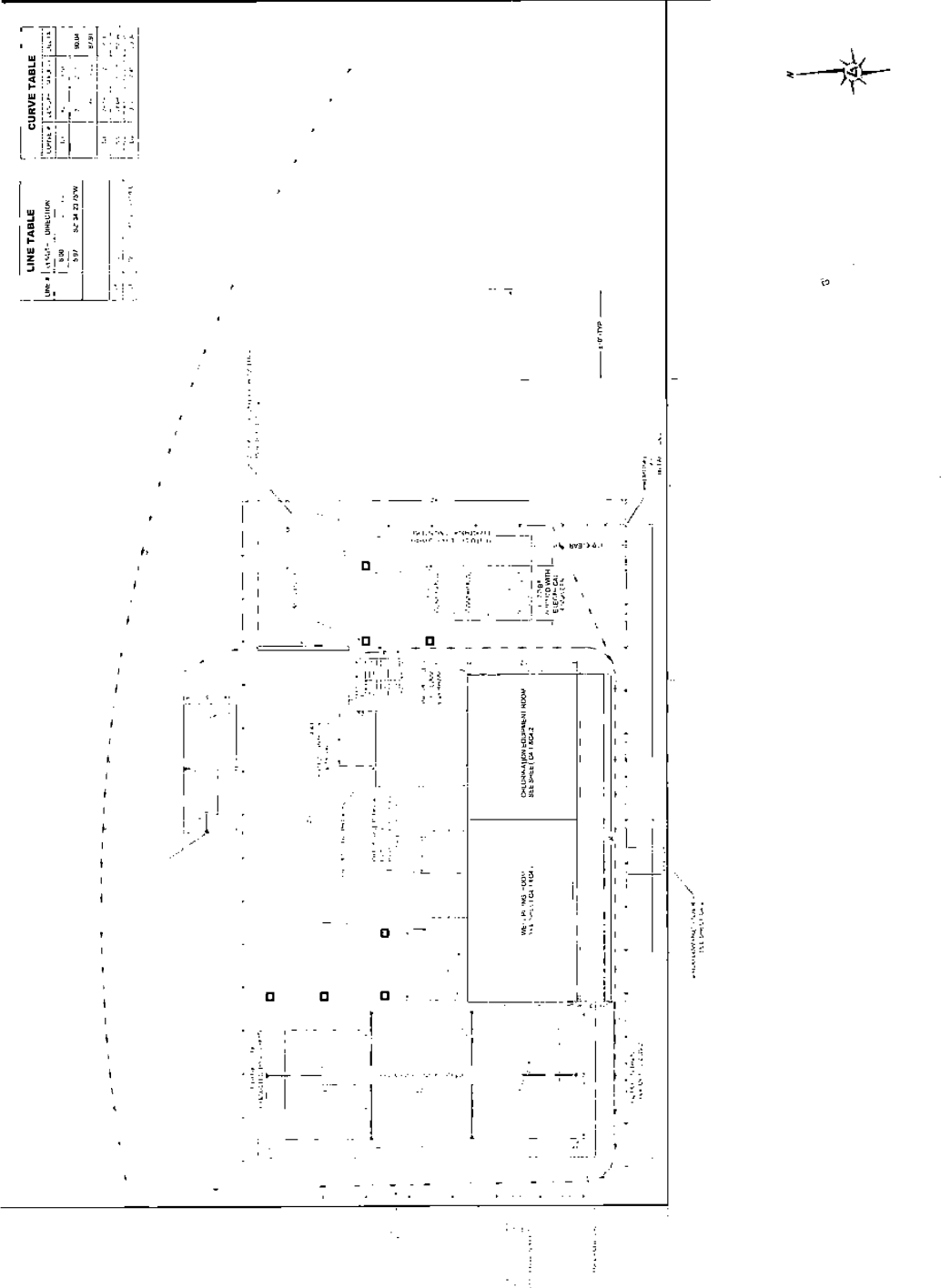
LUMDS
 LAND SURVEYORS
 1200 WEST 10TH AVENUE, SUITE 200
 DENVER, COLORADO 80202
 (303) 733-8000
 www.lumds.com



Point Table

Point #	Point Description	Station	Offset	Height
1	Corner of Section 36, T13N, R10W	1+00.00	0.00	4781.12
2	Corner of Section 35, T13N, R10W	1+25.00	0.00	4781.12
3	Corner of Section 34, T13N, R10W	1+50.00	0.00	4781.12
4	Corner of Section 33, T13N, R10W	1+75.00	0.00	4781.12
5	Corner of Section 32, T13N, R10W	2+00.00	0.00	4781.12
6	Corner of Section 31, T13N, R10W	2+25.00	0.00	4781.12
7	Corner of Section 30, T13N, R10W	2+50.00	0.00	4781.12
8	Corner of Section 29, T13N, R10W	2+75.00	0.00	4781.12
9	Corner of Section 28, T13N, R10W	3+00.00	0.00	4781.12
10	Corner of Section 27, T13N, R10W	3+25.00	0.00	4781.12
11	Corner of Section 26, T13N, R10W	3+50.00	0.00	4781.12
12	Corner of Section 25, T13N, R10W	3+75.00	0.00	4781.12
13	Corner of Section 24, T13N, R10W	4+00.00	0.00	4781.12
14	Corner of Section 23, T13N, R10W	4+25.00	0.00	4781.12
15	Corner of Section 22, T13N, R10W	4+50.00	0.00	4781.12
16	Corner of Section 21, T13N, R10W	4+75.00	0.00	4781.12
17	Corner of Section 20, T13N, R10W	5+00.00	0.00	4781.12
18	Corner of Section 19, T13N, R10W	5+25.00	0.00	4781.12
19	Corner of Section 18, T13N, R10W	5+50.00	0.00	4781.12
20	Corner of Section 17, T13N, R10W	5+75.00	0.00	4781.12
21	Corner of Section 16, T13N, R10W	6+00.00	0.00	4781.12
22	Corner of Section 15, T13N, R10W	6+25.00	0.00	4781.12
23	Corner of Section 14, T13N, R10W	6+50.00	0.00	4781.12
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25	Corner of Section 12, T13N, R10W	7+00.00	0.00	4781.12
26	Corner of Section 11, T13N, R10W	7+25.00	0.00	4781.12
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28	Corner of Section 9, T13N, R10W	7+75.00	0.00	4781.12
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30	Corner of Section 7, T13N, R10W	8+25.00	0.00	4781.12
31	Corner of Section 6, T13N, R10W	8+50.00	0.00	4781.12
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44	Corner of Section 29, T14N, R10W	11+75.00	0.00	4781.12
45	Corner of Section 28, T14N, R10W	12+00.00	0.00	4781.12
46	Corner of Section 27, T14N, R10W	12+25.00	0.00	4781.12
47	Corner of Section 26, T14N, R10W	12+50.00	0.00	4781.12
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49	Corner of Section 24, T14N, R10W	13+00.00	0.00	4781.12
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56	Corner of Section 17, T14N, R10W	14+75.00	0.00	4781.12
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58	Corner of Section 15, T14N, R10W	15+25.00	0.00	4781.12
59	Corner of Section 14, T14N, R10W	15+50.00	0.00	4781.12
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62	Corner of Section 11, T14N, R10W	16+25.00	0.00	4781.12
63	Corner of Section 10, T14N, R10W	16+50.00	0.00	4781.12
64	Corner of Section 9, T14N, R10W	16+75.00	0.00	4781.12
65	Corner of Section 8, T14N, R10W	17+00.00	0.00	4781.12
66	Corner of Section 7, T14N, R10W	17+25.00	0.00	4781.12
67	Corner of Section 6, T14N, R10W	17+50.00	0.00	4781.12
68	Corner of Section 5, T14N, R10W	17+75.00	0.00	4781.12
69	Corner of Section 4, T14N, R10W	18+00.00	0.00	4781.12
70	Corner of Section 3, T14N, R10W	18+25.00	0.00	4781.12
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72	Corner of Section 1, T14N, R10W	18+75.00	0.00	4781.12





CURVE TABLE

STATION	CHORD BEARING	CHORD DISTANCE	ARC DISTANCE	ARC BEARING
1+00.00	S 71° 15' 00" W	100.00	100.00	100.00
2+00.00	S 71° 15' 00" W	100.00	100.00	100.00
3+00.00	S 71° 15' 00" W	100.00	100.00	100.00
4+00.00	S 71° 15' 00" W	100.00	100.00	100.00
5+00.00	S 71° 15' 00" W	100.00	100.00	100.00
6+00.00	S 71° 15' 00" W	100.00	100.00	100.00
7+00.00	S 71° 15' 00" W	100.00	100.00	100.00
8+00.00	S 71° 15' 00" W	100.00	100.00	100.00
9+00.00	S 71° 15' 00" W	100.00	100.00	100.00
10+00.00	S 71° 15' 00" W	100.00	100.00	100.00

LINE TABLE

LINE #	START - END	BEARING	DISTANCE
1	1+00.00 - 2+00.00	S 71° 15' 00" W	100.00
2	2+00.00 - 3+00.00	S 71° 15' 00" W	100.00
3	3+00.00 - 4+00.00	S 71° 15' 00" W	100.00
4	4+00.00 - 5+00.00	S 71° 15' 00" W	100.00
5	5+00.00 - 6+00.00	S 71° 15' 00" W	100.00
6	6+00.00 - 7+00.00	S 71° 15' 00" W	100.00
7	7+00.00 - 8+00.00	S 71° 15' 00" W	100.00
8	8+00.00 - 9+00.00	S 71° 15' 00" W	100.00
9	9+00.00 - 10+00.00	S 71° 15' 00" W	100.00

GREAT BASIN WATER COMPANY SPRING CREEK DIVISION

SPRING CREEK WELL 8 REPLACEMENT

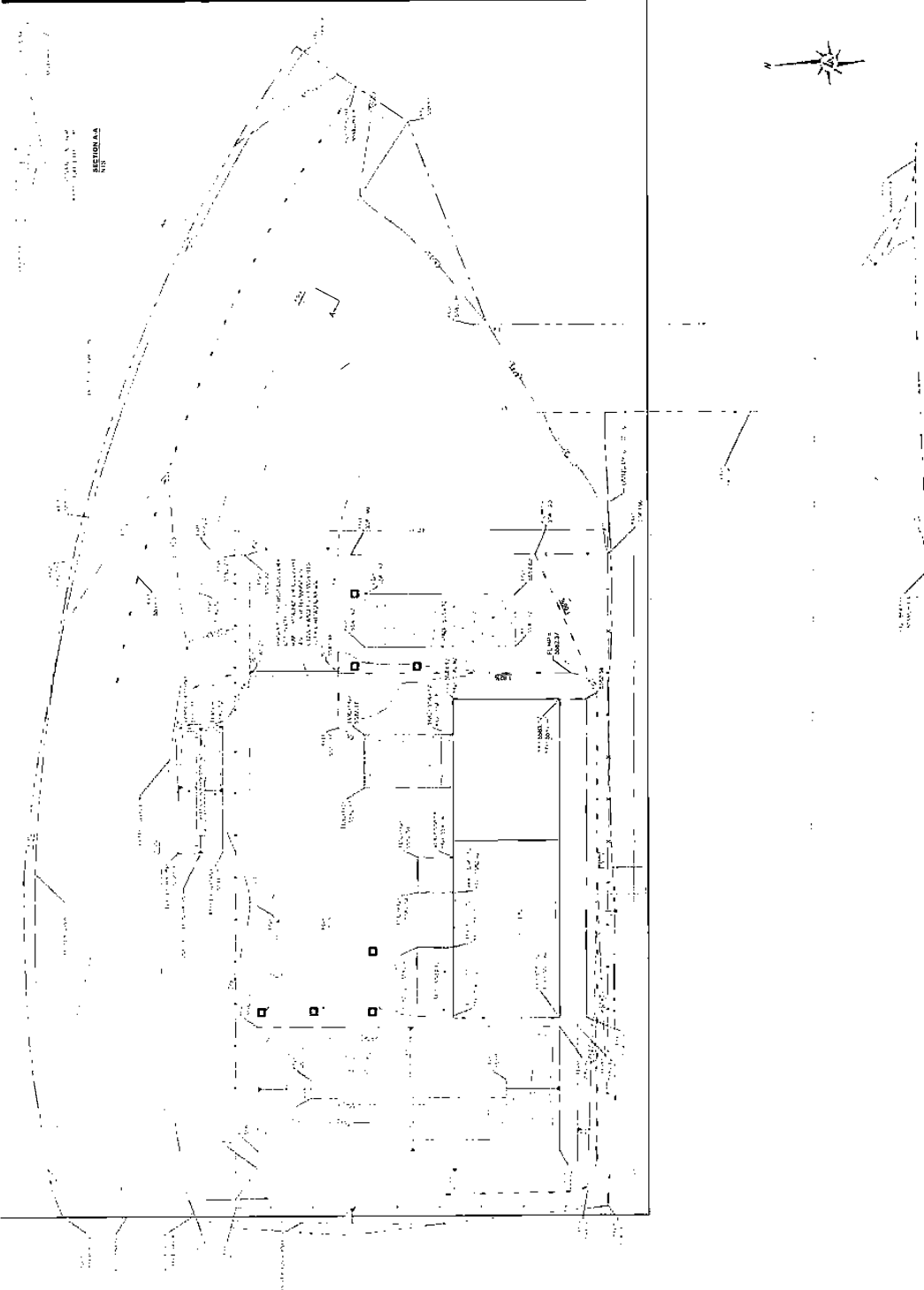
GRADING PLAN

DATE: 02/22/2024

PERMIT SET

C3.1

SECTION 7



GREAT BASIN WATER COMPANY SPRING CREEK DIVISION

SPRING CREEK WELL & REPLACEMENT

INFILTRATION BASIN CROSS SECTION

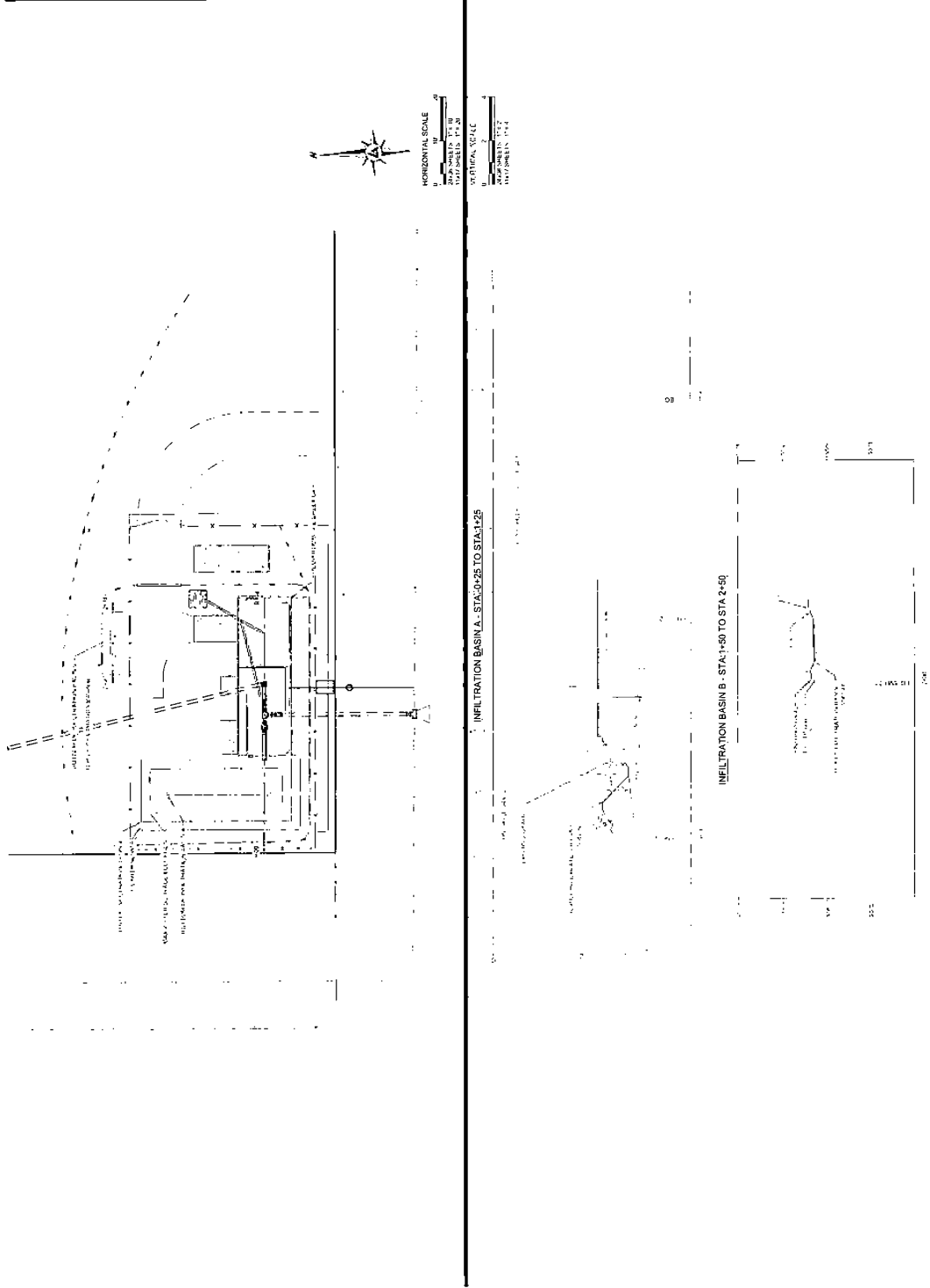
DATE: 2023

PERMIT SET

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LUMOS 7



GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
SPRING CREEK WELL & REPLACEMENT
PLAN & PROFILE

PERMIT SET
JULY 2023

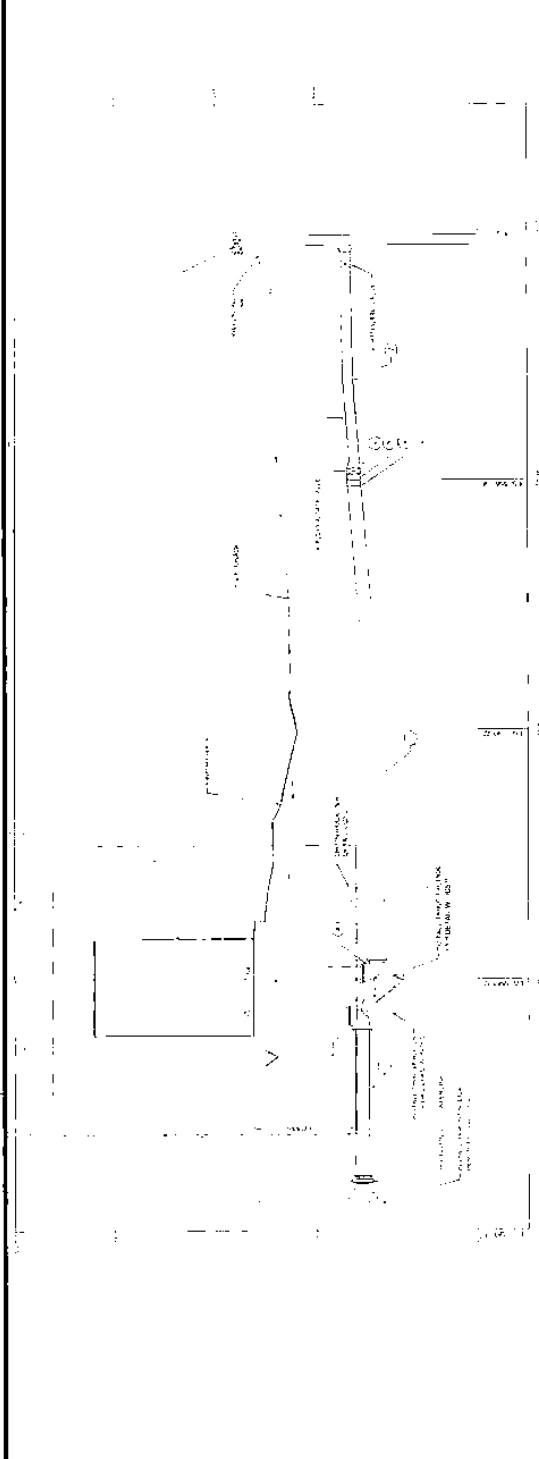
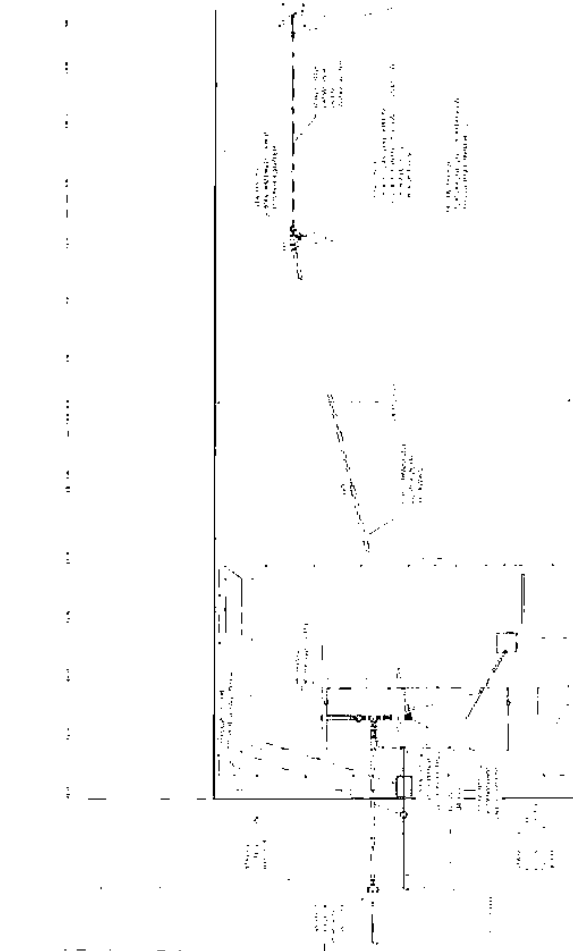
C4.0
PROJECT NO.
DATE
BY



- REVISIONS:**
- 1. SUBMITTAL
 - 2. APPROVED FOR PERMIT
 - 3. APPROVED FOR PERMIT
 - 4. APPROVED FOR PERMIT
 - 5. APPROVED FOR PERMIT
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 - 19. APPROVED FOR PERMIT
 - 20. APPROVED FOR PERMIT

MATERIAL LIST:

- 1. 12" DIA. CONCRETE PIPE (300' TOTAL)
- 2. 18" DIA. CONCRETE PIPE (150' TOTAL)
- 3. 24" DIA. CONCRETE PIPE (150' TOTAL)
- 4. 36" DIA. CONCRETE PIPE (150' TOTAL)
- 5. 48" DIA. CONCRETE PIPE (150' TOTAL)
- 6. 60" DIA. CONCRETE PIPE (150' TOTAL)
- 7. 72" DIA. CONCRETE PIPE (150' TOTAL)
- 8. 84" DIA. CONCRETE PIPE (150' TOTAL)
- 9. 96" DIA. CONCRETE PIPE (150' TOTAL)
- 10. 108" DIA. CONCRETE PIPE (150' TOTAL)
- 11. 120" DIA. CONCRETE PIPE (150' TOTAL)
- 12. 132" DIA. CONCRETE PIPE (150' TOTAL)
- 13. 144" DIA. CONCRETE PIPE (150' TOTAL)
- 14. 156" DIA. CONCRETE PIPE (150' TOTAL)
- 15. 168" DIA. CONCRETE PIPE (150' TOTAL)
- 16. 180" DIA. CONCRETE PIPE (150' TOTAL)
- 17. 192" DIA. CONCRETE PIPE (150' TOTAL)
- 18. 204" DIA. CONCRETE PIPE (150' TOTAL)
- 19. 216" DIA. CONCRETE PIPE (150' TOTAL)
- 20. 228" DIA. CONCRETE PIPE (150' TOTAL)
- 21. 240" DIA. CONCRETE PIPE (150' TOTAL)
- 22. 252" DIA. CONCRETE PIPE (150' TOTAL)
- 23. 264" DIA. CONCRETE PIPE (150' TOTAL)
- 24. 276" DIA. CONCRETE PIPE (150' TOTAL)
- 25. 288" DIA. CONCRETE PIPE (150' TOTAL)
- 26. 300" DIA. CONCRETE PIPE (150' TOTAL)



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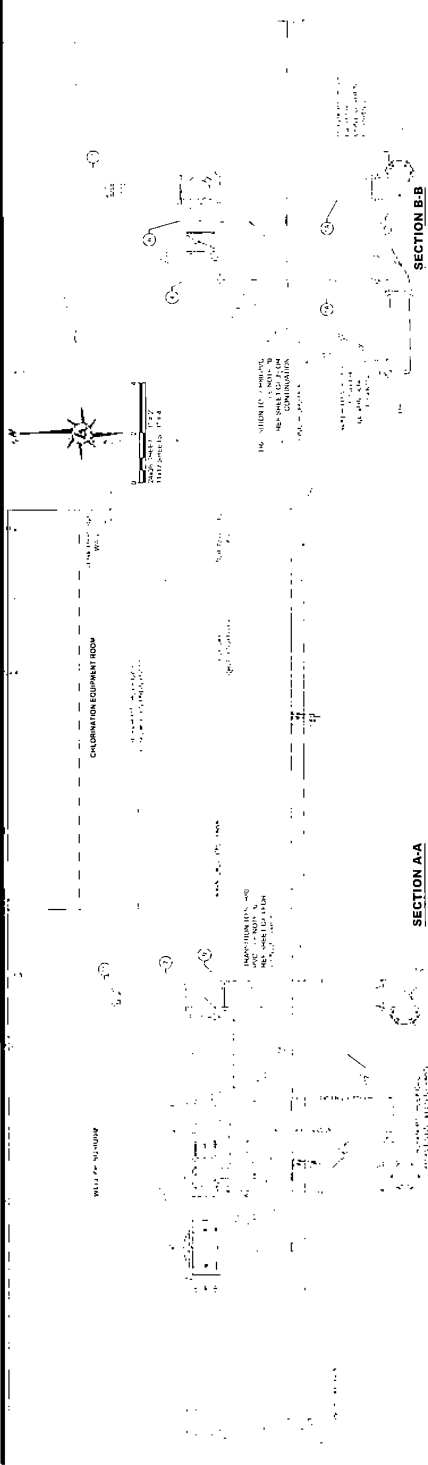
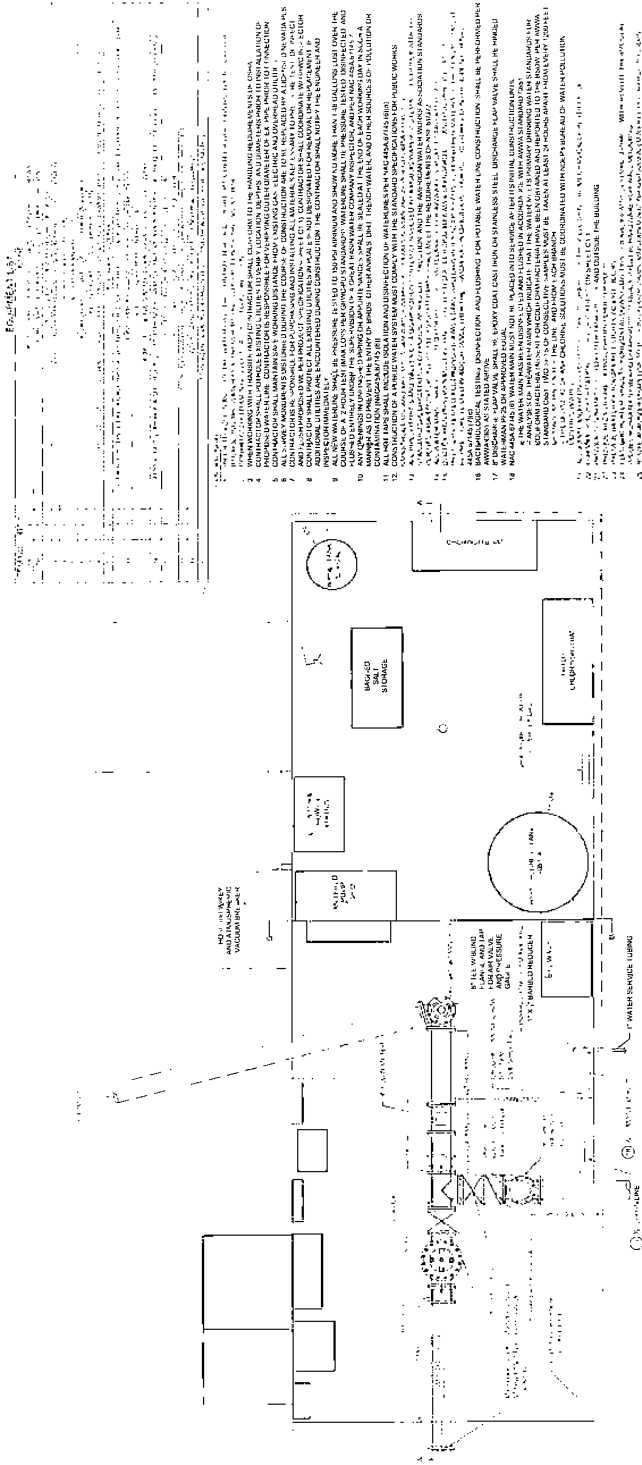


GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
MECHANICAL PLAN & SECTION
SPRING CREEK WELL 8 REPLACEMENT

PERMIT SET

C4.1

DATE: 11/20/24
DRAWN BY: JES
CHECKED BY: JES
SCALE: AS SHOWN



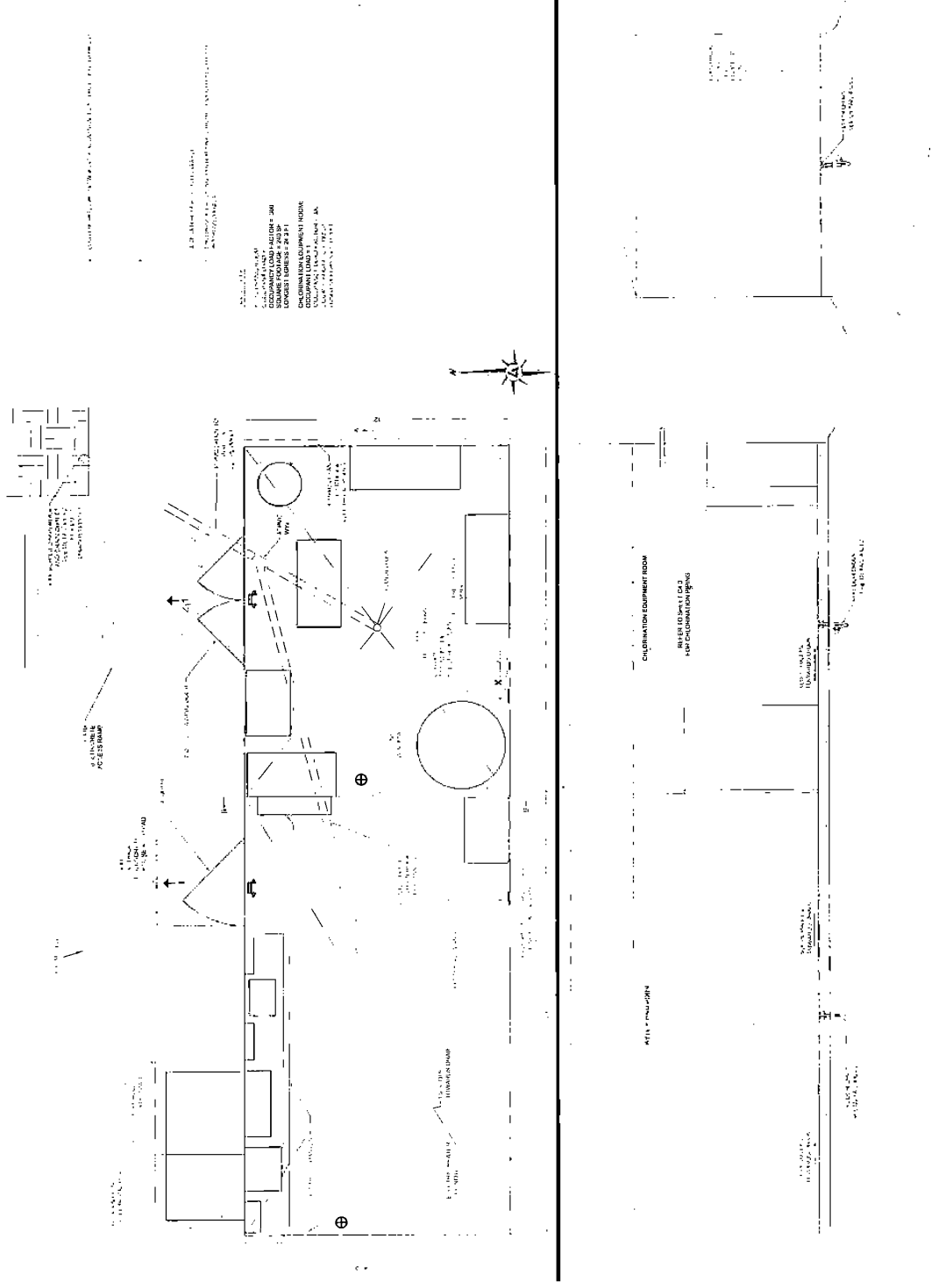
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GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
 SPRING CREEK WELL 8 REPLACEMENT
 BUILDING PLAN & SECTION

PERMIT SET
 JULY 2023

NO.	100
DATE	07/20/23
PROJECT	SPRING CREEK WELL 8 REPLACEMENT
CLIENT	GREAT BASIN WATER COMPANY
SCALE	AS SHOWN



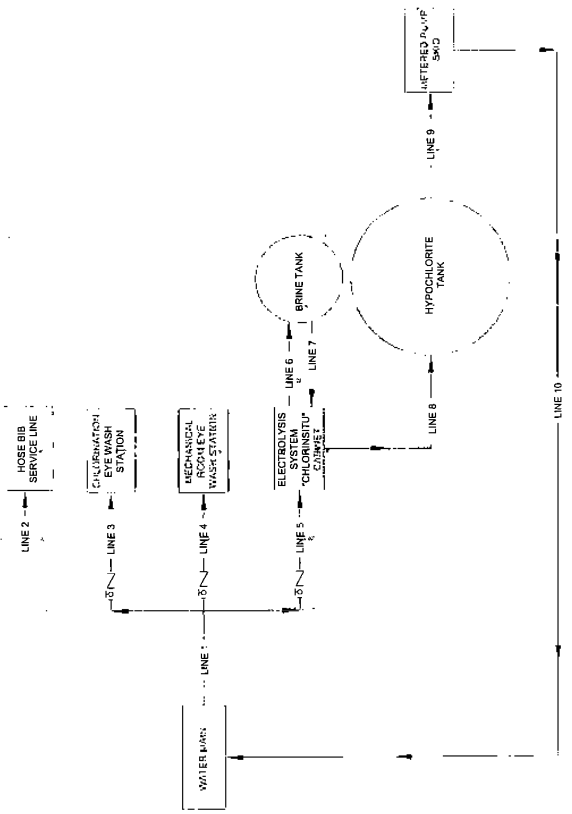
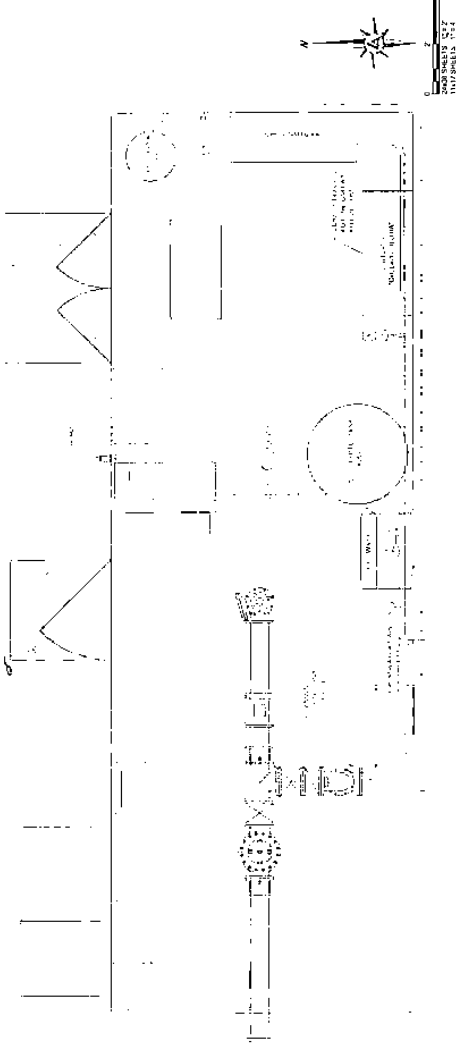


GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
 SPRING CREEK WELL 8 REPLACEMENT
 CHLORINATION SYSTEM PIPING LAYOUT

PERMIT SET
 JULY 2023

C4.3

PIPING DIRECTORY		
LINE NO	LINE TYPE	DIAMETER
1	12" HDPE	12"
2	12" HDPE	12"
3	12" HDPE	12"
4	12" HDPE	12"
5	12" HDPE	12"
6	12" HDPE	12"
7	12" HDPE	12"
8	12" HDPE	12"
9	12" HDPE	12"
10	12" HDPE	12"



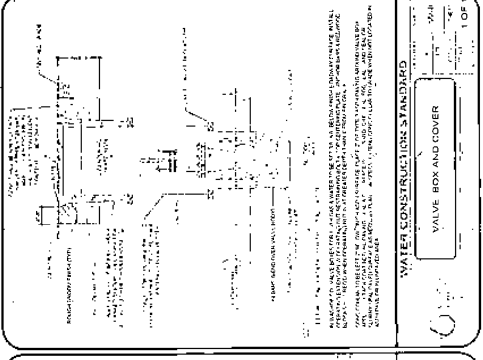
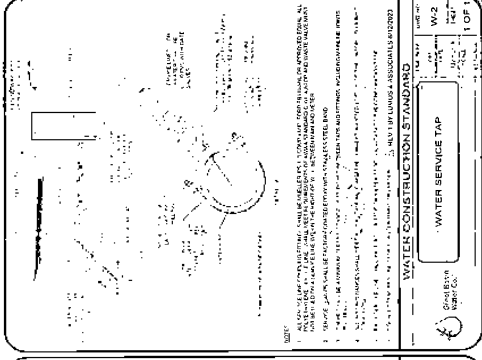
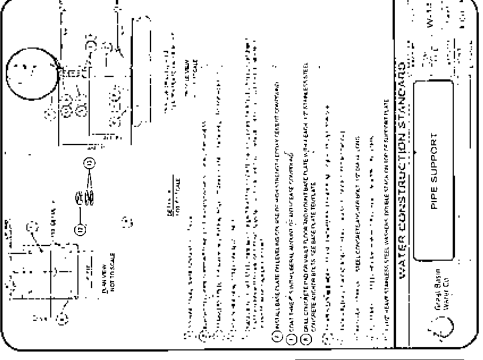
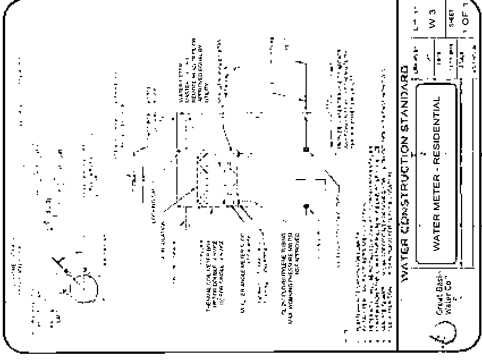
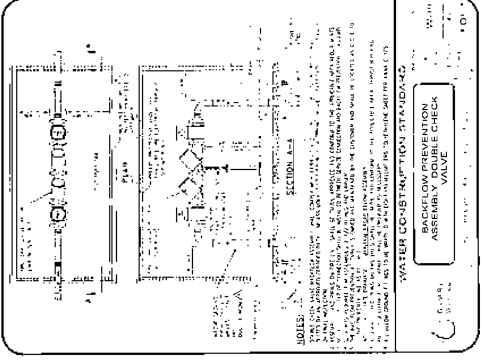
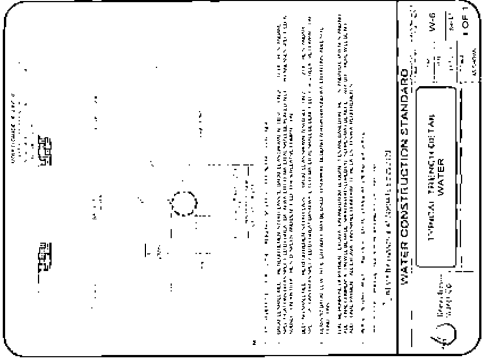
PROCESS FLOW DIAGRAM

SPRING CREEK WELL 8 REPLACEMENT
GBWC GENERAL DETAILS

PERMIT SET

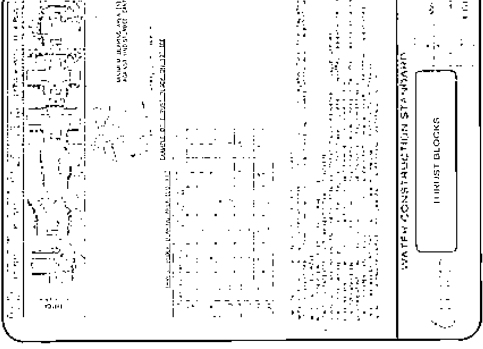
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WATER CONSTRUCTION STANDARD
WATER GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF DENVER WATER DEPARTMENT SPECIFICATIONS FOR WATER MAINS AND SERVICE LINES.
2. ALL MATERIALS SHALL BE APPROVED BY THE CITY OF DENVER WATER DEPARTMENT.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF DENVER WATER DEPARTMENT SPECIFICATIONS FOR WATER MAINS AND SERVICE LINES.
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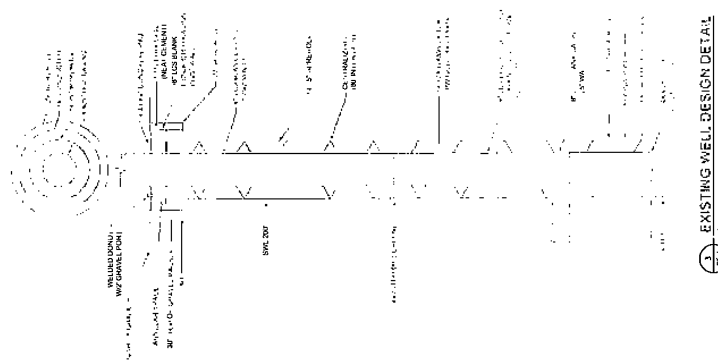
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GREAT BASIN WATER COMPANY SPRING CREEK DIVISION
SPRING CREEK WELL 8 REPLACEMENT
WELL / GENERAL DETAILS

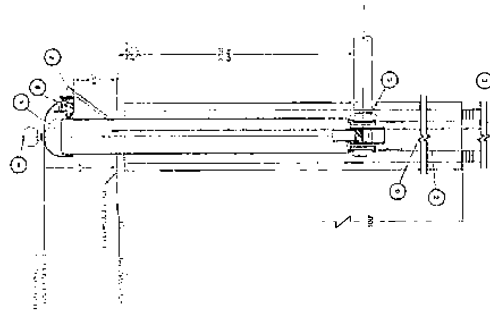
PERMIT SET
JULY 2023

PROJECT NO. 22-00000000
DATE: 07/10/23
C5.1
SCALE: AS SHOWN

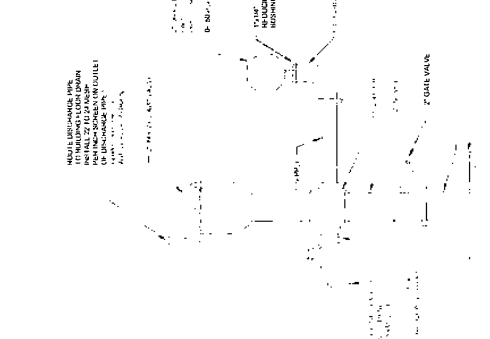


3.1 EXISTING WELL DESIGN DETAIL

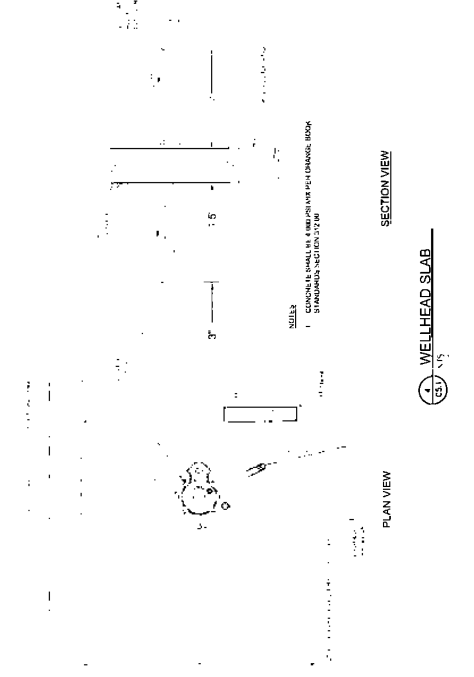
- MATERIALS/EQUIPMENT LIST:**
- ALL PRODUCTS IN CONTACT WITH DRINKING WATER SHALL BE CLASSIFIED IN COMPLIANCE WITH NSF 61. ALL MATERIALS SHALL BE APPROVED BY THE STATE OF FLORIDA. ALL MATERIALS SHALL BE APPROVED BY THE STATE OF FLORIDA. ALL MATERIALS SHALL BE APPROVED BY THE STATE OF FLORIDA.
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 - 2. 12" DIA. SCH. 40S BLACK STEEL WELL CASING
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 - 10. 12" DIA. SCH. 40S BLACK STEEL WELL CASING



3.2 WELL EQUIPPING DETAIL



3.3 AIR VACUUM VALVE ASSEMBLY



3.4 WELLHEAD SLAB

GEOTECHNICAL INVESTIGATION REPORT

SCUC WELL 8 REPLACEMENT

JN: 8595.004

RENO, NEVADA

JANUARY, 2022

PREPARED FOR:

GREAT BASIN WATER COMPANY
448 TONKA LANE, UNIT #3
SPRING CREEK, NEVADA 89815

PREPARED BY:

LUMOS & ASSOCIATES, INC.
808 E. COLLEGE PARKWAY, SUITE 101
CARSON CITY, NV 89706
775.883.7077



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**SCUC WELL 8 REPLACEMENT
Spring Creek, Nevada**

1.0 INTRODUCTION

Submitted herewith are the results of Lumos and Associates, Inc. (Lumos) geotechnical investigation for the proposed well house development to be located at 317 Scrub Oak Drive in Spring Creek, Nevada. The site is located on Elko County APN 402-001-061 (Plate 1).

We understand improvements on the lot will consist of a single-story building with conventional spread footings and concrete slab-on-grade. We have assumed that the final grades will be within five (5) feet of existing grades. The anticipated loads for the project have been assumed to be less than five (5) kips/linear foot for continuous footings and less than forty (40) kips for isolated interior footings.

The purpose of our investigation was to characterize the site geology and soil conditions, describe the native soils, and determine their engineering properties as they relate to the proposed construction. The investigation was also intended to identify possible adverse geologic, soil, and or water table conditions; however, this study did not include an environmental assessment, a fault study, or an evaluation for soil and/or groundwater contamination at the site.

This report concludes with recommendations for site grading, foundations, footing area preparation, utility installation, and Portland cement concrete. In addition, information such as logs of all test pits and allowable soil bearing capacities, estimated total and differential settlements, moisture and drainage protection and International Building Code (IBC) seismic site class designation are provided in this report.

The recommendations contained herein have been prepared based on our understanding and assumptions of the proposed construction, as outlined above. Re-evaluation of the recommendations presented in this report should be conducted after the final site grading and construction plans are completed, if there are any variations from the assumptions described herein.

It is possible that subsurface discontinuities may exist between and beyond exploration points. Such discontinuities are beyond the evaluation of the Engineer at this time. No guarantee of the consistency of site geology and sub-surface conditions is implied or intended. No guarantee of the consistency of site geology and sub-surface conditions is implied or intended.

2.0 GEOLOGIC SETTING

Spring Creek is in the eastern portion of the Great Basin geomorphic province. The Great Basin is characterized by the internal drainage and large normal fault-bounded valleys (grabens) separated by high mountain ranges (horst).

Specifically, the site is located in the central part of the un-named valley between the Elko Hills and Ruby Mountains. The surface geology of the project area has been mapped by Nevada Bureau of Mines and Geology at <https://gisweb.unr.edu/NevadaGeology/>. The soils are determined to be Tuffaceous Sedimentary Rocks (Ts3) and are described as, "Locally includes minor amounts of tuff". Refer to Plate 3.

3.0 SEISMIC CONSIDERATIONS

Spring Creek, similar to many areas of Nevada, is located near active faults, which are capable of producing significant earthquakes. This area can be described as an area that may experience major damage due to earthquakes having intensities of VII or more when evaluated using the Modified Mercalli Intensity Scale of 1931 (Plate 6).

The project area is located east of the Central Nevada Seismic Belt (Plate 5). The areas east and south of the site contains possibly harmful faults within the Ruby Mountain Fault Zone. Earthquake hazard mapping does not show any faults crossing the site, nor has any direct evidence of on-site faulting been observed in the field during the current investigation; however, according to the Quaternary Faults of Nevada interactive mapping (<https://gisweb.unr.edu/QuaternaryFaults/>), late quaternary faults are located approximately two (2) miles south of the site (Plate 4). For design purposes, ground-shaking intensities should be based on a design earthquake with moment magnitude of 6.9.

Liquefaction is the phenomena where more commonly loose saturated sands or silty sands lose their shear strength when subjected to cyclic loading, and become unstable. Large earthquakes, as described above, may provide that type of cyclic loading. Liquefaction is most commonly associated with loose, saturated, relatively clean sands. These conditions were not encountered during our investigation, to the depths explored. During our field investigation groundwater was not encountered in any portion of the site. Therefore, based on the soils' conditions encountered during our field investigation, the liquefaction potential is very low to negligible.

2018 IBC Design: Utilizing risk category III, the mapped maximum considered earthquake spectral response acceleration at short periods (S_s) is 0.643g corresponding to a 0.2 second spectral response acceleration at five percent (5%) of critical damping and for a Site Class B (IBC Figure 1613.2.1(1)). The mapped maximum considered earthquake spectral response acceleration at a 1-second period (S_1) is 0.241g corresponding to a 1.0 second spectral response acceleration at five percent (5%) of critical damping and for a Site Class B (IBC Figure 1613.2.1(2)). At this time, the soil conditions are not known in sufficient detail to a depth of one-hundred (100) feet, thus, a Site Class D-default may be assumed per the IBC. These spectral response accelerations are adjusted for site class effects because Site Class D-default is

assumed instead of Site Class B. The site coefficient for spectral response accelerations adjustment at short periods (F_a) is 1.286 (IBC Section 1613.2.3). The maximum considered earthquake spectral response acceleration parameter for short period (S_{MS}) is 0.826g. This corresponds to design spectral response acceleration parameters of 0.551g for short period (S_{DS}). Refer to Appendix C.

It is emphasized that the above values are the minimum requirements intended to maintain public safety during strong ground shaking. These minimum requirements are meant to safeguard against loss of life and major structural failures, but are not intended to prevent damage or insure the functionality of the structure during and/or after a large seismic event. The seismic risks at this site are similar to other sites within western Nevada. The risks associated with this site can be mitigated utilizing widely accepted design and construction standards.

4.0 SITE CONDITIONS AND FIELD EXPLORATION

At the time of our investigation, the site was undeveloped. The site had been previously graded relatively flat and was not vegetated at the time of our investigation.

Field exploration included a site reconnaissance and subsurface soil-exploration. During the site reconnaissance, surface conditions were noted and the locations of the exploratory test pits were determined. Locations of the exploratory test pits should be considered accurate only to the degree implied by the method used.

Two exploratory test pits were excavated on the site to a maximum depth of eleven and a half (11.5) feet below-existing-ground (beg). The approximate locations of the exploratory test pits within the site are shown on Plate 2. The subsurface soils were continuously logged and visually classified in the field by our Geotechnician in accordance with the Unified Soil Classification System. Representative soil samples were collected at each soil change within the exploratory test pits and subsequently transported to our Carson City geotechnical laboratory for testing and analysis.

The subsurface soils encountered consisted generally of stiff to very stiff lean clays with sand (CL) and sands with varying amounts of silt and clay (SM and SC). Groundwater was not encountered during the investigation; however, seasonal groundwater fluctuations should be anticipated.

5.0 LABORATORY TEST DATA

During the field investigation our Geotechnician collected samples of the site soils from each of the two (2) test pits. All the samples were subsequently transported to our Carson City geotechnical laboratory for testing and analysis. Laboratory test data was developed from the samples collected during the field investigation and used for the development of our design and recommendations.

Laboratory tests were performed on samples taken from the site and include: sieve analysis, Atterberg limits, moisture density curve, hydrocollapse potential, soluble sulfates, pH value, and resistivity. Much of this data is displayed on the test pit logs to facilitate correlation. Field descriptions presented on the logs have been modified, where appropriate, to reflect laboratory test results. The logs of the test pits and accompanying soil classification legend are included as Appendix A.

Individual laboratory test results are presented as Appendix B. Laboratory testing was performed per ASTM standards, except when test procedures are briefly described and no ASTM standard is specifically referenced in the report. Atterberg limits were determined using the dry method of preparation. Special testing conducted for this project is described below.

5.1 Analytical Testing: Silver State laboratory of Reno, Nevada conducted the soluble sulfates, pH value, and resistivity laboratory testing. Test results are included (on Silver State letterhead) in Appendix B on plate B-5.

The soil samples obtained during this investigation will be held in our laboratory for 30 days from the date of this report. The samples may be retained longer at an additional cost to the client or obtained from this office upon request.

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 General

The following recommendations are based upon our understanding of this project, as outlined in the introduction of this report. If changes in the project are proposed, they should be presented to Lumos, so that these recommendations can be reviewed and modified in writing, as necessary. At a minimum, final construction drawings should be submitted to Lumos' Geotechnical department for review prior to actual construction and verification that our geotechnical design recommendations have been implemented.

6.2 General Site Grading

Prior to placement of fill and/or the proposed improvements, the areas to receive fill and/or improvements shall be cleared and grubbed. Clearing and grubbing is anticipated to be minimal; however, if roots or organic material persist from previous clearing and grubbing, material will be removed prior to the constructing of improvements.

Root- or organic-laden soils encountered during excavations, should be stockpiled in a designated area on site for later use in landscaping, or removed off site as directed by the owner. Excavated soils free from any organics (Less than 2%), debris or otherwise unsuitable material and with particles no larger than four (4) inches in maximum dimension may be stockpiled and moisture conditioned for later use as compacted structural fill provided it meets the criteria for structural fill soils.

All Surfaces to receive fill and/or improvements should be observed and approved by a Lumos representative prior to placement of fill. The surfaces shall be scarified to a minimum depth of twelve (12) inches, moisture conditioned to at least optimum moisture content, and re-compacted to at least ninety percent (90%) of the ASTM D1557 standard. Material should not be placed, spread or compacted while the ground is frozen or during unfavorable weather conditions. When site grading is interrupted by heavy rain or snow, grading or fill operations should not resume until a Lumos representative approves the moisture content and density conditions of the subgrade or previously placed fill.

Unstable conditions due to yielding and/or pumping soils may be encountered on site. Native soils may yield or pump under heavy equipment loads or where vibratory equipment draws up water. If yielding or pumping conditions are encountered, the soils should be scarified in place, allowed to dry as necessary and re-compacted, where applicable. Alternatively, the unsuitable or saturated soil should be removed, the exposed surface leveled and compacted/tamped as much as practical without causing further pumping, and covered (including the sides) with geotextile stabilizing fabric (Mirafi HP370 or other equivalent). The fabric should then be covered with at least twelve (12) inches of four (4) to eight (8) inch **angular rock fill** with enough fines to fill the inter-rock pore spaces. Placement should be by end dumping. No traffic or other action should be allowed over the fabric, which may cause it to deflect/deform prior to cobble placement. Test sections should be used to determine the minimum thickness and/or number of layers required for stabilization.

Stabilization should be evaluated by proof-rolling standards commensurate with the equipment used, and approved by a Lumos representative. The placement of the stabilizing rock-fill may require additional over-excavation to maintain appropriate grading elevations. A filter fabric (Mirafi 180N or equal) should also be placed over the cobble rock fill to prevent piping of fines from covering soils into the stabilizing rock matrix.

Acceptable structural fill soils to be used for this project should consist of non-expansive material (LL less than 35 and/or a PI less than 12; and/or an Expansion Index less than 20); and should be free of contaminants, organics (less than two percent (2%)), rubble, or natural rock larger than four (4) inches in largest dimension. The soluble sulfate content shall be less than 0.1% and the R-Value shall be a minimum of 30. Any import soils should be tested and approved prior to being placed or delivered on-site (seven (7) day advanced notice). Structural fill soils shall also meet the following gradation requirements (Table 2):

**TABLE 1
STRUCTURAL FILL GRADATION**

Sieve Size	% Passing
4"	100
¾"	70-100
#40	15-65
#200	5-25

Soils not meeting all of the above requirements may be approved for use as structural fill at the discretion of the Geotechnical Engineer. Soils not approved for use as structural fill may be used as common fill, if approved by the Geotechnical Engineer, and placed outside of structural zones. Structural zones, which provide direct structural support, are defined as areas within twenty-four (24) inches (horizontally and vertically) of building foundations and within twelve (12) inches (horizontally and vertically) of hardscape and pavement subgrades. Soils within structural zones, shall meet the requirements of structural fill. Site clays (CL) and clayey sands (SC), due to their high fines content and high plasticity, are not suitable for direct structural support. If site clays (CL) and clayey sands (SC) are encountered within structural zones they shall be overexcavated and replaced with suitable structural fill. The site silty sands, in their current state, are not suitable to provide direct structural support due to their hydrocollapse potential. We recommend removal of these soils from structural zones. Once removed, the site silty sands may be moisture conditioned, thoroughly mixed, and reused as fill. It is anticipated that once processed, the site silty sands encountered during the exploration will meet the requirements of structural fill. Potholing may be necessary to ensure the above criteria for structural zones are met.

Structural fill, fill within twenty-four (24) inches (horizontally and vertically) of building foundations and twelve (12) inches of hardscape and pavement subgrades, shall be placed in eight (8) inch loose lifts, moisture conditioned to at least optimum, and compacted to a minimum of ninety percent (90%) of the ASTM D1557 Standard.

Landscaped areas, if applicable, should be cleared of all organic and objectionable material such

as wood, root stumps, etc., if any. In landscape fill areas, fill should be placed in loose lifts not exceeding eight (8) inches, and compacted to at least ninety percent (90%) relative compaction to prevent erosion.

A representative of Lumos should be contacted, if, during the site clearing, excavation removals, grading operations, and any unforeseen or concealed conditions within the site are identified. Testing and observation during earthwork construction is an integral part of the project, as acceptance of earthwork construction is dependent upon compaction and stability of the subgrade soils. The soils engineer may reject any material that does not meet acceptable fill, compaction, and stability requirements. Further, recommendations in this report are provided upon the assumption that earthwork construction will conform to recommendations set forth in this section of the report.

7.0 FOUNDATION DESIGN CRITERIA

Conventional spread footings founded on a minimum of twelve (12) inches of structural fill soils may be used to support the proposed building foundations within the project site. Structural fill shall be prepared as previously discussed. The differential fill height across the foundation shall be limited to five (5) feet. In order to meet this requirement, over excavation may be required.

7.1 Continuous Spread Footings: Footings should have a minimum embedment of thirty-six (36) inches below lowest adjacent grade for frost protection. Footings founded on twelve (12) inches of properly prepared structural fill soils may be designed for a net allowable bearing pressure of one thousand two hundred (1,200) pounds-per-square-foot (psf).

7.2 Footing Settlements: The maximum anticipated settlements, caused by static loading, for continuous or isolated footings bearing on twelve (12) inches of properly prepared structural fill soils and designed for a one thousand two hundred (1,200) psf bearing pressure is estimated at one (1) inch or less. Differential settlements are generally expected to be half of the total settlements. Settlements in granular soils are primarily expected to occur shortly after dead and sustained live loads are applied. Settlements in clay soils occur over a longer period of time.

7.3 Lateral Loading: Resistance to lateral loads can be provided by friction acting at the base of foundations and by lateral earth resistance. A coefficient of friction of 0.45 may be assumed at the base of footings bearing on structural fill soils. An allowable passive earth resistance of two hundred-fifty (250) psf per foot of depth starting six (6) inches below lowest adjacent grade may be used for the sides of footings poured against properly compacted structural fill. Passive resistance should not exceed one thousand two hundred (1,200) psf. The at-rest lateral pressure can be calculated utilizing an equivalent fluid pressure of sixty-five (65) pcf.

7.4 Dynamic Factors: Vertical and lateral bearing values indicated above are for total dead-load and frequently applied live loads. If normal code requirements are applied for design, the above vertical bearing values may be increased by thirty-three percent (33%) for short duration loading due to wind or seismic forces. The additional Dynamic Lateral earth pressure can be calculated utilizing the following equation.

Dynamic Lateral Force = $\gamma K_h H^2 = 24H^2$ (Braced Condition)
Dynamic Lateral Force = $3/8\gamma K_h H^2 = 9H^2$ (Unbraced Condition)
H = Height of Wall
 K_h = Horizontal Acceleration ($S_{DS}/2.5 = 0.22g$)
 γ = Unit Weight of Soil (110 pcf)

This force should be assumed to act at a height of 0.6H above the bottom of the wall.

8.0 RETAINING WALLS

Retaining structures over three (3) feet in height, if used, will require local code compliance and engineered based on parameters described in this section of the report. Retaining structures should be designed to resist the appropriate lateral earth pressures. Cantilevered walls, which are able to deflect at least 0.01 radians, can be designed using an equivalent fluid (backfill) unit weight of forty (40) pounds-per-cubic-foot (pcf); however, if the wall is fixed against rotation, the wall should be designed using an equivalent fluid (backfill) unit weight of fifty-five (55) pcf. These design parameters are based upon the assumption that walls will retain only level backfill and no hydrostatic pressure will be present. Any other surcharge pressures should be added to the above recommended lateral earth pressures. Retaining walls should be backfilled with free draining granular material that extends vertically to the bottom of the stem and laterally at least six (6) inches beyond the face of the stem (wall) and wrapped with a Mirafi 180 N or equivalent non-woven filter fabric. Weep holes should be provided on the walls at regular intervals, or a slotted drainpipe placed at the bottom of the wall (bottom of granular material) to relieve any possible build-up of hydrostatic pressure. Backfill material within two (2) feet of the wall should be compacted with hand-held equipment only, and to at least ninety percent (90%) of the maximum ASTM D1557 standard.

9.0 CONCRETE SLAB DESIGN

Interior structural concrete slabs should be underlain with at least six (6) inches of Type 2, Class B Aggregate Base, compacted to a minimum of ninety-five percent (95%) relative compaction, as determined by the ASTM D1557 Standard, and supported on two (2) feet of properly prepared structural fill soils. We recommend the aggregate base be placed after utility trenches are excavated and backfilled. A vapor barrier should be provided for all interior concrete slabs where floor moisture is undesirable. The vapor barrier shall meet the requirements of ASTM E1745, Class A, and be at least ten (10) mils thick. The vapor barrier shall be installed per the manufacturer's recommendations.

Slab thickness design should be based on a Modulus of Subgrade Reaction equal to two hundred (200) pounds-per-cubic-inch (pci) for construction on two (2) feet of properly prepared structural fill. Reinforcement of concrete slabs should be as specified by the Project Structural Engineer.

Exterior concrete improvements should be underlain with at least six (6) inches of Type 2, Class B aggregate base and twelve (12) inches of properly prepared structural fill. All subgrade and fill should be prepared and placed as described in the grading section of this report, while the aggregate base material should be compacted to at least ninety-five percent (95%) relative compaction as determined by the ASTM D1557 standard.

10.0 CORROSION AND CHEMICAL ATTACK

On-site soils have a mild water-soluble sulfate content of less than 0.10% (0.02% actual). Therefore, we recommend all concrete in direct contact with site soils contain Type II cement.

All exterior concrete should have between four and one half (4.5%) and seven and one half (7.5%) percent entrained air, a maximum water-cement ratio of 0.45, and comply with all other ACI recommendations for concrete placed in areas subject to freezing. A minimum compressive strength of four-thousand (4,000) psi is recommended for all external concrete. All interior concrete should also be placed pursuant to ACI recommendations.

Tested native soil has a pH of 7.28 and a resistivity of 1,600 ohm-cm under saturated conditions. This indicates the native soils have a high corrosive potential for ferrous metals in contact with these soils. Therefore, corrosion prevention measures are recommended.

11.0 EROSION CONTROL

The potential for dust generation is high at this project. Dust control will be mandatory on this project in order to comply with air quality standards. The contractor shall be responsible for submitting a dust control plan and securing any required permits.

Stabilization of all slopes and areas disturbed by construction will be required to prevent erosion and to control dust. Stabilization may consist of rip-rap, revegetation, or dust palliative, depending on the inclination of the slope.

In order to minimize storm water discharge from this site, best management practices should be implemented.

12.0 UTILITY EXCAVATIONS

On-site soils are anticipated to be excavatable with conventional construction equipment. Compliance with OSHA regulations should be enforced for Type C soils. Excavated soils will be suitable for backfill of utility trenches outside of structural zones after screening any oversize material (+4 inch) and debris, are moisture conditioned to at least optimum moisture content, placed in eight (8) inch maximum loose lifts, and compacted to a minimum of ninety percent (90%) (ASTM D1557). On-site soils are not suitable for use as, and do not meet the minimum requirements for, Class A bedding and should be imported, where required.

13.0 MOISTURE PROTECTION, EROSION AND DRAINAGE

The finish surfaces around all structures should slope away from the building and toward appropriate drop inlets or other surface drainage devices. It is recommended that within ten (10) feet of the buildings a minimum slope of five percent (5%) be used for soil subgrades and one percent (1%) be used for pavements. These grades should be maintained for the life of the structures.

Landscaping and downspouts should be planned to prevent discharge adjacent to buildings. Additionally, water flow should be conveyed and re-routed to discharge areas away from any site improvements.

Backfill adjacent to the proposed building perimeters should be compacted to at least ninety percent (90%) of the maximum ASTM D1557 standard to minimize water infiltration into the foundation soils.

14.0 CONSTRUCTION SPECIFICATIONS

All work on-site shall be governed by the latest edition of the International Building Code (IBC) as accepted by Elko County, except where modified herein.

All work off-site shall be governed by the Standard Specifications and Standard Details for Public Works Construction (SSPWC), as distributed by Elko County, except as modified herein.

15.0 LIMITATIONS

This report has been prepared in accordance with the currently accepted engineering practices in Northern Nevada. The analysis and recommendations in this report are based upon exploration performed at the locations shown on the site plan, the proposed improvements as described in the Introduction section of this report and upon the property in its condition as of the date of this report. Lumos makes no guarantee as to the continuity of conditions as subsurface variations may occur between or beyond exploration points and over time. Any subsurface variations encountered during construction should be immediately reported to Lumos so that, if necessary, Lumos' recommendations may be modified.

This report has been prepared for and provided directly to Great Basin Water Company ("The Client"), and any and all use of this report is expressly limited to the exclusive use of the Client. The Client is responsible for determining who, if anyone, shall be provided this report, including any designers and subcontractors whose work is related to this project. Should the Client decide to provide this report to any other individual or entity, Lumos shall not be held liable for any use by those individuals or entities to whom this report is provided. The Client agrees to indemnify, defend and hold harmless Lumos, its agents, and employees from any claims resulting from unauthorized users.

If this report is utilized in the preparation of an Engineer's Estimate of Probable Construction Costs, then the preparer of the estimate acknowledges that the report recommendations are based on the subsurface conditions found at the specific locations investigated on site; that subsurface conditions may vary outside these locations; and that no guaranty or warranty, express or implied, is made that the conditions encountered are representative of the entire site. The preparer of the estimate agrees to indemnify, defend and hold harmless Lumos & Associates, its agents and employees from any and all claims, causes of action or liability arising from any claims resulting from the use of the report in the preparation of an Engineer's Cost Estimate.

This report is not intended for, nor should be utilized for, bidding purposes. If it is utilized for bidding purposes, Client acknowledges that the report recommendations are based on the subsurface conditions found at the specific locations investigated on site; that subsurface conditions may vary outside these locations; and that no guaranty or warranty, express or

implied, is made that the conditions encountered are representative of the entire site. The Client agrees to indemnify, defend and hold harmless Lumos & Associates, its agents and employees from any and all claims, causes or action or liability arising from any claims resulting from the use of the report for bidding purposes.

As explained above, subsurface variations may exist and as such, beyond the express findings located in this report, no warranties express, or implied, are made by this report. No affirmation of fact, including but not limited to statements regarding suitability for use of performance shall be deemed to be a warranty or guaranty for any purpose.

Mitch Burns, P.E.
Materials Engineering Manager

17.0 References

American Society for Testing and Materials (ASTM), 2020, Annual Book of ASTM Standards, West Conshohocken, PA

Occupational Safety and Health Administration (OSHA), 1995, Occupational Safety and Health Standards for the Construction Industry, Commerce Clearing House, Inc.

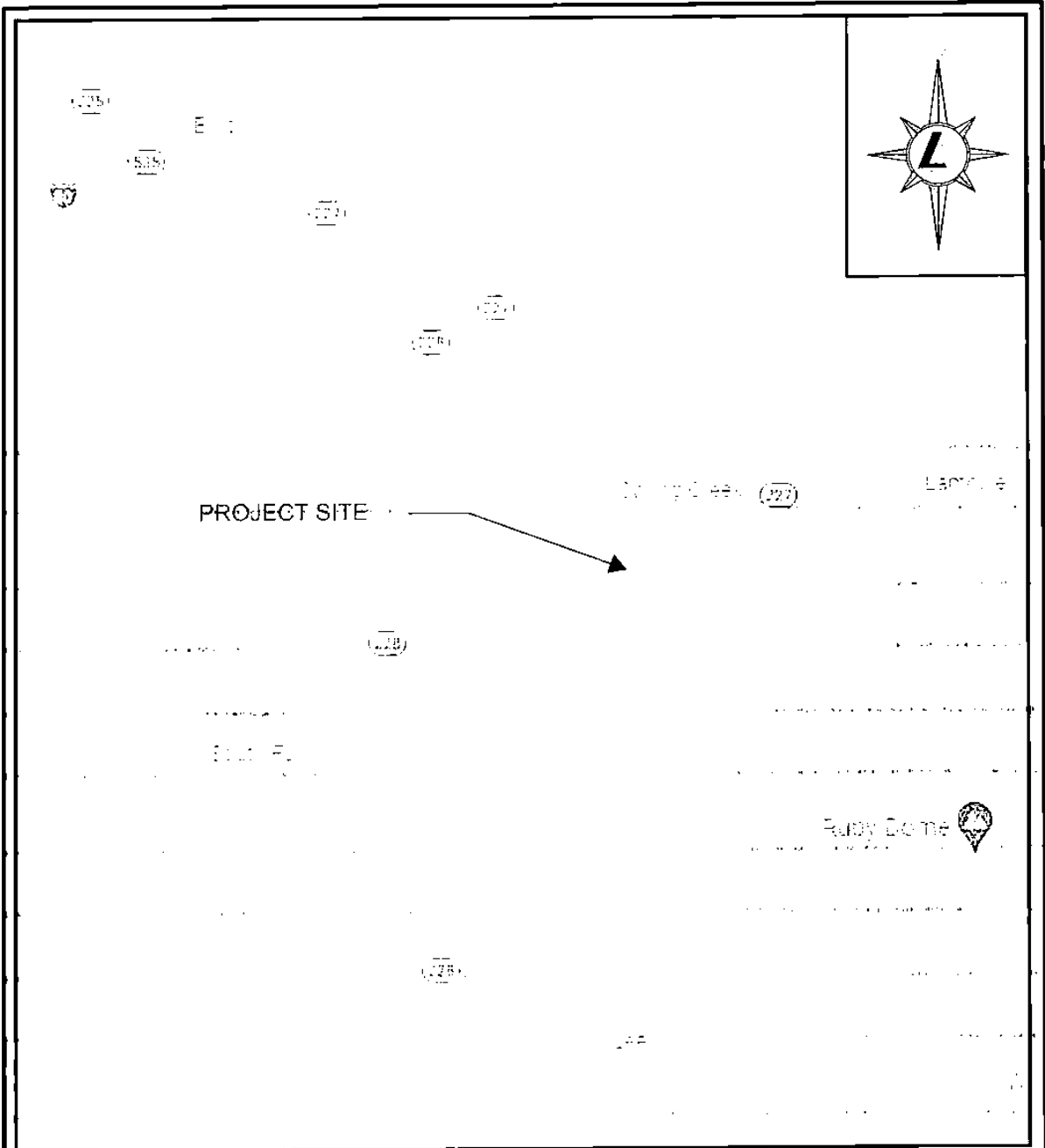
International Conference of Building Officials, 2018, International Building Code (IBC), ICBO, Whittier, CA

Naval Facilities Engineering Command, 1986, Design Manual 7.01

Naval Facilities Engineering Command, 1986, Design Manual 7.02

Elko County, 2016, Standard Specifications for Public Works Construction, "Orange Book", Elko County, NV

USGS 2002 Website, www.usgs.gov



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SCUC Well 8 Replacement

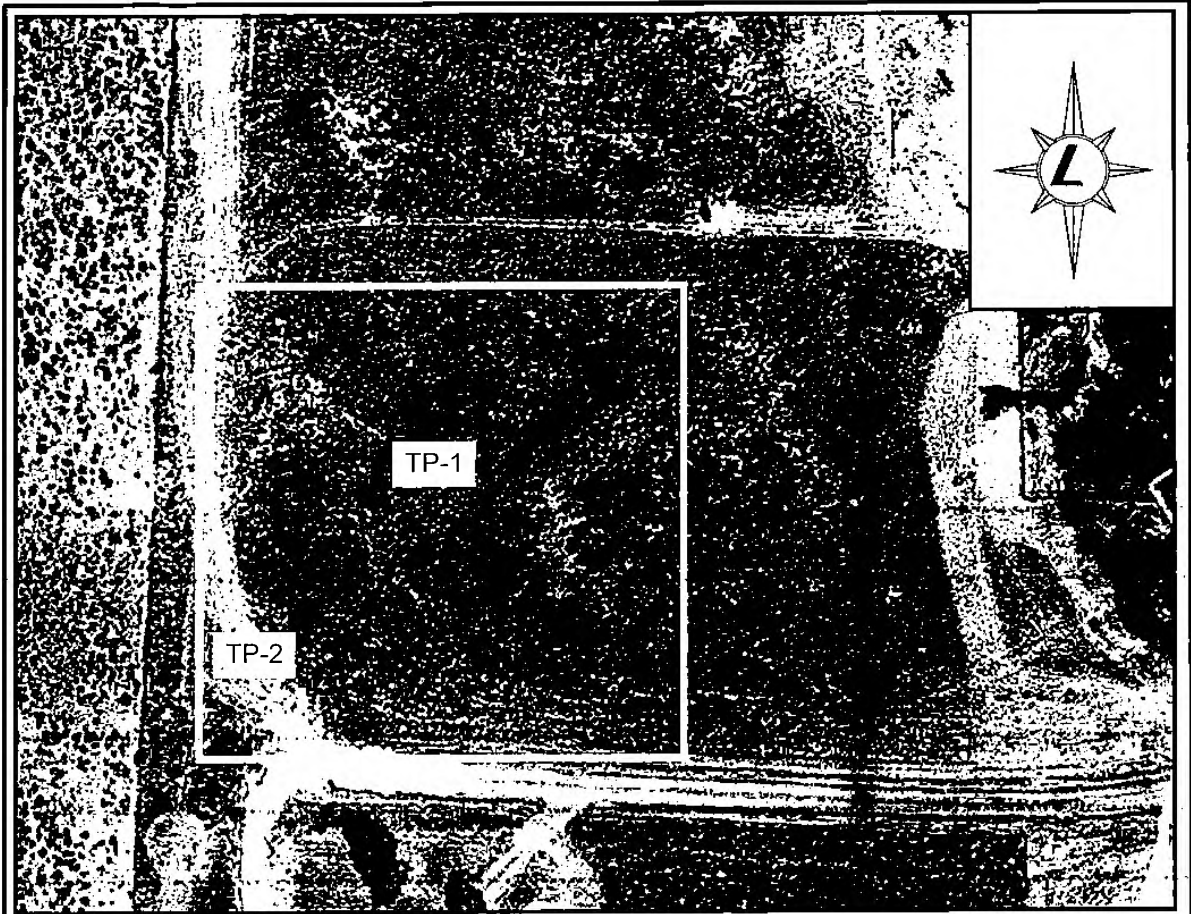
VICINITY MAP

PLATE


1

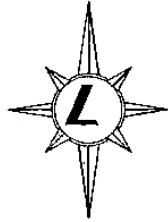
Job Number: 8595.004

Date: January, 2022

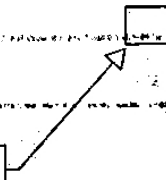


 Approximate Test Pit Location

 <p>Lumos & Associates 808 E. College Pkwy, Suite 101 Carson City, NV 89706 (775) 883-7077 Fax: (775) 883-7114 mburns@lumosinc.com</p>	<p>SCUC Well 8 Replacement</p> <p>SITE MAP</p> <p>Job Number: 8595.004</p> <p>Date: January, 2022</p>	<p>PLATE</p> <p>2</p>
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PROJECT SITE



Qa

Ts3

Ts3 - Tuffaceous Sedimentary Rocks - Locally includes minor amounts of tuff



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GEOLOGY MAP

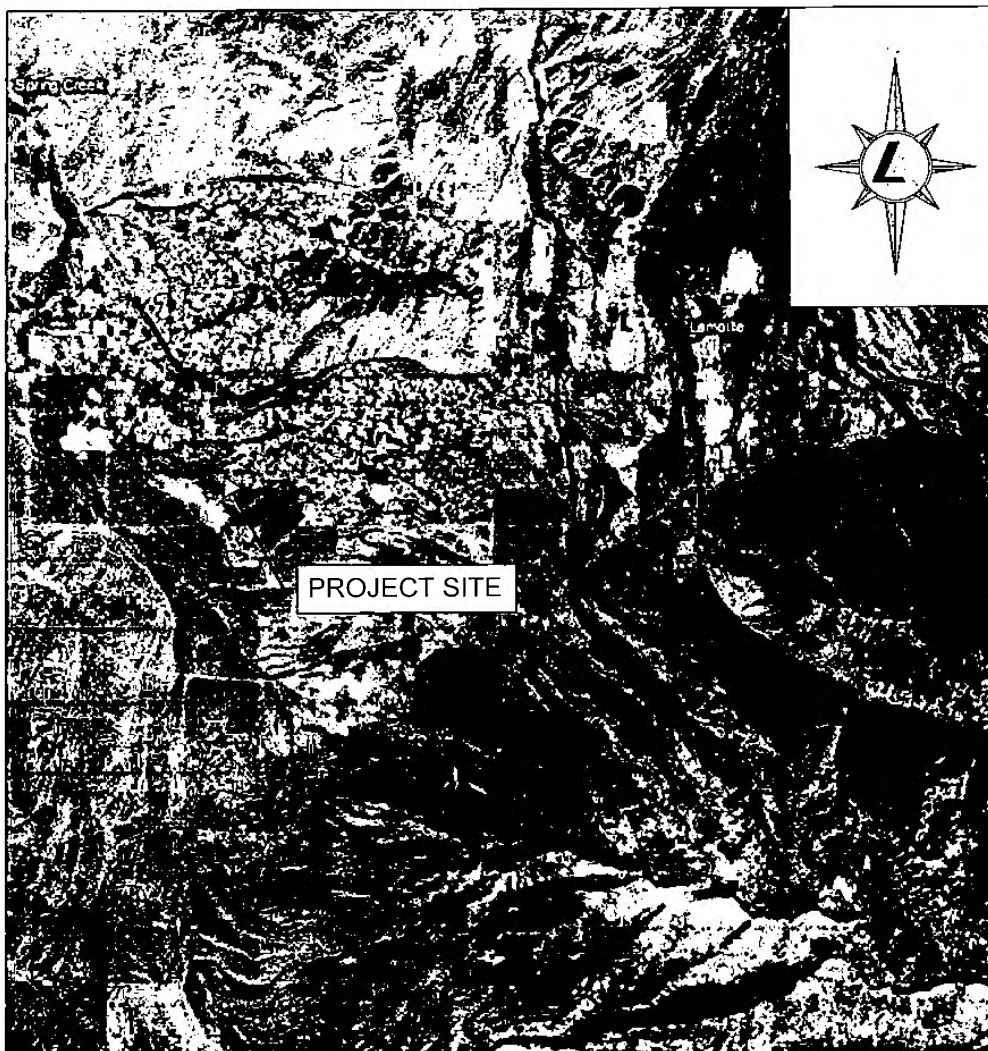
PLATE

3

Job Number: 8595.004

Date: January, 2022

Quaternary Faults of Nevada



January 25, 2022

1:144,448

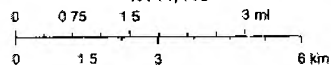
Quaternary Faults by Age - 100m Buffer:

- less than 15,000
- less than 130,000
- less than 750,000
- less than 1,800,000
- Class B faults
- Unclassified

less than 150

Quaternary Faults by Age

- less than 15,000 years
- less than 130,000 years
- less than 750,000 years
- less than 1,800,000 years
- Class B faults



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SCSU Well 8 Replacement

FAULT MAP

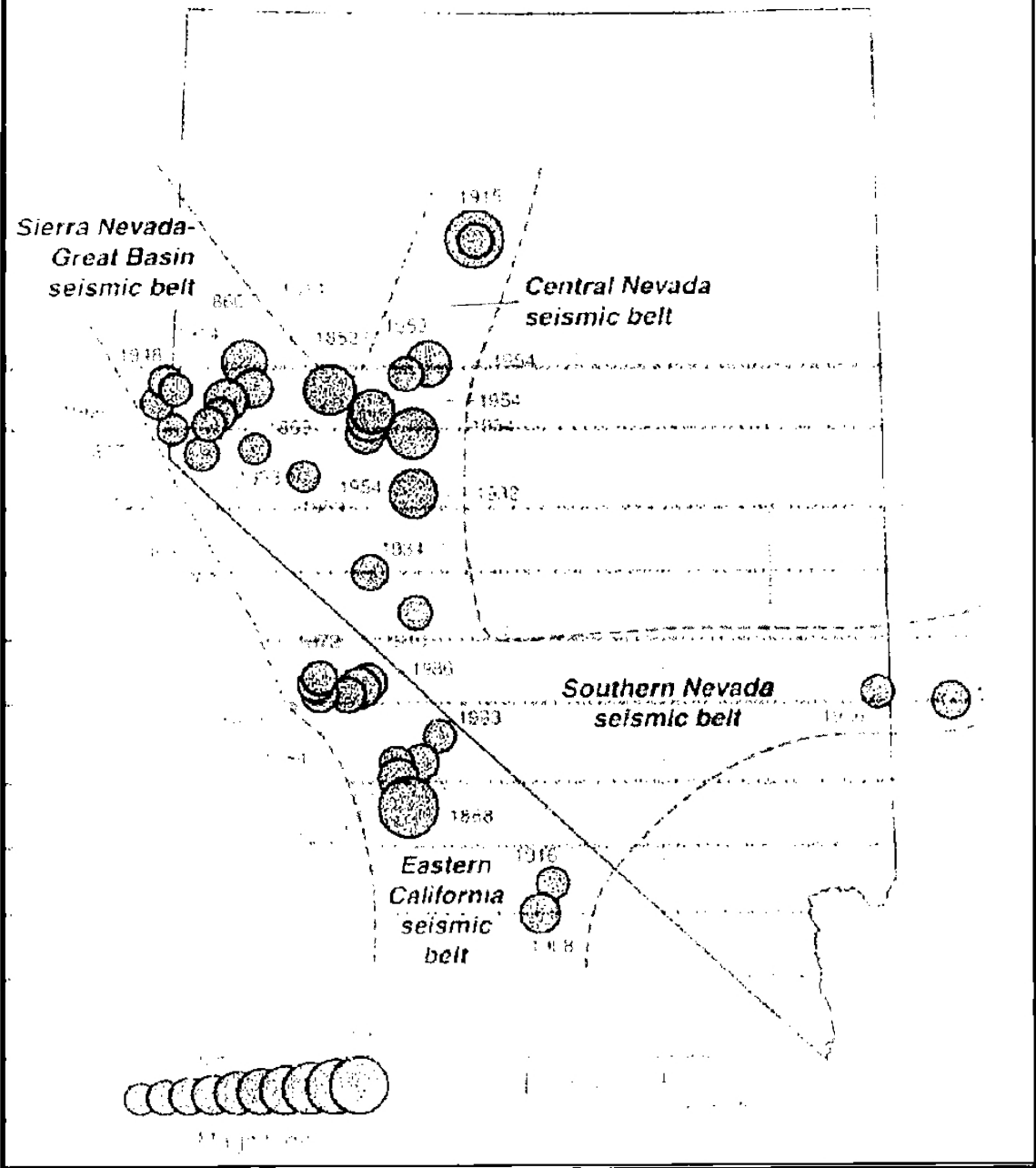
PLATE

4

Job Number: 8595.004

Date: January, 2022

MAJOR EARTHQUAKES AND SEISMIC BELTS



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SCUC Well 8 Replacement
MAJOR EARTHQUAKES/SIEMIC BELTS

PLATE

5

Job Number: 8595.004

Date: January, 2022

MODIFIED MERCALLI INTENSITY SCALE

INTENSITY	EFFECTS
I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeable indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awaken. Dishes, windows, doors disturbed, walls make cracking sound. Sensation like heavy truck striking building; standing motor cars rock noticeably.
V	Felt by nearly everyone; many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbance of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Disturbs persons driving motor cars.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures with foundations destroyed; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (sloped) over banks.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air.

From Wood and Newman, 1931, by U.S. Geological Survey, 1974, Earthquake Information Bulletin, v. 6, no. 5, p. 28

Richter Magnitude	Intensity (maximum expected Modified Mercalli)
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - VIII
7.0 - 7.9	IX - X
8.0 - 8.9	XI - XII



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SCUC Well 8 Replacement
MODIFIED MERCALLI SCALE

PLATE

6

Job Number: 8595.004

Date: January, 2022

APPENDIX A

Field Exploration



EXPLORATION No. TP-1

Logged By: **M. Hartley**
 Date Logged: **1/13/2022**
 Equipment Type: **CAT Backhoe**

Total Depth: **11.5 feet**
 Water Depth: **No groundwater encountered**
 Ground Elev.: **Existing Grade**

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	Natural Moisture Content, %	In-Place Moisture Content, %	In Place Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	Direct Shear	Expansion Index
1		B	Sandy Lean CLAY (CL) Brown, Moist, Stiff Estimated: 30% Medium to Fine Sand 70% Clay	16.9	97.0								
2		B	Silty SAND (SM) Tan, Slightly Moist, Loose to Medium Dense	23.4	61.3								
3													
4													
5			Becoming Light Brown and Moist at 4.5'										
6		B					NP	NP	8.0	68.6	23.4		
7													
8		B	Silty SAND (SM) Orange-Brown, Slightly Moist, Dense Estimated: 10% Gravel to 1/2" 50% Coarse to Fine Sand 40% Silt	9.0									
9		B	Clayey SAND (SC) Light Green, Moist, Dense Estimated: 60% Coarse to Fine Sand 40% Clay										
10													
11													

Test Pit terminated at 11.5 feet
 Test Pit backfilled without compaction verification

LUMOS TP FULL PAGE SCUC WELL 8 REPLACEMENT GP US LAB GDT 1/26/22

 LUMOS & ASSOCIATES	Lumos & Associates 808 E. College Pkwy, Suite 101 Carson City, NV 89706 (775) 883-7077 Fax: (775) 883-7114 mburns@lumosinc.com	SCUC Well 8 Replacement LOG OF EXPLORATORY TEST PIT Job Number: 8595.004	PLATE A-1 Date: January 2022
----------------------------------	---	---	---

EXPLORATION No. TP-2

Logged By: **M. Hartley** Total Depth: **11 feet**
 Date Logged: **1/13/2022** Water Depth: **No groundwater encountered**
 Equipment Type: **CAT Backhoe** Ground Elev.: **Existing Grade**

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION			Natural Moisture Content, %	In-Place Moisture Content, %	In Place Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	Direct Shear	Expansion Index
			Percolation Test	Split Spoon	Ziplock Sample										
1		B	Sandy CLAY (CL) Brown, Moist, Stiff to Very Stiff		9.7		109.2								
2		B	Silty SAND (SM) Tan, Slightly Moist, Loose to Medium Dense Estimated: 10% Gravel 70% Medium to Fine Sand 20% Silt	1.8					33	13	1.3	28.2	70.5		
3		B				15.4		87.6							
4		B													
5		B	Becoming Light Brown and Moist at 4.5'												
6															
7															
8															
9					9.0										
10		B	Clayey SAND (SC) Light Green, Moist, Dense. Estimated: 60% Coarse to Fine Sand 40% Clay												
11					11.0										

Test Pit terminated at 11 feet.
 Test Pit backfilled without compaction verification

LUMOS TP FULL PAGE SCUC WELL 8 REPLACEMENT GPJ US LAB BOT 1/26/22



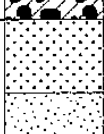


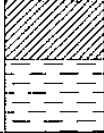

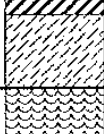




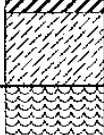
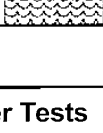
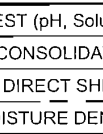


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SCUC Well 8 Replacement
LOG OF EXPLORATORY TEST PIT
 Job Number: 8595.004 Date: January 2022

PLATE
A-2

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</small>	GRAVEL AND GRAVELLY SOILS <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH SILT		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		GRAVELS WITH CLAY		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS <small>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</small>	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH SILT		SM	SILTY SANDS, SAND - SILT MIXTURES
		SANDS WITH CLAY		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS <small>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</small>	SILTS AND CLAYS <small>LIQUID LIMIT LESS THAN 50</small>		ML	INORGANIC SILTS AND VERY FINE SANDS; ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS <small>LIQUID LIMIT GREATER THAN 50</small>		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Other Tests	
AN	ANALYTICAL TEST (pH, Soluble Sulfate, and Resistivity)
C	CONSOLIDATION TEST
DS	DIRECT SHEAR TEST
MD	MOISTURE DENSITY CURVE

LUMOS LEGEND SCUC WELL 8 REPLACEMENT.GPJ 10-23-06.GDT 1/2022



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SCUC Well 8 Replacement

LEGEND

Job Number: 8595.004

Date: January 2022

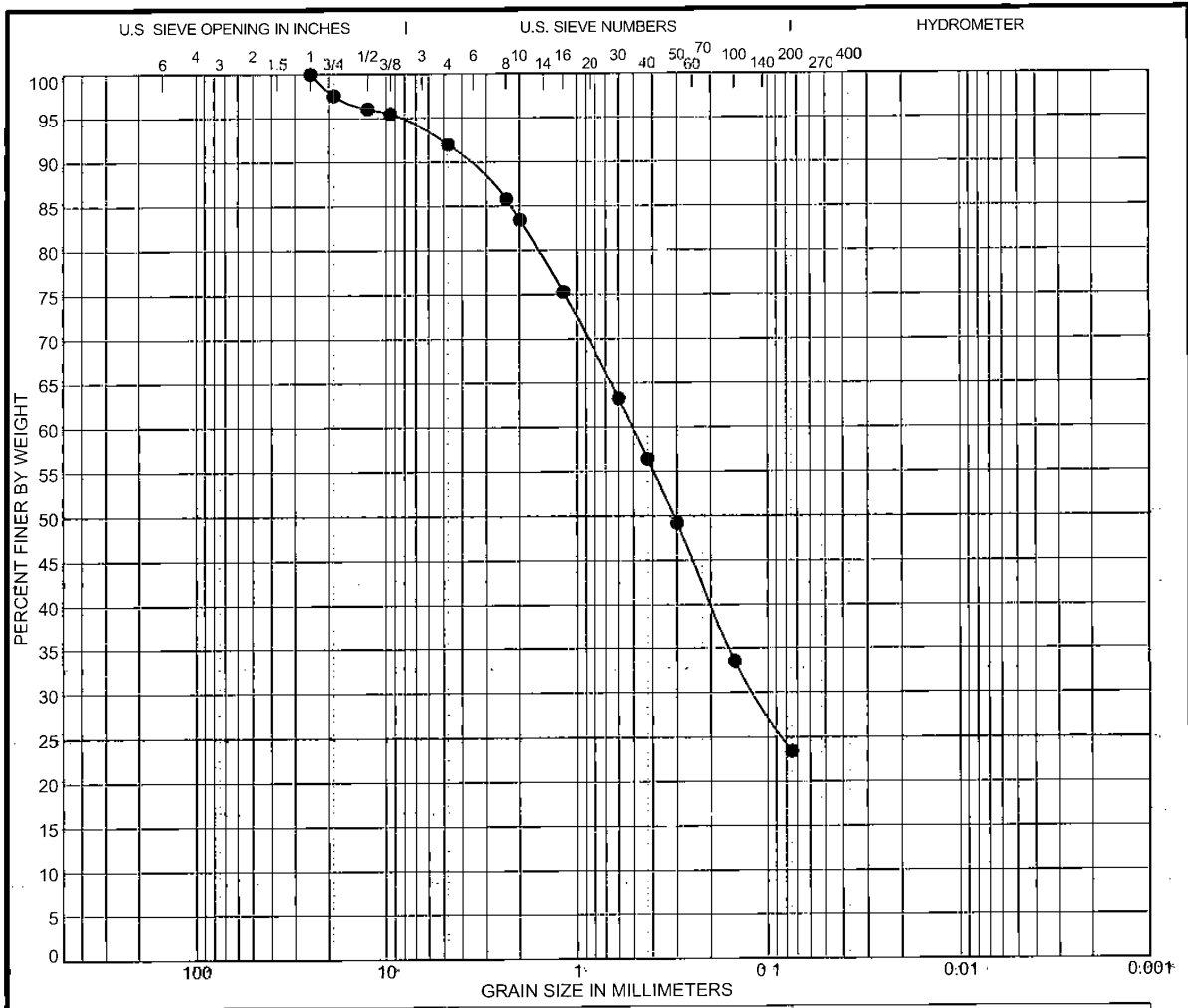
PLATE

A-3

APPENDIX B

Soils Laboratory Test Results



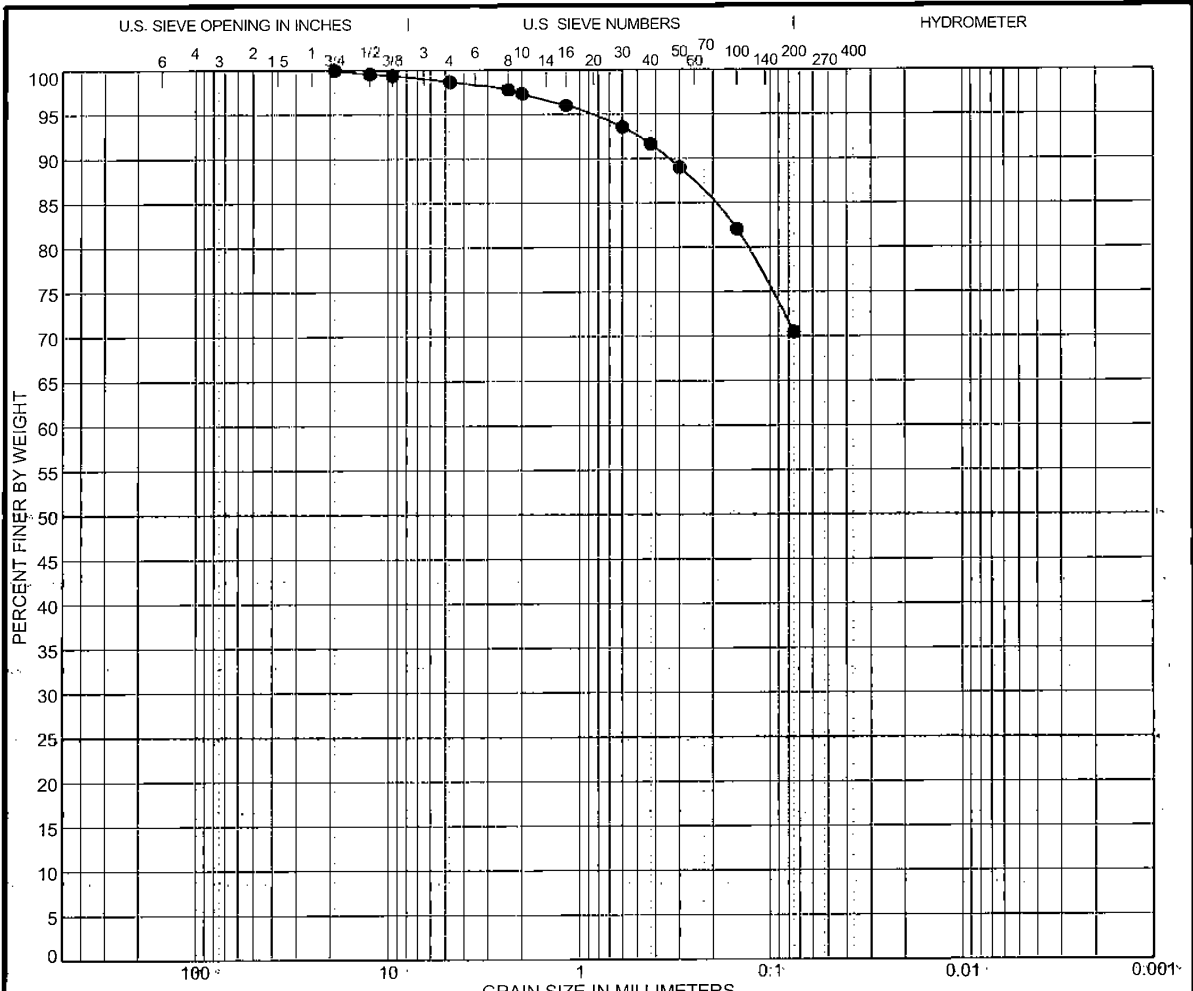


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 1/17					LL	PL	PI	Cc	Cu
TP-1	Classification					NP	NP	NP		
Depth: 5.5'	Silty SAND (SM)									
Sample Location	TP-1 from 5.5' to 6'									
USCS	SM									
AASHTO										
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
TP-1	25	0.509	0.118		8.0	68.6		23.4		
Depth: 5.5										
Natural Moisture	%		Direct Shear		Absorption %					
R-Value			Insitu Density		Soundness					
Expansion Index			Specific Gravity		S.E.					

	Lumos and Associates Inc. 808 East College Pkwy Suite 101 Carson City, NV 89703 1-775-883-7077 Fax: 1-775-883-7114 mburns@lumosinc.com	SCUC Well 8 Replacement GRAIN SIZE DISTRIBUTION Job Number: 8595.004	PLATE B-1.1 Date: January 2022

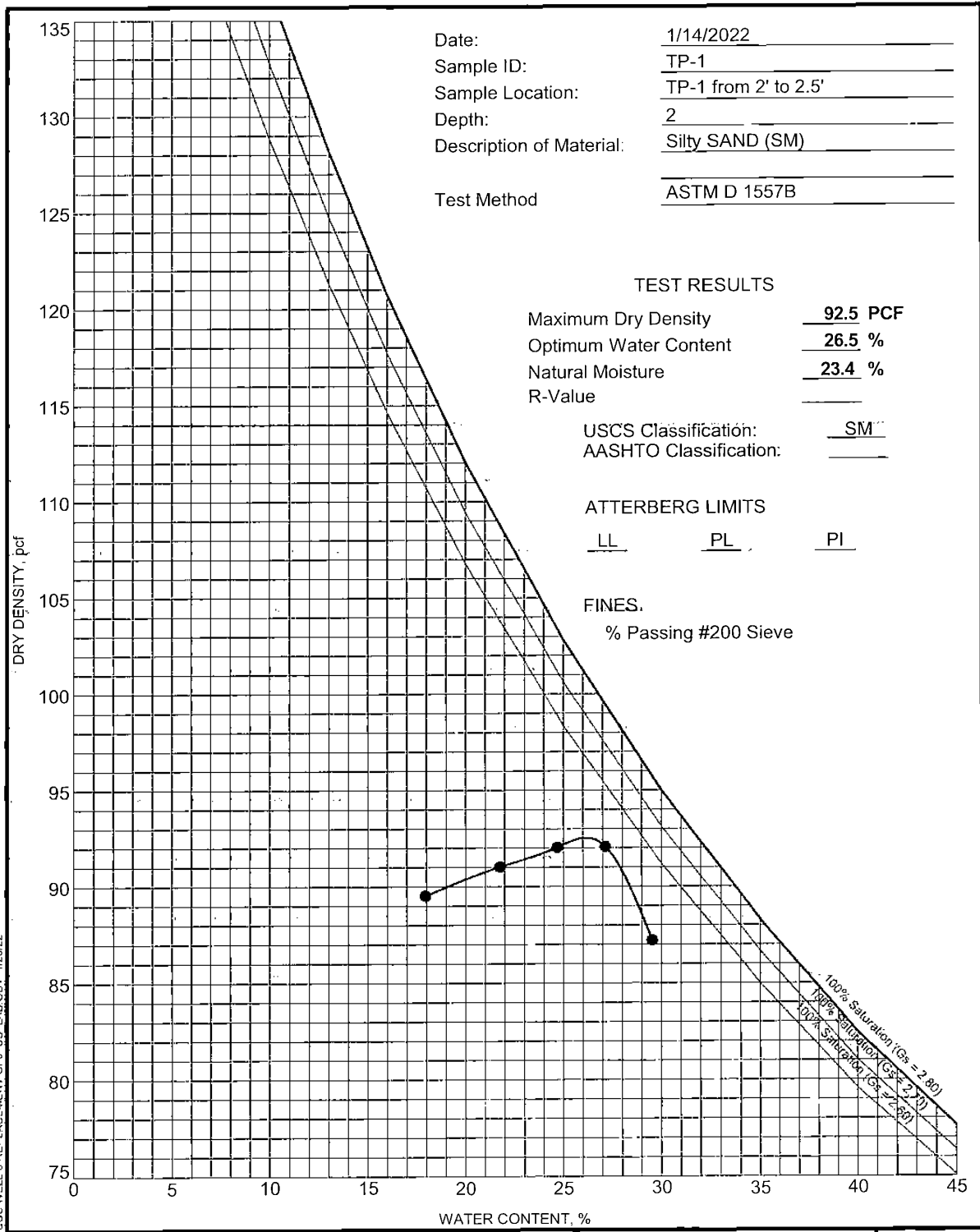
LUMOS GRAIN SIZE SCUC WELL 8 REPLACEMENT GPJ US LAB.GDT 1/2022



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Date: 1/17/22		LL	PL	PI	Cc	Cu	
●	TP-2	Classification		33	20	13			
	Depth: 0.5'	Sandy CLAY (CL)							
	Sample Location	TP-2 from 0.5' to 1'							
	USCS	CL							
	AASHTO								
Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP-2	19				1.3	28.2	70.5	
	Depth: 0.5								
	Natural Moisture	%		Direct Shear		Absorption %			
	R-Value			Insitu Density		Soundness			
	Expansion Index			Specific Gravity		S.E.			

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Date: 1/14/2022
 Sample ID: TP-1
 Sample Location: TP-1 from 2' to 2.5'
 Depth: 2
 Description of Material: Silty SAND (SM)
 Test Method: ASTM D 1557B


TEST RESULTS
 Maximum Dry Density 92.5 PCF
 Optimum Water Content 26.5 %
 Natural Moisture 23.4 %
 R-Value _____

USCS Classification: SM
 AASHTO Classification: _____

ATTERBERG LIMITS
LL PL PI

FINES.
 % Passing #200 Sieve

LUMOS COMPACTION SCUC WELL 8 REPLACEMENT GPJ VS. LAB.GDT. 1/20/22



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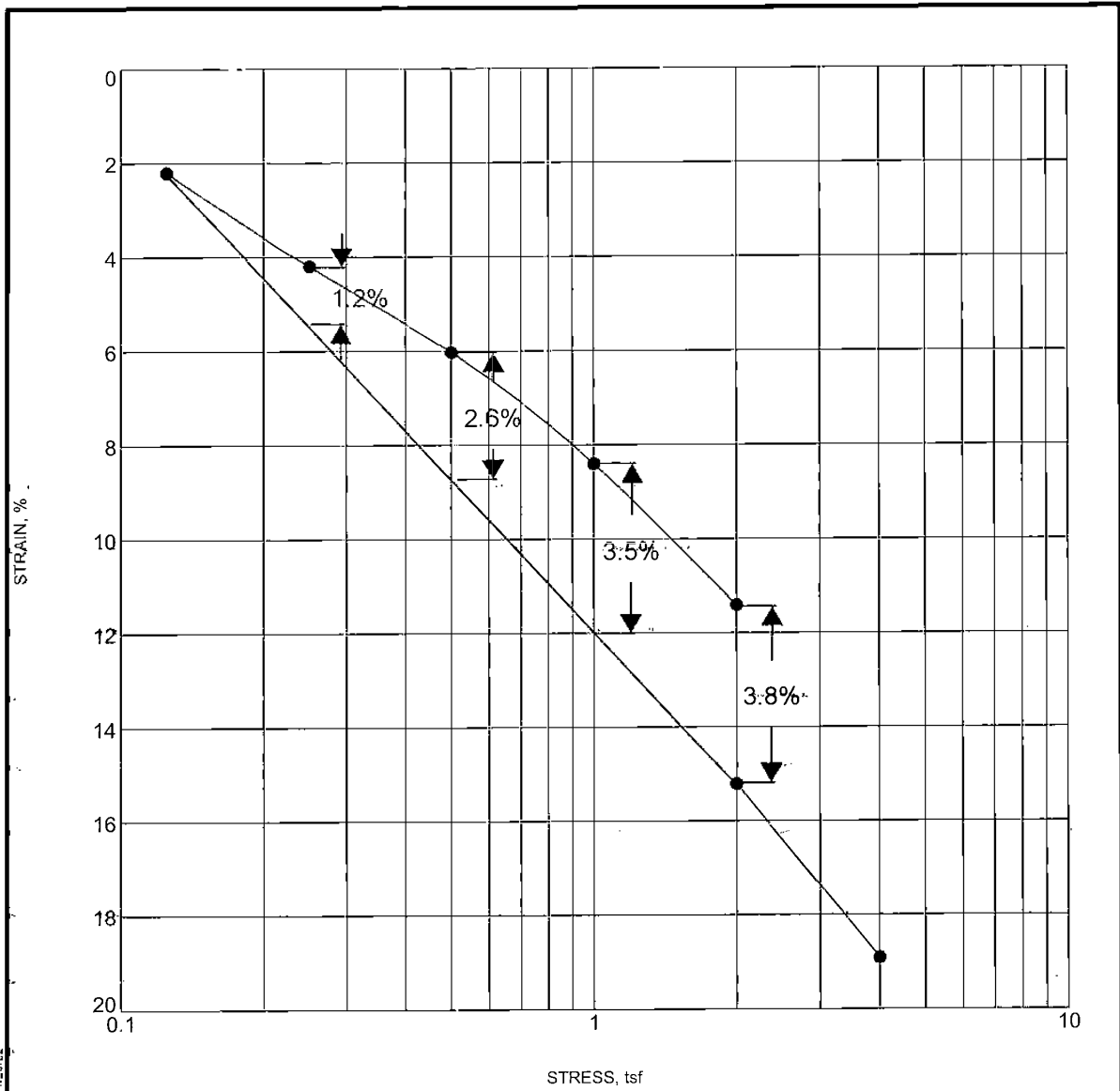
SCUC Well 8 Replacement

MOISTURE-DENSITY CURVE

Job Number: 8595.004 Date: January 2022


PLATE

B-3



LUMOS CONSOL STRAIN SCUC WELL 8 REPLACEMENT GPJ US LAB GDT 1/20/22

Specimen Identification	Classification	γ_d	MC%
● TP-1 2.0	Silty SAND (SM)	61	23

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Silver State
Analytical Laboratories

Sierra Environmental Monitoring

Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

Analytical Report

Workorder#: 22010680
Date Reported 1/24/2022

Client: Lumos and Associates - Reno
Project Name: 8595.004/ SCSU Well 8 TP-2 2' - 2.5'
PO #: 8595 004/ MTB

Sampled By: Michael Hartley

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
22010680-01	SCSU Well 8 TP-2 2' - 2.5'	01/13/2022 0:00	1/14/2022

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chloride	EPA 9056	13	mg/Kg	5	CTR	01/20/2022 5:39	
pH	SW-846 9045D	7.28	pH Units		AC	01/24/2022 10:00	
pH Temperature	SW-846 9045D	20.0	°C		AC	01/24/2022 10:00	
Resistivity	AASHTO T288	1600	Ohms-cm		SR	01/18/2022 14:19	
Sodium	ASTM D2791	< 0.01	%	0.01	AC	01/21/2022 10:35	
Sodium Sulfate as Na2SO4	Calculation	< 0.01	%	0.01	AC	01/21/2022 11:43	
Sulfate	SM4500 SO4E	0.02	%	0.01	AC	01/21/2022 13:25	



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Fax: 1-775-883-7114
mburns@lumosinc.com

SCUC Well 8 Replacement
ANALYTICAL TESTING

Job Number: 8595.004

Date: January 2022

PLATE
B-5

APPENDIX C

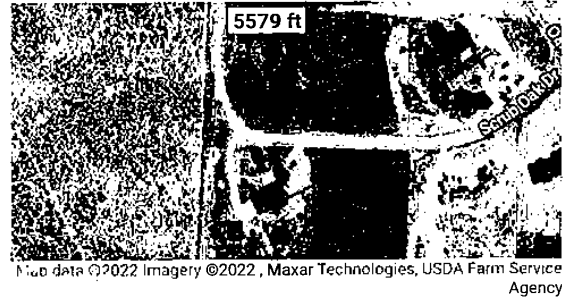
Design Response Spectrum



ATC Hazards by Location

Search Information

Coordinates: 40.702608567990985, -115.59422217488597
Elevation: 5579 ft
Timestamp: 2022-01-20T23:09:49.102Z
Hazard Type: Seismic
Reference Document: ASCE7-16
Risk Category: III
Site Class: D-default



Basic Parameters

Name	Value	Description
S_S	0.643	MCE_R ground motion (period=0.2s)
$S_{1.}$	0.214	MCE_R ground motion (period=1.0s)
S_{MS}	0.826	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	0.551	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
$F_{a.}$	1.286	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.921	Coefficient of risk (0.2s)
CR_1	0.944	Coefficient of risk (1.0s)
PGA	0.277	MCE_G peak ground acceleration
F_{PGA}	1.323	Site amplification factor at PGA
PGA_M	0.366	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)



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SCUC Well 8 Replacement
DESIGN RESPONSE SPECTRUM

Job Number: 8595.004

Date: January, 2022

PLATE
C-1

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the [U.S. Seismic Design Maps web tools](#) (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

^ Input

Edition

Dynamic: Conterminous U.S. 2014 (v...

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

40.7026

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western longitudes...

-115.5942

Site Class

1150 m/s (Site class B)



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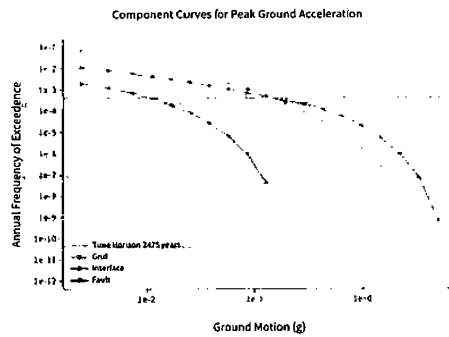
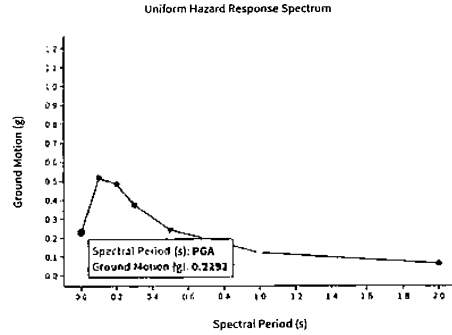
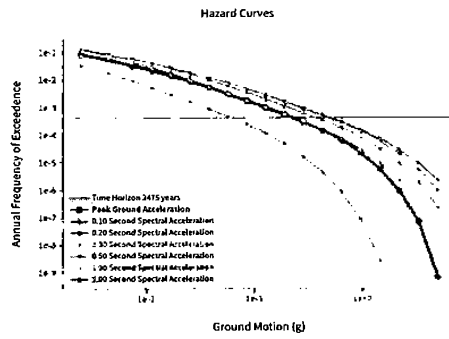
SCUC Well 8 Replacement
PEAK GROUND ACCELERATION

Job Number: 8595.004

Date: January, 2022

PLATE
C-2.1

^ Hazard Curve



[View Raw Data](#)



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SCUC Well 8 Replacement
PEAK GROUND ACCELERATION

Job Number: 8595.004

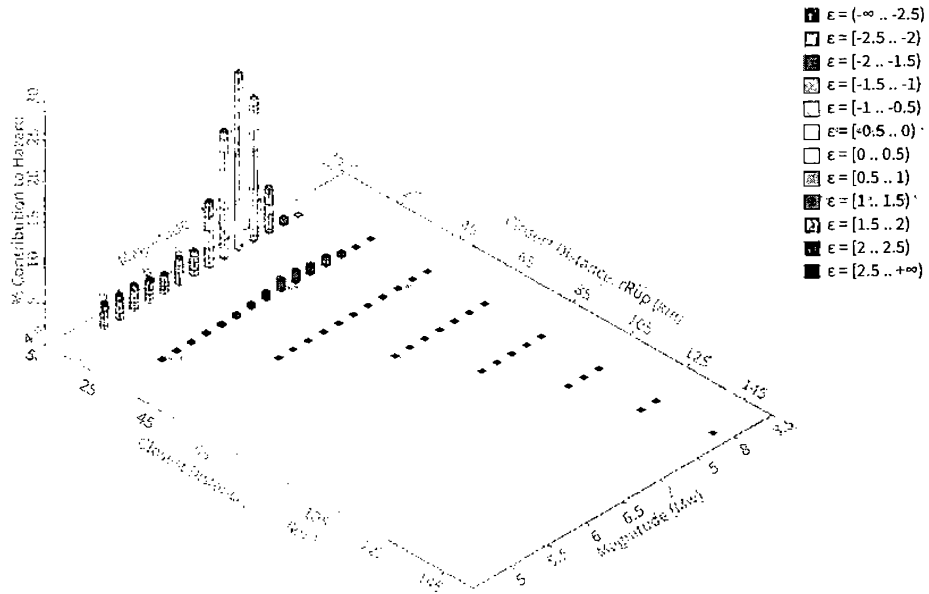
Date: January, 2022

PLATE
C-2.2

Deaggregation

Component

Total



<https://earthquake.usgs.gov/hazards/interactive/>

3/5



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SCUC Well 8 Replacement
PEAK GROUND ACCELERATION

Job Number: 8595.004

Date: January, 2022

PLATE
C-2.3

Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr⁻¹
PGA ground motion: 0.22919856 g

Recovered targets

Return period: 2522.733 yrs
Exceedance rate: 0.0003963955 yr⁻¹

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.13 %

Mean (over all sources)

m: 6.63
r: 9.63 km
ε: -0.01 σ

Mode (largest m-r bin)

m: 6.9
r: 6.96 km
ε: -0.55 σ
Contribution: 21.81 %

Mode (largest m-r-ε bin)

m: 6.9
r: 6.04 km
ε: -0.29 σ
Contribution: 6.56 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

- ε0: [-∞ .. -2.5]
- ε1: [-2.5 .. -2.0]
- ε2: [-2.0 .. -1.5]
- ε3: [-1.5 .. -1.0]
- ε4: [-1.0 .. -0.5]
- ε5: [-0.5 .. 0.0]
- ε6: [0.0 .. 0.5]
- ε7: [0.5 .. 1.0]
- ε8: [1.0 .. 1.5]
- ε9: [1.5 .. 2.0]
- ε10: [2.0 .. 2.5]
- ε11: [2.5 .. +∞]



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SCUC Well 8 Replacement
PEAK GROUND ACCELERATION

Job Number: 8595.004

Date: January, 2022

PLATE
C-2.4

Deaggregation Contributors

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
Geologic Model Full Rupture		Fault							29.21
	Ruby Mountains - south 50		5.41	7.03	-0.89	115.578°W	40.644°N	167.99	15.76
	Ruby Mountains - south 35		4.21	7.03	-1.10	115.578°W	40.644°N	167.99	5.55
	Ruby Mountains - south 65		6.20	7.03	-0.60	115.578°W	40.644°N	167.99	4.76
	Northern Huntington Valley 50		19.42	6.91	1.12	115.569°W	40.523°N	173.97	1.01
Geologic Model Partial Rupture		Fault							24.90
	Ruby Mountains - south 50		7.13	6.77	-0.45	115.578°W	40.644°N	167.99	14.20
	Ruby Mountains - south 35		6.02	6.77	-0.58	115.578°W	40.644°N	167.99	5.01
	Ruby Mountains - south 65		7.92	6.77	-0.24	115.578°W	40.644°N	167.99	4.22
EXTmap_2014_fixSm.ch.in (opt)		Grid							12.06
	PointSourceFinite: -115.594, 40.707		4.91	5.69	0.15	115.594°W	40.707°N	0.00	2.73
	PointSourceFinite: -115.594, 40.770		8.49	5.88	0.63	115.594°W	40.770°N	0.00	1.16
	PointSourceFinite: -115.594, 40.779		9.12	5.91	0.69	115.594°W	40.779°N	0.00	1.11
EXTmap_2014_adSm.ch.in (opt)		Grid							9.79
	PointSourceFinite: -115.594, 40.707		4.91	5.69	0.15	115.594°W	40.707°N	0.00	2.28
EXTmap_2014_fixSm.gr.in (opt)		Grid							5.48
	PointSourceFinite: -115.594, 40.707		5.09	5.58	0.25	115.594°W	40.707°N	0.00	1.24
EXTmap_2014_adSm.gr.in (opt)		Grid							4.44
	PointSourceFinite: -115.594, 40.707		5.09	5.58	0.25	115.594°W	40.707°N	0.00	1.03
Zeng Model Full Rupture		Fault							3.34
	Ruby Mountains - south 50		5.41	7.03	-0.89	115.578°W	40.644°N	167.99	1.78
Zeng Model Partial Rupture		Fault							2.84
	Ruby Mountains - south 50		7.13	6.77	-0.45	115.578°W	40.644°N	167.99	1.60
EXTmap_2014_fixSm_M8.in (opt)		Grid							2.33
Bird Model Full Rupture		Fault							2.05
EXTmap_2014_adSm_M8.in (opt)		Grid							1.88
Bird Model Partial Rupture		Fault							1.65



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SCUC Well 8 Replacement
PEAK GROUND ACCELERATION

Job Number: 8595.004

Date: January, 2022

PLATE
C-2.5

Attachment-A to Addendum 2

Strategy for water right issue:

The Nevada Division of Water Resources (DWR), using the Glover Analysis, developed a numerical model that indicated that a well drilled adjacent to Stoffer Creek would adversely capture between 25–45 percent of the wells flow from Stoffer Creek over a 5-year period. Because of the DWR analysis, they have commented while they have approved a temporary water right to drill a test hole at the proposed replacement Well 8 site, they would not approve a permanent water right for the same location. The problem with the DWR numerical model is that they are assuming that the aquifer(s) that will be screened are in direct hydraulic communication (water table Aquifer or unconfined aquifer) with Stoffer Creek. Their model used a storage coefficient of 0.1 for the aquifer system. In truth, the aquifers that are being targeted for screening are confined systems with multiple unit of confining clay units sealing off the deep aquifer systems.

The strategy is to drill the test well and screen the deep aquifer systems and then drill a shallow monitoring well (approximately 100 feet deep) to use as an observation well during pump testing. The data collected during the pump testing will be quantified and analyzed to provide evidence that the storage coefficient used by DWR is erroneous. The true storage coefficient is more likely to be 0.001 or less proving that the deep aquifers are confined and not in hydraulic conductivity with the surface water system in the area.

Lumos has conducted a detailed preliminary analysis of the subsurface units using documents from professional papers and well driller reports from domestic wells in the area. Cross-sections were developed to be utilized for correlating confining units to help prove that the either a perch water table and/or water table aquifer is not in direct hydraulic conductivity with the much deeper confine aquifer systems. This addendum is in part to subsidizes the analysis and studies already conducted to put this hypothesis together and multiple meets with the clients and DWR regarding the proposed pre-conclusions. The rest of the addendum cost is to support the time associated with drilling, testing, and analyzing the data associated with a test well, monitoring well.

The addendum had been developed to cover the following cost:

1. Meetings attended with client and DWR regarding the Water Right Issue (\$10,000); and
2. Investigation, document research and analysis supporting that has already occurred and will continue concluding that the DWR Glover Numerical Model Analysis developed by DWR is erroneous and no hydraulic conductivity exists between the Stoffer Creek and deep confining aquifers in the area (\$25,140).

A report will be developed running the Glover Analysis with real values that prove that there is not interception of surface water from the well planned adjacent to the Stoffer Creek.

See Cost Estimate Spreadsheet:



Carson City Fallon Lake Tahoe Reno

Reno
9222 Prototype Drive
Reno, Nevada
775.827.6111

ADDENDUM-5

(ATTACHMENT A)

SCOPE OF WORK

Task-A – Permitting

Lumos will prepare and submit an application with the Nevada Department of Water Resources for a waiver to drill a monitor well, an affidavit of intent to plug a well, and two waivers for provisions of the well drilling regulations to allow for construction modification to a monitoring well. A De Minimis Discharge permit will also be prepared and submitted to Nevada Bureau of Water Pollution Control – NDEP to allow for the discharge of water during development and test pumping. The permit fees are included in this Task for all the permits.

Task-B – Preliminary Design, Specification Documents, Bid Review and Recommendation

Lumos will prepare contract documents and specifications for drilling one test well to analyze the aquifer characteristics, water quantity, and water quality in supports of the site for a future production well. The design and specification documents will be provided to GBWC-SCD so they can integrate them into their contractual documents and send out invitations to bid on the project. Lumos will review all bids for completeness and ensure all bids meet the minimum requirements as outlined in the bid documents. Upon review of the bids for the test well, Lumos will make a recommendation to GBWC-SCD for awarding to the most competent, responsive and cost effective drilling contractor. GBWC-SCD will contract directly with the drilling contractor for the test well.

Task-C – Construction Assistance and Drilling Oversight

Lumos will conduct a pre-construction meeting to go over the specifications and any special conditions that will be required at the project site. During construction, Lumos will oversee the drilling of the test well to ensure that the drilling company adheres to the specifications for the project. Construction assistance will include holding a pre-construction meeting, inspecting all well casing and construction materials, drilling oversight, well development oversight, reviewing billings/invoices, reviewing change order requests, and fielding questions by the contractor.

Phase-D – Test Pumping, Analysis, Hydrologic Report and Record Drawing

Lumos will provide oversight for all test pumping of the test well including designing pumping rates for the step drawdown and constant rate pump tests and collecting water samples. All water quality analysis will be billed and paid directly via GBWC-SCD at a certified lab of their choice. Lumos will prepare a technical memorandum that collectively contains all the test well hydrogeologic data collected and analyzed, preliminary production well design, preliminary production capacity, water quality and final recommendations. The technical memorandum will be provided to GBWC-SCD staff for review and comments. Upon completion of their review, Lumos will conduct a conference call to go over all comments provided by the GBWC-SCD staff. Once Lumos has made revisions to the report, Lumos will provide five (5) hard copies and one (1) electronic copy (pdf format) to GBWC-SCD for their records.

DELIVERABLES

The deliverables for this scope of work include a test well and final hydrologic report of the test well results to the client with recommendations.

ASSUMPTIONS

Lumos has made the following assumptions associated with this addendum. If any of these assumptions are not true, Lumos reserves the right to submit a revised addendum to GBWC-SCD for the additional scope of work associated with this very important project.

- A permit waiver and waiver of the provisions of the well drilling regulations is anticipated from NDWR for the test well and the permit fees will be billed to the client, plus 15%, under Task-A.
- A De Minimis Discharge permit is anticipated from NDEP for development and test pumping and the permit fees will be billed to the client, plus 15%, under Task-A.
- All drill fluids and drill cuttings from the drill rig will be contained on property owned/leased by GBWC-SCD
- All discharge water from test pumping will be land applied via sprinklers.

FEE SCHEDULE

Lumos is proposing the following fixed fee schedule for this addendum to drill and test a small test well at the proposed Well-8 location.

Estimated Subtotal Cost: \$57,252



BUYER BROKERAGE AGREEMENT



1 I/We, GREAT BASIN WATER CO. ("Buyer") hereby employs and grants
 2 Realty 500/Gurr & Associates ("Broker") the exclusive and irrevocable right, commencing on January 13th,
 3 (Company Name)

4 2022, and expiring at midnight on January 12th, 2023, to locate property and negotiate terms and
 5 conditions acceptable to Buyer for purchase, exchange, option, or lease as follows:
 6

7 1. **General Nature of Property:** Buyer intends to acquire an interest in one or more properties meeting the following
 8 general description:
 9 Type: Residential Land Commercial Other: _____

10 2. **Buyer Obligations:**
 11
 12 a. BUYER AGREES TO WORK EXCLUSIVELY with Broker and not with any other Broker.
 13 b. BUYER AGREES TO FURNISH Broker with all relevant data, records, documents and other information
 14 including loan pre-approval letters and proof of funds to purchase upon request of Broker and authorizes Broker to furnish
 15 copies to prospective Sellers, Landlords, Optionors or Exchangors.
 16 c. BUYER AGREES TO BE AVAILABLE to examine property(s) and responding in a timely manner to
 17 communications from Broker.
 18 d. BUYER AGREES TO ACT IN GOOD FAITH to acquire the Property and conduct any and all
 19 inspections/investigations of the Property that Buyer deems material and/or important.
 20 e. NEW HOMES/ LOT SALES: Some Sellers, (particularly new home subdivisions, open houses and for-
 21 sale-by-owner), will not compensate Broker unless Broker makes the first visit with Buyer. If Buyer makes a first visit
 22 without Broker, Buyer agrees to compensate Broker as stated in Brokers Compensation below.
 23 f. BUYER AGREES that, to the fullest extent allowable under Nevada law, that Broker shall be deemed to be
 24 procuring cause for any and all successful real estate transactions which arise from or originate during the term of this
 25 agreement.
 26

27 3. **Broker Representations:**
 28
 29 a. BROKER HOLDS a current, valid Nevada real state license
 30 b. BROKER AGREES TO WORK DILIGENTLY to locate real property acceptable to Buyer
 31 c. BROKER AGREES TO NEGOTIATE, as Buyer's agent, for terms and conditions acceptable to Buyer for
 32 the purchase, exchange, option or lease of real property(s).

33 4. **Broker Compensation:** Broker's compensation shall be paid at the time of and as a condition of closing as follows:
 34 a. Buyer agrees to pay Broker (select all that apply):
 35 1. 5.0 % of the gross selling price of the Property; OR
 36 2. _____ the set amount of \$ N/A. OR
 37 3. _____ whichever is greater of 1 and 2.

38 Buyer authorizes Broker to accept compensation offered by seller or seller's broker, which compensation shall be credited
 39 against any compensation owed by Buyer to Broker.

40 b. In addition to the compensation in 4(a), Buyer agrees to pay Broker \$_____ as and for the flat fee
 41 portion of Broker's total compensation. This flat fee portion is assessed by Broker to its clients and customers in exchange
 42 for real estate services provided and actually performed, and is not required by any state or federal government to ensure that
 43 real estate transactions comply with federal or state laws and regulations.

44 c. Buyer agrees to compensate Broker if the Buyer or any other person acting on the Buyer's behalf enters
 45 into an agreement to purchase, exchange, option, or lease and property of the general nature described herein.

46 d. If completion of any transaction is prevented by Buyer's Default or with the consent of Buyer, the total
 47 compensation due under this Agreement shall be immediately due and payable by Buyer.

48 e. Buyer agrees to pay such compensation if Buyer within N/A calendar days after the termination of this
 49 Agreement enters into an agreement to purchase, exchange, option or lease any property shown to or negotiated on behalf of
 50 the Buyer by Broker during the term of this Agreement, unless Buyer enters into a subsequent agreement with another
 51 Broker.

52 f. Commissions payable for the purchase, exchange, option or lease of property are not set by the Greater Las
 53 Vegas Association of REALTORS® or any Board or Association of REALTORS® or Multiple Listing Service or in any
 54 manner other than as negotiated between Broker and Buyer.



1 constitute one and the same writing. The terms of this Agreement may not be amended, modified or altered except through a
2 written agreement signed by all of the parties hereto.
3

4 **16. Partial Invalidity:** In the event that any provision of this Agreement shall be held to be invalid or unenforceable
5 such ruling shall not affect the validity or enforceability of the remainder of the Agreement in any respect whatsoever.
6

7 **17. Buyer Declaration:** Buyer acknowledges and warrants by signature(s) below that s/he is not already in any
8 exclusive buyer representation agreement with any other broker in the state of Nevada. Entering into multiple
9 agreements could subject you to multiple fee obligations. Buyer acknowledges that he has not relied on any statement of
10 the Broker which are not herein expressed.

11 **18. Acceptance:** Buyer hereby agrees to all of the terms and conditions herein and acknowledges receipt of a copy of
12 this Agreement.
13

14 **19. FIRPTA:** Should the provisions of the Foreign Investment in Real Property Tax Act (FIRPTA) (Internal Revenue
15 Code Section 1445) apply to the Buyers' real estate transaction, Buyer understands that if Seller is a foreign person then the
16 Buyer must withhold a tax in an amount to be determined in accordance with FIRPTA, unless an exemption applies.
17 Additional information for determining status may be found at www.irs.gov.

18 **20. Default:** If completion of any transaction is prevented by Buyer's Default or with the consent of Buyer, the total
19 compensation due under this Agreement shall be immediately due and payable by Buyer. Buyer agrees to pay such
20 compensation if Buyer within ___ calendar days after the termination of this Agreement enters into an agreement to
21 purchase any property shown to or negotiated on behalf of the Buyer by Broker during the term of this Agreement, unless
22 Buyer enters into a subsequent agreement with another Broker. If completion of any transaction is prevented by Buyer's
23 breach or with the consent of Buyer, other than as provided in the purchase contract, the total compensation shall be due and
24 payable by Buyer.
25

26 **21. Additional Terms:**
27 **N O N E**
28
29
30
31

32 **THE PRE-PRINTED PORTION OF THIS AGREEMENT HAS BEEN APPROVED BY THE GREATER LAS**
33 **VEGAS ASSOCIATION OF REALTORS®. NO REPRESENTATION IS MADE AS THE LEGAL VALIDITY OF**
34 **ADEQUACY OF ANY PROVISION OR THE TAX CONSEQUENCES THEREOF. FOR LEGAL OR TAX**
35 **ADVICE, CONSULT YOUR ATTORNEY OR TAX ADVISOR.**
36

37 **THE UNDERSIGNED BUYER HAS READ, UNDERSTANDS AND APPROVED EACH OF THE**
38 **PROVISIONS CONTAINED HEREIN AND ACKNOWLEDGES RECEIPT OF A COPY.**

39 **BUYER:**

40 Buyer Signature: James Eason Date: 1/26/22
41 James Eason, Vice Pres. of Operations
42 State Dir. Time: 10:15 A.M.
43 Buyer Signature: _____
44 Address: 1005 Terminal Way, Ste. 294 City Reno State NV Zip 89502
45 Telephone: (775) 432-3184 Fax: _____ Email: james.eason@corixgroup.com
46
47
48

49 **BROKER:**

50
51 Broker Signature: _____ Date: _____
52 Bert K. Gurr
53 Company: Realty 500/Gurr & Associates Designated Licensee: Bert K. Gurr
54 Address: 554 S 5th Street City Elko State NV Zip 89801
55 Telephone: (775) 778-5138 Fax: _____ Email: _____
56
57

DUTIES OWED BY A NEVADA REAL ESTATE LICENSEE

This form does not constitute a contract for services nor an agreement to pay compensation.

In Nevada, a real estate licensee is required to provide a form setting forth the duties owed by the licensee to:

- a) Each party for whom the licensee is acting as an agent in the real estate transaction, and
- b) Each unrepresented party to the real estate transaction, if any.

Licensee: The licensee in the real estate transaction is Bert K. Gurr
 whose license number is B.244. The licensee is acting for [client's name(s)] GREAT BASIN WATER CO.
 who is/are the Seller/Landlord; Buyer/Tenant.
 Broker: The broker is Bert K. Gurr, whose company is Realty 500/Gurr & Associates.
 Are there additional licensees involved in this transaction? Yes No If yes, Supplemental form 525A is required.

Licensee's Duties Owed to All Parties:

A Nevada real estate licensee shall:

- 1. Not deal with any party to a real estate transaction in a manner which is deceitful, fraudulent or dishonest.
- 2. Exercise reasonable skill and care with respect to all parties to the real estate transaction.
- 3. Disclose to each party to the real estate transaction as soon as practicable:
 - a. Any material and relevant facts, data or information which licensee knows, or with reasonable care and diligence the licensee should know, about the property.
 - b. Each source from which licensee will receive compensation.
- 4. Abide by all other duties, responsibilities and obligations required of the licensee in law or regulations.

Licensee's Duties Owed to the Client:

A Nevada real estate licensee shall:

- 1. Exercise reasonable skill and care to carry out the terms of the brokerage agreement and the licensee's duties in the brokerage agreement;
- 2. Not disclose, except to the licensee's broker, confidential information relating to a client for 1 year after the revocation or termination of the brokerage agreement, unless licensee is required to do so by court order or the client gives written permission;
- 3. Seek a sale, purchase, option, rental or lease of real property at the price and terms stated in the brokerage agreement or at a price acceptable to the client;
- 4. Present all offers made to, or by the client as soon as practicable, unless the client chooses to waive the duty of the licensee to present all offers and signs a waiver of the duty on a form prescribed by the Division;
- 5. Disclose to the client material facts of which the licensee has knowledge concerning the real estate transaction;
- 6. Advise the client to obtain advice from an expert relating to matters which are beyond the expertise of the licensee; and
- 7. Account to the client for all money and property the licensee receives in which the client may have an interest.

Duties Owed By a broker who assigns different licensees affiliated with the brokerage to separate parties.

Each licensee shall not disclose, except to the real estate broker, confidential information relating to client.

Licensee Acting for Both Parties:

The Licensee

MAY [] / [] **OR** MAY NOT [] / []

in the future act for two or more parties who have interests adverse to each other. In acting for these parties, the licensee has a conflict of interest. Before a licensee may act for two or more parties, the licensee must give you a "Consent to Act" form to sign.

I/We acknowledge receipt of a copy of this list of licensee duties, and have read and understand this disclosure.

Seller Landlord: Date: Time:

Seller Landlord: Date: Time:

OR

Buyer Tenant: Date: Time:

James Eason Vice Pres. of Operations

Buyer/Tenant: Date: Time:

Approved Nevada Real Estate Division
Replaces all previous versions

525
Revised 11/7 16

This form presented by Bert K. Gurr | Realty 500/Gurr & Associates | 7757785138 | bkgurr@gmail.com

Instantet

Date of Issuance: 09/10/2021
 Owner: Great Basin Water Co.
 Contractor: BESST
 Engineer: Lumos and Associates
 Project: SCTW-1

Effective Date: 09/10/2021
 Owner's Contract No.: N/A
 Contractor's Project No.: 2016021
 Engineer's Project No.:
 Contract Name: N/A

The Contract is modified as follows upon execution of this Change Order:

Description:

- 4 Additional injection depths @ \$175/depth = \$700.00
- 2 Additional ground water sample depths @ \$250/depth = \$500.00
- 15.5 Additional liters of sample volume @ \$45/liter = \$697.50

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price: \$ 29,425	Original Contract Times: Substantial Completion: 10/28/2021 Ready for Final Payment: 10/30/2021
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: Ready for Final Payment:
Contract Price prior to this Change Order: \$	Contract Times prior to this Change Order: Substantial Completion: Ready for Final Payment:
[Increase] [Decrease] of this Change Order: \$ 1,897.50	[Increase] [Decrease] of this Change Order: Substantial Completion: Ready for Final Payment:
Contract Price incorporating this Change Order: \$ 31,322.50	Contract Times with all approved Change Orders: Substantial Completion: 10/28/2021 Ready for Final Payment: 10/30/2021
RECOMMENDED: By: <u>[Signature]</u> Title: <u>Engineer (if required)</u> Date: <u>09/10/2021</u>	ACCEPTED: By: Sean Ashcraft Title: Project Manager Date: 09/28/2021
	ACCEPTED: By: _____ Title: Contractor (Authorized Signature) Date: _____

Approved by Funding Agency (if applicable)

By: _____
Title: _____

Date:



BUYER BROKERAGE AGREEMENT



1 I/We, GREAT BASIN WATER CO. ("Buyer") hereby employ and grants

2 Realty 500, Gar & Associates ("Broker") the exclusive and irrevocable right, commencing on March 18

3 (Company Name) 2020, to locate property and negotiate terms and

4 conditions acceptable to Buyer for purchase, exchange, option, or lease as follows:

5 1. General Nature of Property: Buyer intends to acquire an interest in one or more properties meeting the following

6 general description:

7 Type: Residential XX Land Commercial Other: Industrial

8 2. Buyer Obligations:

9 a. BUYER AGREES TO WORK EXCLUSIVELY with Broker and not with any other Broker.

10 b. BUYER AGREES TO FURNISH Broker with all relevant data, records, documents and other information

11 including loan pre-approval letters and proof of funds to purchase upon request of Broker and authorizes Broker to furnish

12 copies to prospective Sellers, Landlords, Optionors or Exchangers.

13 c. BUYER AGREES TO BE AVAILABLE to examine property(s) and responding in a timely manner to

14 communications from Broker.

15 d. BUYER AGREES TO ACT IN GOOD FAITH to acquire the Property and conduct any and all

16 inspections/investigations of the Property that Buyer deems material and/or important.

17 e. NEW HOMES LOT SALES: Some Sellers, (particularly new home subdivisions, open houses and for-

18 sale-by-owner), will not compensate Broker unless Broker makes the first visit with Buyer. If Buyer makes a first visit

19 without Broker, Buyer agrees to compensate Broker as stated in Brokers Compensation below.

20 f. BUYER AGREES that, to the fullest extent allowable under Nevada law, that Broker shall be deemed to be

21 procuring cause for any and all successful real estate transactions which arise from or originate during the term of this

22 agreement.

23 3. Broker Representations:

24 a. BROKER HOLDS a current, valid Nevada real estate license

25 b. BROKER AGREES TO WORK DILIGENTLY to locate real property acceptable to Buyer

26 c. BROKER AGREES TO NEGOTIATE, as Buyer's agent, for terms and conditions acceptable to Buyer for

27 the purchase, exchange, option or lease of real property(s).

28 4. Broker Compensation: Broker's compensation shall be paid at the time of and as a condition of closing as follows:

29 a. Buyer agrees to pay Broker (select all that apply):

30 1. X 5.0 % of the gross selling price of the Property; OR

31 2. the set amount of \$, OR

32 3. whatever is greater of 1 and 2.

33 Buyer authorizes Broker to accept compensation offered by seller or seller's broker, which compensation shall be credited

34 against any compensation owed by Buyer to Broker.

35 b. In addition to the compensation in 4(a), Buyer agrees to pay Broker \$ N/A as and for the flat fee

36 portion of Broker's total compensation. This flat fee portion is assessed by Broker to its clients and customers in exchange

37 for real estate services provided and actually performed, and is not required by any state or federal government to ensure that

38 real estate transactions comply with federal or state laws and regulations.

39 c. Buyer agrees to compensate Broker if the Buyer or any other person acting on the Buyer's behalf enters

40 into an agreement to purchase, exchange, option, or lease and property of the general nature described herein.

41 d. If completion of any transaction is prevented by Buyer's Default or with the consent of Buyer, the total

42 compensation due under this Agreement shall be immediately due and payable by Buyer.

43 e. Buyer agrees to pay such compensation if Buyer within calendar days after the termination of this

44 Agreement enters into an agreement to purchase, exchange, option or lease any property shown to or negotiated on behalf of

45 the Buyer by Broker during the term of this Agreement, unless Buyer enters into a subsequent agreement with another

46 Broker.

47 f. Commissions payable for the purchase, exchange, option or lease of property are not set by the Greater Las

48 Vegas Association of REALTORS® or any Board or Association of REALTORS® or Multiple Listing Service or in any

49 manner other than as regulated between Broker and Buyer.

50 Buyer Brokerage Agreement Rev. 01/19

51 1-2019 Greater Las Vegas Association of REALTORS®

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- 1 5. **Disclosures:**
- 2 a. Buyer acknowledges receipt of the "DUTIES OWED" form, explaining the Duties of Agents in Nevada
- 3 b. Buyer understands that depending on the circumstances, it may be necessary or appropriate for Broker to act as an
- 4 agent of both parties for each such transaction. In such event, Broker will seek Buyers' consent to Broker's
- 5 representation of additional parties as soon as practicable and will obtain the written "CONSENT TO ACT" form
- 6 signed by all parties.
- 7 c. Buyers consent and acknowledges that OTHER POTENTIAL BUYERS represented by Broker may consider, make
- 8 offers on, or acquire interest in the same or similar properties as Buyer.
- 9
- 10 6. **Non Confidentiality of Offers:** Buyer is advised that Seller or Listing Agent may disclose the existence, terms or
- 11 conditions of a Buyer's offer unless all parties and their agent have signed a written confidentiality agreement. Whether such
- 12 information is actually disclosed depends upon many factors, such as current market conditions, the prevailing practice in the
- 13 real estate community, the Listing Agent's marketing strategy and the instructions of the Seller.
- 14
- 15 7. **Internet Advertising, Internet Blogs, Social Media:** Buyer acknowledges and agrees that (i) properties presented
- 16 to them may have been marketed through a "virtual tour" on the Internet, permitting potential buyers to view properties
- 17 online, or that the properties may be the subject of comments or opinions of value by others online, on blogs or other social
- 18 media sites; (ii) neither the service provider(s) or the Broker have control over who will obtain access to such services or
- 19 what actions such persons may take; and (iii) Broker as no control over how long the information concerning the properties
- 20 will be available on the internet or social media sites.
- 21
- 22 8. **Equal Housing Opportunity:** It is the policy of the Broker to abide by all local, state, and federal laws prohibiting
- 23 discrimination against any individual or group of individuals. The Broker has no duty to disclose the racial, ethnic, or
- 24 religious composition of any neighborhood, community, or building, nor whether persons with disabilities are housed in any
- 25 home or facility, except that the agent may identify housing facilities meeting the needs of a disabled buyer.
- 26
- 27 9. **Other Potential Buyers:** Buyer consents and acknowledges that other potential buyers represented by Broker may
- 28 consider, make offers on, or acquire an interest in the same or similar properties as Buyer is seeking.
- 29
- 30 10. **Mediation:** The Broker and Buyer hereby agree that any dispute concerning the terms and conditions of this
- 31 contract shall be resolved through mediation proceedings at ~~the discretion of the Broker~~ the discretion of the Broker.
- 32 ~~Buyer consents to the mediation process and agrees to pay the mediation fees, if any, shall be~~
- 33 ~~divided equally among the parties involved. If a lawsuit is filed by either party, that lawsuit shall be stayed until the dispute is~~
- 34 ~~resolved or terminated in accordance with this paragraph.~~ Buyer's Initials _____ (Broker's Initials)
- 35
- 36 11. **Attorneys Fees:** In the event suit is brought by either party to enforce this Agreement, the prevailing party is
- 37 entitled to court costs and reasonable attorney's fees.
- 38
- 39 12. **Damages Cap:** Notwithstanding any provision to the contrary contained in this Agreement, if Broker shall be liable
- 40 to Buyer for any matter arising from this agreement, whether based upon an action or claim in contract, warranty, equity,
- 41 negligence, intended conduct or otherwise (including any action or claim arising from an act or omission, negligent or
- 42 otherwise, of the liable party) the maximum aggregate liability of Broker to Buyer under this agreement shall not exceed the
- 43 aggregate commission amount received by the Broker.
- 44
- 45 13. **Nevada Law Applies:** This Agreement is executed and intended to be performed in the State of Nevada, and the
- 46 laws of the Nevada shall govern its interpretation and effect. The parties agree that the State of Nevada, and the county in
- 47 which the Property is located, is the appropriate judicial forum for any litigation related to this Agreement.
- 48
- 49 14. **Capacity:** Buyer warrants that Buyer has the legal capacity, full power and authority to enter into this Agreement
- 50 and consummate the transaction contemplated hereby on Buyer's own behalf or on behalf of the party Buyer represents. All
- 51 Buyers executing this Agreement are jointly and severally liable for the performance of all its terms. Buyers obligation's to
- 52 pay Broker's binding upon Buyer and Buyer's heirs, administrators, executors, successors and assigns.
- 53
- 54 15. **Entire Contract:** All prior negotiations and agreements between the parties are incorporated in this Agreement,
- 55 which constitutes the entire contract. Its terms are intended by the parties as a final, complete, and exclusive expression of
- 56 their agreement with respect to its subject matter and may not be contradicted by evidence of any prior agreement or
- 57 contemporaneous oral agreement. This Agreement and any supplement, addendum, or modification, including any photocopy
- 58 or facsimile, may be executed manually or digitally, and may be executed in two or more counterparts, all of which shall

1 constitute one and the same writing. The terms of this Agreement may not be amended, modified or altered except through a
2 written agreement signed by all of the parties hereto.
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16. Partial Invalidation: In the event that any provision of this Agreement shall be held to be invalid or unenforceable such ruling shall not affect the validity or enforceability of the remainder of the Agreement in any respect whatsoever.

17. Buyer Declaration: Buyer acknowledges and warrants by signature(s) below that she is not already in any exclusive buyer representation agreement with any other broker in the state of Nevada. Entering into multiple agreements could subject you to multiple fee obligations. Buyer acknowledges that he has not relied on any statement of the Broker which are not herein expressed.

18. Acceptance: Buyer hereby agrees to all of the terms and conditions herein and acknowledges receipt of a copy of this Agreement.

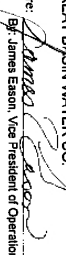
19. FIRPTA: Should the provisions of the Foreign Investment in Real Property Tax Act (FIRPTA) (Internal Revenue Code Section 1445) apply to the Buyer's real estate transaction, Buyer understands that if Seller is a foreign person then the Buyer must withhold a tax in an amount to be determined in accordance with FIRPTA, unless an exemption applies. Additional information for determining status may be found at www.irs.gov.

20. Default: If completion of any transaction is prevented by Buyer's Default or with the consent of Buyer, the total compensation due under this Agreement shall be immediately due and payable by Buyer. Buyer agrees to pay such compensation if Buyer within 120 calendar days after the termination of this Agreement enters into an agreement to purchase any property shown to or negotiated on behalf of the Buyer by Broker during the term of this Agreement, unless Buyer enters into a subsequent agreement with another Broker. If completion of any transaction is prevented by Buyer's breach or with the consent of Buyer, other than as provided in the purchase contract, the total compensation shall be due and payable by Buyer.

21. Additional Terms: None

THE PRE-PRINTED PORTION OF THIS AGREEMENT HAS BEEN APPROVED BY THE GREATER LAS VEGAS ASSOCIATION OF REALTORS®. NO REPRESENTATION IS MADE AS THE LEGAL VALIDITY OF ADEQUACY OF ANY PROVISION OR THE TAX CONSEQUENCES THEREOF. FOR LEGAL OR TAX ADVICE, CONSULT YOUR ATTORNEY OR TAX ADVISOR.

THE UNDERSIGNED BUYER HAS READ, UNDERSTANDS AND APPROVED EACH OF THE PROVISIONS CONTAINED HEREIN AND ACKNOWLEDGES RECEIPT OF A COPY.

BUYER: GREAT BASIN WATER CO.
Buyer Signature:  Date: 5/10/20
Buyer Signature: James Eason, Vice President of Operations Time: 3:34 PM

Address: 1005 Terminal Way, Ste. 294 City Reno State NV Zip 89502
Telephone: (775) 432-3184 Fax: Email: james.eason@cobkrp.com

BROKER:
Broker Signature: Bert K Gurr, Broker/Owner Date:
Company: Realty 500 Gurr & Associates Designated License: Bert K Gurr, NV Lic #8 0000244 INDV
Address: P.O. Box 1446 City Eiko State NV Zip 89803-1446
Telephone: (775) 778-5138 Fax: Email: bkgurr@gmail.com
Buyer Brokerage Agreement Rev 01/19 Page 3 of 3
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Instant®

CHANGE ORDER NO.: 1

Owner: Great Basin Water Co.
 Contractor: FRC
 Engineer: NVEnergy
 Project: New Well 8 NVEnergy Power
 Line Extension
 Contract Name: N/A
 Date Issued: 05/01/2024

Owner's Project No.: 2016011
 Consultant's Project No.: N/A
 Contractor's Project No.: N/A

Effective Date of Change Order: 05/01/2024

The Contract is modified as follows upon execution of this Change Order:

Description:

Unforeseen conditions with water springs at the end of Scrub Oak that caused extreme muddy conditions that required added equipment and labor.

Attachments:

FRC: Invoice 31069

Change in Contract Price	Change in Contract Times
Original Contract Price: \$ 701,256	Original Contract Times: Substantial Completion: 05/15/2024 Ready for final payment: 08/10/2024
[Increase] [Decrease] from previously approved Change Orders No. 0 to No. 1 \$ 0.00	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: 05/15/2024 Ready for final payment: 08/10/2024
Contract Price prior to this Change Order: \$ 701,256	Contract Times prior to this Change Order: Substantial Completion: 05/15/2024 Ready for final payment: 08/10/2024
[Increase] [Decrease] this Change Order: \$ 5,160	[Increase] [Decrease] this Change Order: Substantial Completion: 05/15/2024 Ready for final payment: 08/10/2024
Contract Price incorporating this Change Order: \$ 706,416	Contract Times with all approved Change Orders: Substantial Completion: 05/15/2024 Ready for final payment: 08/10/2024

Recommended by Engineer (if required)		Authorized by Owner	
By:	N/A	Sean Ashcraft	
Title:		Project Manager	
Date:		08/12/2024	
Signature:			

	<u>Authorized by Contractor</u>	<u>Approved by Funding Agency (if applicable)</u>
By:	<u>ReNae McCabe</u>	<u>N/A</u>
Title:	<u>Secretary/Treasurer</u>	<u></u>
Date:	<u>8/12/24</u>	<u></u>
Signature:	<u><i>ReNae McCabe</i></u>	<u></u>

FAULSTICH & RAND CONSTRUCTION CO., INC.

P.O. BOX 2703
 ELKO, NV 89803

Invoice

Date	Invoice #
8/8/2024	31069

Bill To
GREAT BASIN WATER COMPANY 1240 E. STATE ST., SUITE 115 PAHRUMP, NV 89048

P.O. No.	Terms	Project
P91-2620-105156		WELL 8 POWER L..

Quantity	Description	Rate	Amount
	CHANGE ORDER #1- UNFORESEEN CONDITIONS WITH WATER SPRING AT THE END OF SCRUB OAK DR THAT CAUSED EXTREME MUDDY CONDITIONS THAT REQUIRED ADDED EQUIPMENT AND LABOR.	5,160.00	5,160.00
	AMOUNT DEDUCTED FOR RETENTION	-10.00%	-516.00
	Sales Tax ELKO COUNTY	7.10%	0.00
		Total	\$4,644.00

ENGINEERING SERVICES AGREEMENT

This Engineering Services Agreement (the “**Agreement**”) dated effective 03/07/2024 (the “**Effective Date**”) is between:

**GREAT BASIN WATER COMPANY
14891 LAMOILLE HWY
SPRING CREEK NV, 89815**

(“**Corix**”)

and:

**SUMMIT ENGINEERING
1150 LAMOILLE HWY
ELKO NV, 89801**

(“**Engineer**”)

BACKGROUND

- A. Corix desires to engage Engineer to provide professional engineering services and consultation relative to engineering services.
- B. Engineer is an engineering firm with relevant experience and expertise and agrees to provide the Services (as defined in Section 1.1 below) consistent with applicable professional standards.
- C. Corix and Engineer agree that Engineer will provide the Services on the terms and conditions set forth in this Agreement.

AGREEMENTS

For good and valuable consideration, the receipt and sufficiency of which each party acknowledges, the parties agree as follows:

1. **Services Provided by Engineer**

- 1.1. Scope of Services. Engineer shall provide the services described in Schedule “A” in a written Scope of Work, as mutually agreed by Corix and Engineer, (the “**Services**”).
- 1.2. Provision of Services. Subject to Schedule “A”, Engineer shall be free to determine the hours of the day during which it will perform the Services and the manner in which the Services are performed, but within the schedule mutually agreed between the parties, each acting reasonably and in good faith. It is understood by both parties that events may occur that can affect the schedule that are outside the Engineer’s control, and if so, Engineer and Corix agree to update the schedule when necessary. Notwithstanding the foregoing, access to Corix’s premises for performance of the Services shall only be granted during Corix’s normal business hours unless otherwise authorized by the Corix Representative identified in Section 3 of this Agreement.

2. Term

- 2.1. The term of this Agreement shall commence on the Effective Date and terminate on 05/30/2024 (the “**Termination Date**”), unless terminated earlier pursuant to Section 11 of this Agreement (the “**Term**”).

3. Corix Representative

- 3.1. Corix’s representative in respect of this Agreement is Sean Ashcraft, Project Manager (the “**Corix Representative**”). Corix shall notify Engineer if it changes the Corix Representative. The Corix Representative shall be Engineer’s principal contact for the purposes of this Agreement and the Services. Engineer shall report to, make recommendations to, and take directions from the Corix Representative in respect of the Services.

4. Representations and Warranties

- 4.1. Engineer hereby represents and warrants to Corix that:
- (a) Engineer and all of its employees performing the Services possess the necessary qualifications, licenses, permits, knowledge, skills, expertise and experience to perform the Services to the highest professional standards;
 - (b) the performance of the Services do not create any conflict of interest, either ethically, professionally or otherwise in relation to any services provided by Engineer to any other party prior to or concurrently with this Agreement;
 - (c) all equipment and materials provided as part of the Services are free and clear of any encumbrance or lien;

5. Covenants

- 5.1. Engineer hereby covenants to Corix as follows with respect to the performance of the Services:
- (a) Engineer shall perform the Services with the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality;
 - (b) Engineer shall comply with all safety, security and quality control procedures required by Corix of which Engineer is made aware;
 - (c) Engineer shall comply with all applicable laws, orders, regulations, ordinances, standards, codes and other rules, licenses and permits of all lawful authorities;
 - (d) where applicable, Engineer shall take all measures in the performance of the Services to minimize disturbance or damage to the environment;
 - (e) Engineer shall furnish all labor, supervision and materials, for the complete performance of the Services, but shall not be responsible for the means and methods of project delivery; and
 - (f) Engineer shall cooperate fully with the Corix Representative in conducting reviews, inspections or tests of the Services performed and shall, at no cost to Corix, perform such additional work as may be considered necessary by Corix (acting reasonably) to remedy any defects or deficiencies in the Services caused by a negligent act or omission of Engineer or by the failure of Engineer to perform the Services in accordance with the provisions of this Agreement. In the event that Engineer fails to initiate good faith diligent efforts to remedy any such defects or deficiencies within two business days following receipt of written notice from Corix to do so, or fails to continue to exercise in good faith such diligent efforts at any time prior to such defects or deficiencies being remedied, Corix may have such additional work performed by others

and withhold payment to Engineer to cover the cost of such additional work (or if no payment is otherwise due from Corix to Engineer, Corix shall invoice Engineer for the cost of such additional work and Engineer shall pay the invoice within 30 days of receipt). Corix shall be entitled to withhold payment only in respect of the amount of the Services or additional work in dispute, the balance of the fees not in dispute shall be paid. Any such withholding shall continue until the defect or deficiency has been rectified to the satisfaction of Corix (acting reasonably). This provision shall survive the termination of this Agreement. No review, inspection or test by Corix shall in any event relieve Engineer from its responsibilities or obligations under this Agreement; and

(g) Engineer shall keep the Corix Representative informed and updated regarding Engineer's progress in performing the Services.

5.2. Corix hereby covenants to Engineer as follows with respect to the performance of the Services:

(a) Corix will assist the Engineer by placing at the Engineer's disposal all available information pertinent to the Services;

(b) Corix will provide all criteria and complete information as to its requirements for the Scope of Work, and shall furnish all design and construction standards which Corix will require to be included in any reports or engineering plans, specifications, and operational narrative; and

(c) Corix, with Engineer providing assistance, including supporting documents, shall secure all permits and approvals necessary for the complete performance of the Services.

6. Terms of Payment

6.1. Fees. Corix shall pay Engineer for the Services in accordance with the fee schedule attached as Schedule "B".

6.2. Deductions. Corix shall not be responsible for deducting or remitting from Engineer's compensation any amounts in respect of income tax withholding, unemployment insurance premiums, workers' compensation premiums or any other withholdings or deductions.

6.3. Invoice and Report. On the last day of each month, or the first business day thereafter if the last day is not a business day, commencing after the Effective Date, Engineer shall submit to the Corix Representative an invoice for Engineer's fees for the immediately preceding month and a status report as described in Schedule "A" together with each invoice to qualify for payment of the fees. All invoices shall include the fees charged, the number of hours of services provided in the performance of the Services and applicable taxes.

6.4. Audit. Upon reasonable demand, Engineer will permit Corix, or any person designated by Corix, to examine, audit, and copy invoices, accounts, receipts, time sheets or other records or materials relating to Engineer's performance of the Services or to the payment of fees.

6.5. Payment of Invoice. The Corix Representative shall verify and approve each invoice and shall arrange for payment within 30 days after approval. In the event Corix disputes in good faith a portion of the fees invoiced by Engineer, Corix will pay the uncontested portion within the prescribed time.

(a) Disputes regarding the fees of Engineer will be resolved in good faith and as described in Section 12.

6.6. Liens, Claims. Engineer shall timely pay all indebtedness for equipment, materials, supplies and labor used in the performance of Services. Engineer shall not permit any lien or charge to attach to any materials purchased by it hereunder or any premises upon which Services are performed by reason of its own work or the work of its subcontractors, if any. If any such lien shall so attach, Engineer shall promptly

procure its release and hold Corix harmless from all loss, damage, cost or expense incidental thereto. If requested by Corix, Engineer shall submit to Corix lien releases or waivers, in a form acceptable to Corix and Engineer, from Engineer and its subcontractors and suppliers. If requested, the receipt of a satisfactory lien release shall be a condition precedent to final payment by Corix to Engineer. Corix may withhold from any payment due to Engineer an amount sufficient to indemnify Corix against any lien claim that could arise in connection with the provision of Services, until such time as the lien has been discharged or other arrangements to satisfy the lien have been made by Engineer.

7. Maintenance of Records

- 7.1. Engineer shall keep full and detailed records respecting performance of the Services for at least one year after completion or termination of the Services, and Engineer shall permit Corix to inspect and audit these records at all reasonable times.

8. Insurance

- 8.1. Minimum Coverage. Before commencing the Services, Engineer shall obtain, at its own expense, the following insurance coverage:

- (a) commercial general liability for bodily injury, death and property damage in the minimum amount of \$2 million per occurrence, naming Corix as an additional insured with respect to the Services. The policy shall also provide such insurance as primary insurance in relation to liability arising out of the Services and contain a cross liability provision and a waiver of subrogation against Corix and its officers, directors, servants and agents;
- (b) professional liability insurance in the minimum amount of \$5 million per claim and \$5 million in aggregate. Coverage shall be maintained for at least 12 months after the termination of this Agreement;
- (c) automobile liability insurance coverage in the minimum amount of \$1 million;
- (d) worker's compensation insurance in an amount satisfying the statutory minimum requirements where the Engineer's work will be performed; and
- (e) employer's liability insurance in the minimum amount of \$1 million.

- 8.2. Additional Insurance. During the Term, Corix may, by written notice, require Engineer to obtain additional insurance or to alter or amend the insurance policies required under this Section at Corix's expense.

- 8.3. Evidence of Insurance. Prior to commencing the Services, Engineer shall provide Corix with evidence of the foregoing insurance coverage, in a form satisfactory to Corix.

9. Liability

- 9.1. Provided Engineer maintains the insurance required by Section 8.1(b) above, Engineer's liability for claims which Corix has or may have against Engineer or Engineer's employees, agents, representatives and subcontractors under this Agreement, whether these claims arise in contract, tort, negligence or under any other theory of liability, will be limited, to re-performance of defective Services by Engineer, plus:

- (i) where claims are covered by insurance under Section 8, to the amount recovered from such insurance; or
- (ii) where claims are not covered by insurance under Section 8, to the value of the Services hereunder.

9.2. Without limiting the Parties' rights as against insurance coverage or proceeds, in no event shall either party, or its employees, agents, representatives, and subcontractors, be liable to the other or any other party, under this Agreement, in tort (including negligence), strict liability, under statute or otherwise, for exemplary or punitive damages, or for any special, incidental, indirect or consequential loss or damage of any kind or nature arising at any time or from any cause whatsoever. The limitation contained in this Section 9.2 shall be available to Engineer only if the Engineer maintains the professional liability insurance required by Section 8.1(b) above.

10. Indemnity

10.1. Indemnity from Engineer. Engineer shall indemnify and hold Corix, its directors, officers, representatives, agents and employees (the "**Corix Parties**") harmless from and against any actions, claims, damages, costs and expenses whatsoever (including without limitation all applicable lawyers' fees and disbursements, investigation expenses, adjusters' fees and disbursements) which may be brought against or suffered by one or more Corix Parties, or which one or more Corix Parties may incur, sustain or pay, arising out of or in connection with the Services, except to the extent caused by the negligence, wilful act or omission, or breach of this Agreement by one or more of the Corix Parties.

10.2. Survival. This Section shall survive the termination of this Agreement.

11. Termination

11.1. Early Termination for Breach. If either party (the "**Defaulting Party**") is in material default of its obligations under this Agreement (which default has not been remedied within 10 days after receipt of notice from the other party) or becomes insolvent, commits an act of bankruptcy, has a receiver or liquidator appointed for its assets or otherwise files for protection from claims of its creditors, the other party may, without prejudice to any other rights or remedies it has, terminate this Agreement effective immediately upon written notice to the Defaulting Party.

11.2. Early Termination without Breach. Corix may terminate this Agreement upon 30 days' prior written notice to the Engineer.

11.3. Effect of Termination for Breach. If Corix terminates this Agreement pursuant to Section 11.1, Corix may take possession of Engineer's work product and materials and complete the Services. On termination, Corix shall not be required to pay Engineer any further amount due and payable under this Agreement until the Services have been completed and the costs, if any, of completing the Services are set off against the balance remaining unpaid.

11.4. Effect of Termination without Breach. If Corix terminates this Agreement pursuant to Section 11.2, Corix shall only be responsible for the payment of:

- (b) reasonable expenses incurred in connection with the Agreement up to and including the effective date of termination; and
- (c) a reasonable amount in respect of fees in accordance with value of the professional time expended by Engineer up to and including the effective date of termination.

12. Disputes

12.1. Negotiation. The parties will make reasonable efforts to resolve disputes arising under this Agreement by amicable negotiations. The parties agree to provide frank, candid and timely disclosure of relevant facts, information and documents to facilitate these negotiations, without prejudice to their rights and recourse.

- 12.2. Mediation. If the parties fail to resolve their dispute through negotiation, either party may notify the other party that it wishes the dispute to be resolved by mediation, with the rules of mediation to be agreed between the parties and the mediator.
- 12.3. Waiver of Jury Trial. **BY THEIR INITIALS FOLLOWING THIS PROVISION, THE PARTIES KNOWINGLY AND VOLUNTARILY WAIVE THEIR RIGHTS TO A TRIAL BY JURY, ON ANY ISSUE BETWEEN THEM, AND CONSENT TO HAVE ALL SUCH ISSUES DECIDED BY THE COURT HAVING JURISDICTION THEREOVER. THE PARTIES ACKNOWLEDGE EACH HAS BEEN ADVISED TO SEEK THE ADVICE OF COUNSEL AS TO THE CONSEQUENCES OF THIS WAIVER, AND HAS EITHER OBTAINED THAT ADVICE OR DECLINED KNOWINGLY TO DO SO.**

Engineer: NB _____

Corix: SA _____

13. Confidentiality and Ownership

- 13.1. Use of Confidential Information. All information or documentation received by Engineer pertaining to or arising from the Services or the business affairs or trade secrets of Corix shall be deemed to be confidential and proprietary to Corix. Except as otherwise provided herein, Engineer shall not directly or indirectly disclose any such confidential information or documentation to any third party without the prior written consent of Corix. Such consent is not required to the extent that such disclosure is necessary for the proper performance of this Agreement or to comply with a lawful order of any court or agency.
- 13.2. No Application. The obligation of confidentiality set out above shall not apply to material, data or information which is known to Engineer prior to its receipt thereof, which is generally available to the public or which has been obtained from a third party which has the right to disclose the same.
- 13.3. Corix will have and retain ownership of all drawings, plans, designs, specifications, and reports resulting from the performance of the Services ("**Engineering Documents**") provided the fees of Engineer are paid in accordance with this Agreement. In addition, Corix will have a non-exclusive, irrevocable, worldwide, royalty-free license to use any proprietary concept, product or process of Engineer which relates to or results from the Services.
- 13.4. Ideas, concepts, software programs, techniques, document templates, template instances, innovations and improvements ("**Intellectual Property**") that are of repetitive or general application and related to Engineer's existing proprietary knowledge that are developed or refined by Engineer during and in relation to the Services will be deemed incorporated material and will continue to be owned by Engineer. Software used, refined or developed by Engineer is considered an instrument of service and does not form part of the deliverables of the Services.
- 13.5. Engineer warrants that the Engineering Documents and calculations developed by Engineer under this Agreement will not infringe the patent, copyright, trademark or other intellectual property rights of another person.
- 13.6. Provided that all copies of the Engineering Documents provided to Corix hereunder are stamped and signed by a professional engineer engaged by Engineer (at Engineer's sole cost and expense) and acceptable to Corix (acting reasonably), Engineer will be entitled to retain possession of the originals of the Engineering Documents.
- 13.7. Corix may not use the Engineering Documents without having paid the fees of Engineer.
- 13.8. Ownership of Corix Information. Engineer acknowledges and agrees that Corix has and shall have proprietary rights in all information and documentation supplied to Engineer by Corix or arising from the performance of the Services including, without limitation, finished drawings, rough drawings,

correspondence, notes, calculations and other work in progress, and Engineer shall surrender any such materials that may be in its possession to Corix at any time upon the request of Corix or at the termination of this Agreement.

- 13.9. Survival. The covenants of Engineer set out in Section 13.1 shall survive the termination of this Agreement for a period of five years; provided, however, that with respect to any confidential information shared hereunder which constitutes a trade secret, such covenants shall survive termination of this Agreement for as long as such confidential information constitutes a trade secret or for five years, whichever period is longer. The provisions of Sections 13.3 through 13.8, and the provisions of this Section 13.9 shall survive termination of this Agreement for any reason.

14. Subcontracting

- 14.1. Engineer shall not subcontract any of the Services without the prior written consent of Corix. Notwithstanding Corix's consent to the subcontracting of any of the Services, no such subcontracting shall relieve Engineer from its obligations and responsibilities to Corix under this Agreement.

15. Assignment

- 15.1. Engineer shall not assign its rights or obligations under this Agreement without the prior written consent of Corix, which consent may be arbitrarily withheld. Corix may assign its rights and obligations under this Agreement without the consent of Engineer.

16. Relationship

- 16.1. Independent Contractor. In performing the Services, Engineer shall be an independent contractor and shall have responsibility for the control over the details and means of performing the Services. Engineer's employees and permitted sub-contractors shall at all times be under Engineer's direction and control, and Engineer shall be responsible for their actions and omissions. Engineer shall not have authority to bind or commit Corix in any manner, including without limitation, to any contractual commitment or capital expenditure. Nothing herein shall be deemed or construed to create a joint venture, partnership, employment or agency relationship between the parties for any purpose.
- 16.2. No Further Obligations. For greater certainty, it is understood that on termination of this Agreement, Corix shall have no further obligations of any kind to Engineer with respect to the Services or the termination of this Agreement, except as expressly set out in this Agreement.
- 16.3. No Exclusivity. Corix shall retain the services of Engineer for the provision of the Services on an as-needed basis as determined by Corix in its sole discretion. Corix is under no obligation to retain the services of Engineer at any particular time, in any particular geographic location, in respect of any particular business opportunities or for any minimum amount of time or dollar value.

17. Notice

- 17.1. Address for Notice. Any notice or communication required or permitted to be given under this Agreement shall be in writing and shall be considered to have been given if delivered by hand or transmitted by electronic transmission to the address or Email address of each party set out below:

- (a) if to Engineer:

Summit Engineering
Attention: Nitin Bhakta, VP Engineering & General Manager
1150 Lamoille Hwy
Elko NV, 89801
Email: nitin@summitnv.com

(b) if to Corix:

Great Basin Water Company
Attention: Sean Ashcraft, Project Manager
1240 E. State St. Suite 115
Pahrump NV, 89048
Email: sean.ashcraft@greatbasinwaterco.com

or to such other address or Email address as a party may designate in the manner set out above.

17.2. Delivery. Notice or communication shall be considered to have been received:

- (a) if delivered by hand during business hours on a business day, upon receipt by a representative of the receiver, and if not delivered during business hours, upon the commencement of business on the next business day;
- (b) if sent by electronic transmission during business hours on a business day, upon the sender receiving confirmation of the transmission, and if not transmitted during business hours, upon the commencement of business on the next business day.

18. **Miscellaneous**

18.1. Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Nevada (excluding its conflict of laws rules). The federal and state courts of the State of Nevada shall have jurisdiction over all claims, disputes and actions related to this Agreement and the parties hereby consent to the jurisdiction of those courts.

18.2. Time. Time is of the essence in this Agreement.

18.3. Enurement. This Agreement shall be for the benefit of and be binding upon Corix and Engineer and their respective successors and assigns.

18.4. Number and Gender. In this Agreement, unless there is something in the subject matter or context inconsistent therewith: (a) words in the singular number include the plural and such words shall be construed as if the plural had been used, (b) words in the plural include the singular and such words shall be construed as if the singular had been used, and (c) words importing the use of any gender shall include all genders where the context or party referred to so requires, and the rest of the sentence shall be construed as if the necessary grammatical and terminological changes had been made.

18.5. Entire Agreement. This Agreement, the Schedules, and the Exhibits referred to herein together constitute the entire agreement between the parties hereto and supersede all prior agreements, representations, warranties, statements, promises, information, arrangements and understandings, whether oral or written, express or implied, with respect to the subject matter hereof.

18.6. Amendments and Waivers. Except as may be specifically provided in Schedule "A" with respect to change orders, the parties are not bound by any amendment or variation of any provision of this Agreement unless it is in writing and signed by both parties. A waiver by either party of any term of this Agreement or of any breach by the other party of this Agreement is effective only if it is in writing and signed by such waiving party. Such a waiver shall not be deemed to constitute a waiver of any other term or any other breach.

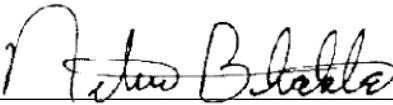
18.7. Counterparts. This Agreement may be executed by the parties in one or more counterparts and may be delivered by facsimile or other means of electronic transmission, each of which when delivered shall be deemed to be an original and all of which shall together constitute one and the same Agreement.

18.8. Partial Invalidity. If any part, term or provision of this Agreement is held by any court of competent jurisdiction to be illegal or in conflict with any applicable law, the validity of the remaining portion or portions of this Agreement shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provision held to be invalid.

WHEREFORE, the undersigned parties certify that each has proper authority to execute this agreement on behalf of his or her entity, and duly execute this Agreement effective as of the Effective Date.

SUMMIT ENGINEERING

GREAT BASIN WATER COMPANY

By: 

Name: Nitin Bhakta P.E.
Title: VP Engineering & General Manager

By: _____

Name: Sean Ashcraft
Title: Project Manager

SCHEDULE A SCOPE OF WORK

1. General

Task 1.0: Boundary Confirmation & Flagged Wood Stakes \$4,550

Services for this task is time & materials and will not exceed the price indicated above, without prior authorization from the client. Summit anticipates the following scope of work for this task:

- A. A pre-field survey basemap will be prepared utilizing the recorded plat and available orthophotography.
- B. A survey crew will conduct a field survey to locate sufficient monuments to be able to make a final boundary determination.
- C. Any found monument will be verified that they are in the correct position. Said found monuments will be flagged.
- D. Survey crew will set flagged wood stakes at the junction box position.
- E. Survey crew will set flagged wood stakes along the Right-of-Way boundary perpendicular to the proposed NV Energy junction enclosures. Not all junction boxes will be staked, GBWC to establish which junction boxes are to be staked
- F. Prepare a post-survey display of the found and set points. Said display will be provided in PDF format.
- G. As-needed / as-requested additional surveying services can be provided on a time & materials basis per the attached fee schedule (Exhibit "B").
- H. Pending weather conditions this Task will be completed within 2~3 weeks of authorization to proceed.

Our current staffing and scheduled workload will allow us to complete the Tasks promptly, with an anticipated completion of construction documents in no more than 5 weeks. Summit can make any additions or deletions to the anticipated scope of services that you feel are appropriate and adjust the fees accordingly. Prior to commencing work Summit will need to be provided with a copy of the fully executed contract. If you have any questions regarding this proposal, please give me a call. We look forward to working with you on this project.

2. Services and Deliverables

Engineer shall perform the Services set out in Exhibit I attached hereto, which describes the Services and deliverables in detail.

3. Schedule

Engineer shall carry out its performance of the Services in accordance with the schedule set out below.

Staking will be completed as requested by GBWC's contractor (FRC) who will provide Summit at least 24hrs notice prior to needing the staking completed.

Task durations that exceed the schedule estimates may be considered a scope change; provided that the reason for the schedule estimates being exceeded is not the result of the acts or omissions of Engineer, and subject to written approval in advance by Corix.

4. Status Report

Engineer shall prepare and submit to the Corix Representative on a monthly basis (or such other basis as the Corix Representative may require) a detailed progress report on the Services that shall include the following items:

- (a) Engineer's costs for the preceding period with a breakdown of the hours for each task and a brief description of the Services performed;
- (b) Notation of percentage complete for each line item;
- (c) Engineer's total costs to date; and
- (d) an update on the status of the Services.

5. Change Orders

The Corix Representative may by a written change order change, add to or delete from the scope of Services and Engineer shall be required to perform the Services as amended. Where such a change in the Services warrants additional payment, the rate shall be mutually agreed by the parties. No amount in addition to the fees set out in Schedule "B" shall be paid to Engineer unless authorized by the Corix Representative in writing and in advance.

6. Witness

Engineer shall, if requested, act as a competent witness to testify to Engineer's scope of services and deliverables.

**SCHEDULE B
TERMS OF PAYMENT**

1. Fees

Corix will pay Engineer for the Services in accordance with the rate schedule below. Engineer acknowledges and agrees that payment will be made on the basis of the Services actually and fully performed. Corix shall have no obligation or liability to pay Engineer for any amount greater than the maximum agreed amount unless Corix has given Engineer its express prior written approval to exceed such amount.

2. Rate Schedule

Progress invoices will be submitted monthly based on the Engineer's estimate of the percent of work complete at the time of invoicing.

All dollar amounts expressed are in U.S. currency.

CHANGE ORDER NO.: 1

Owner: Great Basin Water Co.
 Consultant: Lumos & Assoc
 Contractor: FRC
 Project: SCD-Well 8 Site Development
 Contract Name: N/A
 Date Issued: 07/22/2024

Owner's Project No.: 2016011
 Consultant's Project No.: 8595.0004
 Contractor's Project No.: N/A

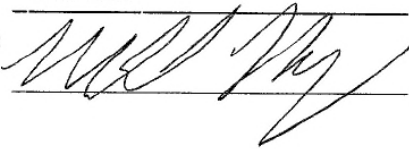
Effective Date of Change Order: 07/22/2024

Para Item 17 on the Contract is modified as follows upon execution of this Change Order:

GBWC has requested that FRC changes the 4" Stainless Steel Column Pipe to a 4" HSLA Steel Column Pipe that is NSF61 compliant to help reduce the overall cost of the well as much as possible while staying within compliance and providing safe drinking water to our customers of Spring Creek. Total project reduction will be \$21,500 as shown in the below change order.

Attachments:

Change in Contract Price	Change in Contract Times
Original Contract Price: \$ 1,005,462	Original Contract Times: Substantial Completion: 12/15/2024 Ready for final payment: 12/25/2024
Increase Decrease from previously approved Change Orders No. - to No. - \$ N/A	Increase Decrease from previously approved Change Orders No.- to No. -: Substantial Completion: N/A Ready for final payment: N/A
Contract Price prior to this Change Order: \$ 1,005,462	Contract Times prior to this Change Order: Substantial Completion: 12/15/2024 Ready for final payment: 12/25/2024
Increase Decrease this Change Order: \$ (21,500)	Increase Decrease this Change Order: Substantial Completion: 12/15/2024 Ready for final payment: 12/25/2024
Contract Price incorporating this Change Order: \$ 983,962	Contract Times with all approved Change Orders: Substantial Completion: 12/15/2024 Ready for final payment: 12/25/2024

Recommended by Engineer (if required)		Authorized by Owner	
By:	<u>Mike Hardy P.E.</u>		<u>Sean Ashcraft</u>
Title:	<u>Senior Project Manager, Lumos&Assoc.</u>		<u>Project Manager, GBWC</u>
Date:	<u>7-25-2024</u>		<u>07/29/2026</u>
Signature:			

	<u>Authorized by Contractor</u>	<u>Approved by Funding Agency (if applicable)</u>
By:	<u>ReNae, McCabe</u>	<u>N/A</u>
Title:	<u>Secretary/Treasurer</u>	<u></u>
Date:	<u>7/25/24</u>	<u></u>
Signature:	<u>ReNae E. McCabe</u>	<u></u>

EJCDC® C-941, Change Order.

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Ref:
Great Basin Water Co – Spring Creek Division
Well 8 Replacement Project

July 25th, 2024

Attn:
Regan Slack
Faulstich & Rand Construction
Elko, NV. 89803

PROJECT CHANGE ORDER # 1

Drop Pipe Material Change

Project plans and specifications required the use of Stainless Steel 4" T&C pipe to be used for the submersible pump discharge pipe. As discussed and agreed upon by Great Basin Water Co. and Lumos & Associates, a 4" LCS T&C pipe which meets NSF61 compliance, will be used in lieu of the stainless steel originally specified.

Below is a cost summary outlining the price reduction for the material change only. There is not other cost change implications related to the material substitution. Additionally, there will be no associated impact to the project schedule.

Line	Item	Qty.	UoM	Cost	Extd.
1	4" T/C Drop Pipe, SS to Carbon Steel NSF Reduction	43	piece	\$ (500.00)	<u>\$(21,500.00)</u>
					\$(21,500.00)

Please review this substitution, along with the product submittal provided by Stonehouse and notify our team with any questions or concerns, as well as approval to proceed at your convenience.

Thank you,

Brent Petring
President, Stonehouse Drilling and Construction
bpetring@shdrilling.com
775-240-3772

805 Bennie Lane
Reno, Nevada 89512
Phone: (775)432-2900 Fax: (775)331-8284
bpetring@shdrilling.com
NV License# 0069994 CA License# 904639
Limit: Unlimited

CHANGE ORDER NO.: 2

Owner: Great Basin Water Co.
 Consultant: Lumos & Assoc
 Contractor: FRC
 Project: SCD-Well 8 Site Development
 Contract Name: N/A
 Date Issued: 07/22/2024

Owner's Project No.: 2016011
 Consultant's Project No.: 8595.0004
 Contractor's Project No.: N/A

Effective Date of Change Order: 07/22/2024

Line Item #7 on the Contract is modified as follows upon execution of this Change Order:

Existing Well 8 has remained idle and out of use for several years, leading to buildup inside the well and gravel pack, which may diminish the well performance once equipped. In an effort to evaluate and remove some of this buildup, and promote healthy water flow through the gravel pack, Stonehouse is recommending the below Scope of Supply, with associated compensation rates.

Camera Shot: Perform a video survey of the existing well to determine level of scale and identify any potential issues with the well in current state.

Well Brushing & Development: Based on well video surveying results, it is estimated the well will require line brushing with steel brushes to remove surface level scale from well casing. Prior to brushing, a sodium hypochlorite solution will be tremmied and spot injected throughout the screen sections of the well. This solution will aid in breaking down iron buildup and other contaminants in well prior to brushing. Upon completion of the brushing, Stonehouse will utilize a double swab and perform reverse circulation to remove any debris from the well, and consolidate the gravel pack, promoting efficient flow through the perforations. The double swab reverse circulation is estimated at 3 mins of swabbing per 1 lf of perforated screen casing

Attachments:

FRC Project Change Order #2

Change in Contract Times

Change in Contract Price		Change in Contract Times	
Original Contract Price:		Original Contract Times:	
\$ 1,005,462		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. 2		[Increase] [Decrease] from previously approved Change Orders No.1 to No. 2:	
\$ (21,500)		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
Contract Price prior to this Change Order:		Contract Times prior to this Change Order:	
\$ 983,962		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
[Increase] [Decrease] this Change Order:		[Increase] [Decrease] this Change Order:	
\$ 17,386		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
Contract Price incorporating this Change Order:		Contract Times with all approved Change Orders:	
\$ 1,001,348		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024

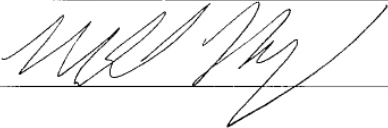
EJCDC® C-941, Change Order.

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Recommended by Engineer (if required)

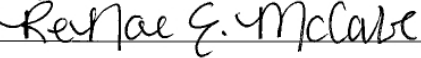
Authorized by Owner

By: Mike Hardy P.E.
Title: Senior Project Manager, Lumos&Assoc.
Date: July 23, 2024
Signature: 

Sean Ashcraft
Project Manager, GBWC
07/25/2024

Authorized by Contractor

Approved by Funding Agency (if applicable)

By: ReNae, McCabe
Title: Secretary / Treasurer
Date: 7/25/24
Signature: 

N/A

Faulstich & Rand Construction Co., Inc.

P.O. Box 2703
Elko, Nevada 89803
Phone: (775) 738-7463
Fax: (775) 753-7695
Nevada License #0020769

Ref:

Great Basin Water Co – Spring Creek Division
Well 8 Replacement Project

Work will be performed by Stonehouse Drilling & Construction

PROJECT CHANGE ORDER #2

Preliminary Well Rehabilitation Scope of Supply

Existing Well 8 has remained idle and out of use for several years, leading to buildup inside the well and gravel pack, which may diminish the well performance once equipped. In an effort to evaluate and remove some of this buildup, and promote healthy water flow through the gravel pack, Stonehouse is recommending the below Scope of Supply, with associated compensation rates.

Scope of Supply:

Camera Shot

Perform a video survey of the existing well to determine level of scale and identify any potential issues with the well in current state.

Well Brushing & Development

Based on well video surveying results, it is estimated the well will require line brushing with steel brushes to remove surface level scale from well casing. Prior to brushing, a sodium hypochlorite solution will be tremmied and spot injected throughout the screen sections of the well. This solution will aid in breaking down iron buildup and other contaminates in well prior to brushing. Upon completion of the brushing, Stonehouse will utilize a double swab and perform reverse circulation to remove any debris from the well, and consolidate the gravel pack, promoting efficient flow through the perforations. The double swab reverse circulation is estimated at 3 mins of swabbing per 1 l.f. of perforated screen casing.

Stonehouse Rate Sheet with Estimates

Line	Item	Qty.	UoM	Cost	Extd.
1	Well camera shot	1	ea.	\$ 2,530.00	\$ 2,530.00
2	Mobilization of pump rig and personnel to project site	1	ea.	\$ 1725.00	\$ 1,725.00
3	Tremie and spot inject chlorine solution	1	ea.	\$ 1,955.00	\$ 1,955.00
4	Line brush well	8	hr.	\$ 317.00	\$ 2,536.00
5	Double swab reverse develop well	20	hr.	\$ 432.00	\$ 8,640.00
					\$ 17,386.00

Please review this recommendation and notify our team with any questions or concerned. If approved, please notify Stonehouse and we will schedule to complete this scope of work. We anticipate this being completed in roughly 3 working days and will not impact the total project schedule completion timeline.

Thank you,

Brent Petring
 President, Stonehouse Drilling and Construction
 bpetring@shdrilling.com
 775-240-3772

And

ReNae McCabe
 Secretary/Treasurer
 Faulstich & Rand Const.
 775-738-7463

CHANGE ORDER NO.: 3

Owner: Great Basin Water Co.
 Consultant: Lumos & Assoc
 Contractor: FRC
 Project: SCD-Well 8 Site Development
 Contract Name: N/A
 Date Issued: 09/12/2024

Owner's Project No.: 2023186
 Consultant's Project No.: 08595.015
 Contractor's Project No.: N/A

Effective Date of Change Order: 09/12/2024

The Contract is modified as follows upon execution of this Change Order:

The current well has a 2" gravel feed pipe which is believed to extend roughly 400' bgl, into the gravel pack. During installation of the pitless adapter, Stonehouse Drilling attempted to measure the depth of this gravel feed pipe and was not able to pass a weighted tape beyond 41'. In accordance with direction from Lumos & Associates, Stonehouse Drilling will water jet the pipe in an attempt to clean it out, so the 2" pipe may be used as a sounding chute.

To perform the cleanout, Stonehouse will utilize a water tank, pump, and small diameter steel piping to create a pressurized wand to breakup and remove any mud/silts in the 2" pipe. It is assumed by Stonehouse that the cleanout attempt will occur during the installation of the final pump system. If this scope is performed separately, Stonehouse Drilling will include an additional mobilization charge. This proposal assumed 3 hours of work to jet the 2" line, however this may increase or decrease based on success rate.

Attachments:

Stonehouse Change Order #3.pdf

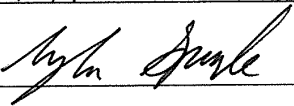
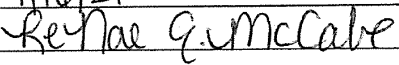
Change in Contract Times

Change in Contract Price		Change in Contract Times	
Original Contract Price:		Original Contract Times:	
\$ 1,005,462		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
[Increase] [Decrease] from previously approved Change Orders No. 2 to No. 3		[Increase] [Decrease] from previously approved Change Orders No.2 to No. 3:	
\$ 3,360		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
Contract Price prior to this Change Order:		Contract Times prior to this Change Order:	
\$ 1,001,348		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
[Increase] [Decrease] this Change Order:		[Increase] [Decrease] this Change Order:	
\$ 3,360		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024
Contract Price incorporating this Change Order:		Contract Times with all approved Change Orders:	
\$ 1,004,708		Substantial Completion:	12/15/2024
		Ready for final payment:	12/25/2024

EJCDC® C-941, Change Order.

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Page 1 of 2

	Recommended by Engineer (if required)	Authorized by Owner
By:	Tyler Sproule	Sean Ashcraft
Title:	Project Hydrogeologist, Lumos & Assoc	Manger, Project Management
Date:	9/17/2024	09/17/2024
Signature:		
	Authorized by Consultant	Approved by Funding Agency (if applicable)
By:	ReNae McCabe	N/A
Title:	Secretary/Treasurer	
Date:	9/16/24	
Signature:		



Ref:
Great Basin Water Co – Spring Creek Division
Well 8 Replacement Project

Sept. 12th, 2024

Attn:
Regan Slack
Faulstich & Rand Construction
Elko, NV. 89803

PROJECT CHANGE ORDER #3

2" Pipe Cleanout

The current well has a 2" gravel feed pipe which is believed to extend roughly 400' bgl, into the gravel pack. During installation of the pitless adapter, Stonehouse Drilling attempted to measure the depth of this gravel feed pipe and was not able to pass a weighted tape beyond 41'. In accordance with direction from Lumos & Associates, Stonehouse Drilling will water jet the pipe in an attempt to clean it out, so the 2" pipe may be used as a sounding chute.

To perform the cleanout, Stonehouse will utilize a water tank, pump, and small diameter steel piping to create a pressurized wand to breakup and remove any mud/silts in the 2" pipe. Below is a cost summary to perform this work. It is assumed by Stonehouse that the cleanout attempt will occur during the installation of the final pump system. If this scope is performed separately, Stonehouse Drilling will include an additional mobilization charge. This proposal assumed 3 hours of work to jet the 2" line, however this may increase or decrease based on success rate.

Line	Item	Qty.	UoM	Cost	Extd.
1	Equipment set-up. Including water system, pump, piping and associated items to perform cleanout	1	ea.	\$ 2,100.00	\$ 2,100.00
1	Hourly Rate. Jetting and cleanout	3	hr.	\$ 420.00	\$ 1,260.00
					\$ 3,360.00

Please review this information and provide an approval at your convenience. Should you have any questions, or seek clarification, please contact our team directly.

Thank you,

Brent Petring
President, Stonehouse Drilling and Construction
bpetring@shdrilling.com
775-240-3772

805 Bennie Lane
Reno, Nevada 89512
Phone: (775)432-2900 Fax: (775)331-8284
kdillon@shdrilling.com
NV License# 0069994 CA License# 904639
Limit: Unlimited

CHANGE ORDER NO.: 1

Owner: Great Basin Water Co.
 Consultant: Lumos & Assoc
 Contractor: FRC
 Project: SCD-Well 8 Site Development
 Contract Name: N/A
 Date Issued: 07/22/2024

Owner's Project No.: 2016011
 Consultant's Project No.: 8595.0004
 Contractor's Project No.: N/A

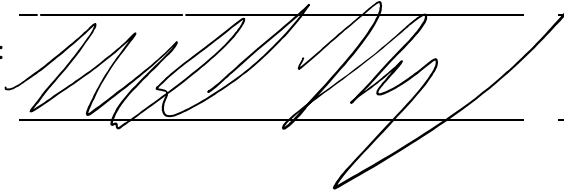
Effective Date of Change Order: 07/22/2024

Line Item #7 on the Contract is modified as follows upon execution of this Change Order:

GBWC has requested that FRC changes the 4" Stainless Steel Column Pipe to a 4" HSLA Steel Column Pipe that is NSF61 compliant to help reduce the overall cost of the well as much as possible while staying within compliance and providing safe drinking water to our customers of Spring Creek. Total project reduction will be \$21,500 as shown in the below change order.

Attachments:

Change in Contract Price		Change in Contract Times	
Original Contract Price: \$ <u>1,005,462</u>		Original Contract Times: Substantial Completion: <u>12/15/2024</u> Ready for final payment: <u>12/25/2024</u>	
Increase Decrease from previously approved Change Orders No. - to No. - \$ <u>N/A</u>		Increase Decrease from previously approved Change Orders No.- to No. -: Substantial Completion: <u>N/A</u> Ready for final payment: <u>N/A</u>	
Contract Price prior to this Change Order: \$ <u>1,005,462</u>		Contract Times prior to this Change Order: Substantial Completion: <u>12/15/2024</u> Ready for final payment: <u>12/25/2024</u>	
Increase Decrease this Change Order: \$ <u>(21,500)</u>		Increase Decrease this Change Order: Substantial Completion: <u>12/15/2024</u> Ready for final payment: <u>12/25/2024</u>	
Contract Price incorporating this Change Order: \$ <u>983,962</u>		Contract Times with all approved Change Orders: Substantial Completion: <u>12/15/2024</u> Ready for final payment: <u>12/25/2024</u>	

Recommended by Engineer (if required)		Authorized by Owner	
By: <u>Mike Hardy P.E.</u>		<u>Sean Ashcraft</u>	
Title: <u>Senior Project Manager, Lumos&Assoc.</u>		<u>Project Manager, GBWC</u>	
Date: <u>7-25-2024</u>			
Signature: 			

	<u>Authorized by Contractor</u>	<u>Approved by Funding Agency (if applicable)</u>
By:	<u>ReNae, McCabe</u>	<u>N/A</u>
Title:	<u></u>	<u></u>
Date:	<u></u>	<u></u>
Signature:	<u></u>	<u></u>



Ref:
Great Basin Water Co – Spring Creek Division
Well 8 Replacement Project

July 25th, 2024

Attn:
Regan Slack
Faulstich & Rand Construction
Elko, NV. 89803

PROJECT CHANGE ORDER #1

Drop Pipe Material Change

Project plans and specifications required the use of Stainless Steel 4" T&C pipe to be used for the submersible pump discharge pipe. As discussed and agreed upon by Great Basin Water Co. and Lumos & Associates, a 4" LCS T&C pipe which meets NSF61 compliance, will be used in lieu of the stainless steel originally specified.

Below is a cost summary outlining the price reduction for the material change only. There is no other cost change implications related to the material substitution. Additionally, there will be no associated impact to the project schedule.

<u>Line</u>	<u>Item</u>	<u>Qty.</u>	<u>UoM</u>	<u>Cost</u>	<u>Extd.</u>
1	4" T/C Drop Pipe, SS to Carbon Steel NSF Reduction	43	piece	\$ (500.00)	<u>\$(21,500.00)</u>
					\$(21,500.00)

Please review this substitution, along with the product submittal provided by Stonehouse and notify our team with any questions or concerns, as well as approval to proceed at your convenience.

Thank you,

Brent Petring
President, Stonehouse Drilling and Construction
bpetring@shdrilling.com
775-240-3772

805 Bennie Lane
Reno, Nevada 89512
Phone: (775)432-2900 Fax: (775)331-8284
kdillon@shdrilling.com
NV License# 0069994 CA License# 904639
Limit: Unlimited



RULE 9
LINE EXTENSION AGREEMENT

Project ID: 3010835522
Project Title: E-317 SCRUB OAK DR,
WELL #8-FP-NCP-COMM-E-
GREAT BASIN WATER, CO.
Agreement No.: 107785

This Rule 9 Line Extension Agreement ("**Agreement**") is made and entered between Sierra Pacific Power Company, a Nevada Corporation, d/b/a NV Energy ("**Utility**") and GREAT BASIN WATER CO., a(n) NV Corporation ("**Applicant**") (individually, a "**Party**" and collectively, the "**Parties**").

RECITALS

- A. Utility owns and operates electric transmission and distribution facilities and provides electric service within Nevada, in accordance with Tariff Schedules filed with and approved by the Commission.
- B. Applicant has requested an Alteration of Existing Facilities and/or Service to its Development.
- C. In accordance with Rule 9, other applicable provisions in its Tariff Schedules and this Agreement, Utility will complete the Project.
- D. Applicant acknowledges that it must follow Utility's procedures for identifying and resolving conflicts between its Development and the Electric System and that Utility will only waive or approve a particular conflict through Utility's standard use agreement signed by the property owner(s) and Utility, duly notarized, and recorded.

In consideration of the above recitals, mutual covenants, terms and conditions contained in this Agreement, the Parties agree as follows:

AGREEMENT

1. Summary of Costs and Contingencies

- 1.1 Project. In order to provide 150 KVA of Service to Applicant and/or perform an Alteration of Existing Facilities, Utility will modify the Electric System as shown on the Design titled E-317 SCRUB OAK DR, WELL #8-FP-NCP-COMM-E-GREAT BASIN WATER, CO. and attached as Exhibit A.
- 1.2 Estimated Total Costs. The Estimated Total Costs for the Project are **\$414,556.00**, as summarized on Exhibit B.
- 1.3 Estimated Advance. The estimated Advance is **\$413,843.00**, consisting of:
 - (A) CIAC. An estimated CIAC in the amount of **\$1.00 ("Estimated CIAC")**. This amount includes a non-taxable, non-refundable cost of **\$0.00** and a taxable, non-refundable cost of **\$1.00**. If the Estimated CIAC exceeds \$40,000, it is subject to a Total Cost True-up.
 - (B) Advance Subject to Potential Refund. An Advance Subject to Potential Refund in the amount of **\$358,476.00**. This amount includes Applicant's responsibility for any Proportionate Share Allocation and any applicable Commission order in the amount of **\$0.00**.
 - (C) Tax Gross-Up. The estimated Tax Gross-up is:
 - (1) Advance Subject to Potential Refund. A Tax Gross-up relating to the Advance Subject to Potential Refund in the amount of **\$43,734.00**. This Tax Gross-up is subject to refund.
 - (2) CIAC. A Tax Gross-up relating to CIAC in the amount of **\$0.00**. This Tax Gross-up is subject to adjustment in connection with any Total Cost True-Up.

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 GREAT BASIN WATER, CO.
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- (3) Non-Cash Contributions. A Tax Gross-up relating to Applicant's non-cash contributions to Utility under Rule 9, Section A.12.a (such as trenching and substructures performed by Applicant, its contractors or its subcontractors) in the amount of **\$11,632.00**. This Tax Gross-up is not subject to refund.
- 1.4 Up-front Allowance. The Maximum Allowance is **\$35,850.00**. As shown on Exhibit C, the Up-front Allowance is **\$14,340.00**.
- 1.5 Payment. Applicant must pay Utility **\$373,641.00 ("Initial Payment")** when Applicant delivers the signed Agreement to Utility. When calculating this payment, Utility applied any Up-front Allowance and, if applicable, a credit for any Utility Betterment.
- 1.6 Related Contracts.
 - (A) Proportionate Share Contracts. If Applicant attaches to a Line Extension installed by a previous Applicant (defined in Rule 1), such as those identified in this Subsection, Applicant must pay a Proportionate Share Allocation(s):

PID	Contract No.	Dated	Expiration	Title
None	None	None	None	None

- (B) Master Planned Community Contracts. This Agreement is associated with the following master planned community contracts:

PID	Contract No.	Dated	Expiration	Title
None	None	None	None	None

2. Description and Design of the Project

- 2.1 Design for Project: Amendment. The design for the Project, including any Betterments is attached to this Agreement as Exhibit A (the "**Design**"). Applicant approves the Design and acknowledges that Applicant is bound by and must comply with all notes on the Design. If any Contingent Facilities are identified on the Design and not installed, then the Design will change, and the Total Costs, may change. The Parties may revise the Design by amending this Agreement in accordance with Section 11.10.
- 2.2 Condition to Providing Service. Utility is not obligated to provide electric Service to the Development and may stop work on the Project until after Applicant meets its obligations under Section 4.4 to Utility's satisfaction. Applicant agrees that, if Utility provides Service to the Development or continues working on the Project even though conflicts remain, Applicant is responsible for resolving those conflicts at its Total Cost and to Utility's satisfaction and Applicant must (at its Total Cost) acquire and deliver to Utility all Property Rights Utility deems necessary.
- 2.3 Inaccurate Information and Field Conditions. Applicant understands that inaccurate, incomplete or outdated information and that surface and subsurface field conditions could delay Construction Complete and Service to the Development.
- 2.4 Sources of Power. The sources of power from the Electric System to the Development are subject to change, at Utility's discretion. Applicant understands that the Electric System configuration is dynamic and at the sole discretion of Utility and that interruptions of electric service to the Development, both on a scheduled and unscheduled basis, are inherent in the provision of service to the Development.

RULE 9
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Project ID: 3010835522
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2.5 Providing Service to Applicant. Utility will provide Service to Applicant in accordance with this Agreement, applicable Laws and Utility's Tariff Schedules. However, if Applicant is not using the capacity Utility made available to Applicant in connection with this Agreement after the Agreement terminates, Utility (in its discretion) may reallocate the unused capacity to other Customers or Applicants.

3. Betterments; Refunds; True-Ups

3.1 Utility and Applicant Betterments. [INTENTIONALLY OMITTED]

3.2 Limitation on Refunds. The Advance Subject to Potential Refund is the maximum possible Refund that Applicant may receive. The Refund may range from \$0 to the balance of the Advance Subject to Potential Refund.

3.3 Performance of True-Ups. Utility will perform any Allowance True-up if required and in accordance with Rule 9, Section A.31. Utility will perform any Total Cost True-up if required and in accordance with Rule 9, Section A.31. After Utility performs any required Allowance True-up and/or Total Cost True-up, Utility will either invoice Applicant or provide a Refund to Applicant. In accordance with Rule 9, Section A.31, Utility might perform more than one Allowance True-up and/or send Applicant an invoice(s) or Refund for Total Cost items that were finalized or became known after the original Total Cost True-up.

3.4 [INTENTIONALLY OMITTED]

4. Applicant's Obligations

4.1 Responsibility for Total Costs. Applicant is responsible for the Total Costs, except for those Utility is specifically responsible for under Rule 9.

4.2 Payment of Advances. Applicant must pay all Advances based on the Estimated Total Costs identified initially in Exhibit B and those identified subsequently by Utility in accordance with Rule 9.

4.3 Obligation to Construct Facilities in Compliance with Laws. At its expense, Applicant and its contractors must construct and install Rule 9, Section A.12.a improvements as shown on the Design, in a manner consistent with the Property Rights for those improvements and in compliance with all Permits, applicable Laws, Utility's Standards, the Tariff Schedules and the National Electrical Safety Code.

4.4 Identification and Resolution of Conflicts; Costs Associated with Conflicts.

(A) Identification of Conflicts. Applicant must identify, in writing and in a manner satisfactory to Utility, all conflicts between (1) the Development and the Electric System located within the Development, (2) the Development and the Electric System located within or adjacent to offsite improvements required for the Development, (3) the Development and the Electric System located adjacent to the Development, and (4) the Development and Utility's Property Rights within and adjacent to the Development.

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- (B) Resolution of Conflicts with Utility's Facilities and Payment of Costs. If Applicant, its agents, its contractors, or its subcontractors damage, have damaged, render unsafe or have rendered unsafe the Electric System located within or adjacent to the Development or to the offsite improvements required for the Development, Applicant must (1) pay all costs to render those facilities safe, to relocate the facilities impacted, and to construct any new facilities needed and (2) provide or obtain Property Rights in Utility's name for the relocated facilities and/or new facilities, at no cost to Utility and in a location and form satisfactory to Utility (including but not limited to the type of Property Rights, the dimensions of the Property Rights area, and terms and conditions of the Property Rights).
- (C) Resolution of Conflicts with Utility's Easements and Payment of Costs. If Applicant, its agents, its contractors, or its subcontractors interfered with Utility's Property Rights, Applicant must (1) pay all costs incurred by Utility that are associated with the interference and (2) either remove the interference and return the Property Rights area to a condition that is usable by Utility or provide or obtain replacement Property Rights in Utility's name, at no cost to Utility and in a location and form satisfactory to Utility (including but not limited to the type of Property Rights, the dimensions of the Property Rights area, and terms and conditions of the Property Rights).
- 4.5 Payment of Invoices; Work Stoppage and Service Delay for Non-Payment. In addition to providing Applicant with an invoice for the Initial Payment, Utility might periodically invoice Applicant in connection with this Agreement for new or increased Total Costs. Except for the invoice for the Initial Payment which is due when Applicant delivers the signed Agreement to Utility, Applicant must pay Utility's invoices within sixty (60) days of receipt. If mailed, Utility's invoices are deemed received by Applicant three (3) days after the invoice date. Applicant must reference PID 3010835522 on any payment. If Utility does not receive timely payment of its invoices, then Utility, without liability to Applicant, may stop work on the Project and/or not provide Service to the Development until after Utility receives payment in full. Any delay in payment might result in a delay in completion of the Project.
- 4.6 Interest. Any amount unpaid and due by Applicant under this Agreement will accrue interest at the then current per annum simple prime rate, as published in the Market Data section of the Wall Street Journal, plus one percent (1%), from the original due date through the date of receipt of payment by Utility. However, Utility will not pay Applicant any interest on the amount of any payment made in connection with this Agreement.
- 4.7 Information Provided by and Needed from Applicant. Applicant acknowledges that Utility relies on information provided by Applicant when performing Utility's obligations under this Agreement. Applicant acknowledges that it has a continuing obligation to provide the most current and accurate information concerning its Development to Utility and to notify Utility of any inconsistencies between the Design and facilities constructed (or being constructed) for the Project and/or the Property Rights for those facilities. Applicant also understands that Utility is not aware of and cannot know all surface and subsurface field conditions. Notwithstanding anything to the contrary in this Agreement, Applicant agrees to assume all responsibilities, liabilities, and Total Costs for repair, replacement, redesign, modification, relocation or other work to the facilities constructed, or being constructed, for the Project:
- (A) Resulting from or arising out of incomplete, inaccurate or outdated data and other information supplied to Utility by Applicant; or
 - (B) Resulting from or arising out of changes affecting the accuracy or completeness of data or information after it is supplied to Utility by Applicant; or
 - (C) Resulting from or arising out of surface or subsurface field conditions; or

RULE 9
LINE EXTENSION AGREEMENT

Project ID: 3010835522
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- (D) That were installed outside the Property Rights intended for such facilities; or
 - (E) That were installed based on surveys or staking provided by Applicant or Applicant's agents that are found to be located outside the Property Rights intended for such facilities.
- 4.8 Inspection of and Responsibility for Rule 9, Section A.12.a Improvements Installed by Applicant. For Rule 9, Section A.12.a improvements installed by Applicant, Applicant must:
- (A) Allow Utility to inspect the construction and installation of these improvements.
 - (B) Maintain, repair, and (as Utility deems necessary) replace these improvements until Utility's Acceptance, in addition to providing the guarantees in Section 6. If Applicant must use conduit it installed or pre-existing conduit for Service to the Development, Applicant (in Utility's discretion and at Applicant's expense) must video inspect, re-mandrel, re-mule tape, and repair the conduit. If all or a portion the conduit cannot be repaired, Applicant (at its expense and to Utility's satisfaction) must replace the damaged conduit.
- 4.9 Obligation to Provide Information to Utility. In addition to providing the information required by Rule 9, Subsection A.2.c and within ten (10) days of Utility's written request, Applicant must provide information and documentation requested by Utility, including but not limited to absorption information, information and documentation relating to the amount(s) Applicant paid, if any, for third-party Property Rights, and information and documentation relating to the actual cost of Applicant's non-cash contributions to Utility under Rule 9, Section A.12.a.

5. Property Rights;Ownership and Lien Release(s)

- 5.1 Obligation to Acquire and Convey Property Rights. Applicant must, without cost to Utility, grant and convey, or obtain for Utility, all Property Rights that Utility deems it requires for the Utility facilities (or any portion thereof) affected under this Agreement. In Utility's discretion and at Applicant's Total Cost, Utility may obtain an appraisal(s) of the Property Rights.
- 5.2 Condition to Commencing Construction. Utility is not obligated to commence construction of any facilities until after the required Property Rights are permanently granted to Utility in a manner that is satisfactory to Utility as to both location and form (including but not limited to the type of Property Rights, dimensions of the Property Rights area and terms and conditions relating to the Property Rights).
- 5.3 Ownership of Facilities and Equipment. All facilities constructed and equipment installed by Applicant and Utility, including Betterments, under this Agreement are property owned, maintained, and controlled by Utility upon Utility's Acceptance. Utility (not Applicant) owns all material Utility orders for the Project for use on Utility's side of the Point of Delivery. Upon Utility's written request, Applicant will sign and deliver a bill of sale in a form acceptable to Utility that conveys all of Applicant's rights, title and interest in the Rule 9, Section A.12.a improvements to Utility and certifies that these improvements are free of liens and other encumbrances. Utility has the right to use, and allow other Customers to use, these improvements for any purpose. Utility may also allow designated telecommunications carriers and cable television companies to use these improvements if Utility is required to do so by the federal Telecommunications Act or other applicable Laws. If Applicant requests that spare conduit be installed in connection with this Agreement and pays the Total Costs associated with that conduit, Utility is not required to reserve that conduit for Applicant and may use it for other Customers and allow designated telecommunications carriers and cable television companies to use that conduit.

RULE 9
LINE EXTENSION AGREEMENT

Project ID: 3010835522
Project Title: E-317 SCRUB OAK DR,
WELL #8-FP-NCP-COMM-E-
GREAT BASIN WATER, CO.
Agreement No.: 107785

- 5.4 Release of Lien or Claim. Upon Utility's written request, Applicant must furnish to Utility a complete release of any lien or claim and receipts covering in full all labor, material, and equipment for which a lien could be filed in relation to the Rule 9, Section A.12.a improvements.

6. Guarantees

- 6.1 Guarantee Against Defects. Applicant guarantees, regardless of Utility's Acceptance, all work Applicant and its contractors/subcontractors perform and all material and equipment they furnish under this Agreement against defects in materials and workmanship for a period of two (2) year following completion of the Project. Applicant also guarantees any corrective work and replaced or repaired materials against defects for an additional two-year period following completion of the work.
- 6.2 Utility's Option to Remedy Defect. Utility may, at its option and Applicant's sole Total Cost, either itself remedy or require Applicant to remedy any defect in materials or workmanship provided by Applicant and its contractors/subcontractors that develop during the two-year period provided for in Section 6.1. The option and obligation to repair extend to any damage to facilities or work caused by the particular defect or repair of the defect. Applicant must remedy the defect(s) to Utility's satisfaction. Should Utility choose to remedy a defect, Applicant must pay Utility all amounts it incurred within sixty (60) days of receiving an invoice from Utility.
- 6.3 Modification or Relocation of Electric Facilities. If Applicant requests that the Line Extension or relocation be constructed prior to the establishment of final grade or the alignment of the roads, streets, or alleys and a conflict arises, Applicant is responsible for the Total Cost to relocate, modify and remove the electric facilities in accordance with Rule 9, Section A.10. Any replacement Property Rights Utility determines are needed must be granted to Utility in a manner that is satisfactory to Utility as to both location and form (including but not limited to the dimensions of the Property Rights area and terms and conditions relating to the Property Rights).

7. Default

- 7.1 Procedure. If a Party ("**Defaulting Party**") fails to comply with the terms and conditions of this Agreement, within ten (10) days of receiving written notice of such failure from the other Party ("**Non-Defaulting Party**"), the Defaulting Party and Non-Defaulting Party must meet and cooperate in good faith to expedite a solution of the breach. If no solution is reached and the failure continues for thirty (30) days after the meeting between the Defaulting Party and Non-Defaulting Party (or after this meeting was scheduled to occur), then the Non-Defaulting Party is entitled to declare the Defaulting Party in default and is entitled to all remedies authorized by law, with the exception that Utility's failure to achieve any scheduled date that is dependent on Applicant's or a third-party's performance is not an event of default.
- 7.2 Notice to Utility's Legal Department. In addition to sending written notice to Utility's Project Coordinator and to the Utility department identified in Section 13.2, Applicant must also send a copy of any notice required under Section 7 to Utility's Legal Department at the address specified in the "Notices" Section of the Agreement.

8. Confidentiality

- 8.1 Exchanging Information. Utility might provide Applicant with information to be used in complying with the Agreement. Some or all of this information, including, but not limited to, oral information, documents, supplier information, files, drawings, and data, might be confidential.

RULE 9
LINE EXTENSION AGREEMENT

Project ID: 3010835522
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GREAT BASIN WATER, CO.
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- 8.2 Labeling Information Confidential. If Utility wants information to be treated as confidential, Utility must label the written information as "CONFIDENTIAL" or inform Applicant that non-written information requires confidential treatment ("**Confidential Information**").
- 8.3 Protection of Confidential Information.
- (A) Applicant's Obligation to Keep Information Strictly Confidential and Not Disclose It. Applicant must keep the Confidential Information strictly confidential and in a secure location. Applicant must also keep any discussion regarding Confidential Information strictly confidential. Applicant must not disclose any Confidential Information or a discussion regarding Confidential Information to any Person except as expressly provided in this "Confidentiality" Section or as otherwise approved in writing in advance by Utility.
- (B) Additional Protection of Information. If Utility has failed to label or advise Applicant that certain information requires protection, the restrictions and limitations in this "Confidentiality" Section will also apply to the receipt of non-public information that Applicant should reasonably recognize as being confidential. But Applicant will not be in breach of its obligations under this "Confidentiality" Section if it reasonably fails to recognize as confidential any information Utility failed to label, or advise Applicant is, confidential.
- (C) Transmitting Information. If Applicant transmits any Confidential Information electronically or discusses the Confidential Information in an email, it must encrypt the email and all attachments to it and insert "[CONFIDENTIAL]" as the first word in the subject line of the email.
- 8.4 Return or Destruction of Confidential Information. Upon Utility's request, Applicant must promptly either return to Utility, or certify the destruction of, all Confidential Information that Applicant received, together with all copies, excerpts, notes and documents derived or generated from the Confidential Information.
- 8.5 Sharing Confidential Information. Applicant may disclose Confidential Information to its Affiliates, attorneys, consultants, contractors and subcontractors (individually, "**Other Party**" and collectively, "**Other Parties**"); provided, however, that (A) Utility approves disclosure to the Other Party in writing in advance and (B) the Other Party signs (and delivers to Utility) an agreement in a form acceptable to Utility in which the Other Party agrees (1) to be bound by the terms of this "Confidentiality" Section, (2) to submit to the jurisdiction of the District Court, Washoe County, Nevada, or any Nevada court in Washoe County with jurisdiction in or over that matter, for purposes of enforcement of that agreement and this "Confidentiality" Section, and any ancillary proceedings regarding interpretation, enforcement or effect of those agreements and (3) to such other terms and conditions Utility may reasonably require. Utility reserves the right to refuse to approve or agree to the disclosure of Confidential Information to any Person.
- 8.6 Request for Confidential Information Through Legal Process. Notwithstanding anything to the contrary in this "Confidentiality" Section, if Applicant is requested by a third party or might be legally compelled to disclose any Confidential Information, to disclose excerpts, notes or documents derived or generated from the Confidential Information, or to disclose discussions regarding the Confidential Information, it must provide Utility with immediate written notice after Applicant learns that a disclosure is requested or may be compelled, so that Utility may seek a protective order, injunction, or any other remedy. The written notice must identify with particularity the Confidential Information that is the subject of the request or for which disclosure may be compelled. If a protective order, injunction, or other remedy is not obtained, Applicant will furnish only that portion of the Confidential Information that Applicant is legally required to disclose. Applicant will cooperate with Utility's counsel, at Applicant's Total Cost, if Utility seeks to obtain a protective order, injunction, or other remedy or other reliable assurance that confidential treatment will be accorded the Confidential Information.

RULE 9
LINE EXTENSION AGREEMENT

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GREAT BASIN WATER, CO.
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8.7 Rights and Limitations. Utility does not grant any right or license, by implication or otherwise, to Applicant as a result of Utility's disclosure or discussion of Confidential Information. Utility makes no representation or warranties regarding the accuracy or completeness of this information. Applicant expressly recognizes that this information is provided "AS IS, with all faults" and Utility makes NO WARRANTIES, EXPRESS OR IMPLIED STATUTORY OR OTHERWISE, WITH RESPECT TO THE CONFIDENTIAL INFORMATION AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES.

9. Force Majeure

- 9.1 Notice of Force Majeure Event. If a Force Majeure Event occurs or is anticipated, the affected Party must promptly notify the other Party in writing of the Force Majeure Event. This notice must include a description, cause and estimated duration of the Force Majeure Event. Regardless of the cause, Applicant's failure or inability to pay some or all of the Total Costs is not a Force Majeure Event.
- 9.2 Duty to Mitigate Effects of Delay. The affected Party must exercise Commercially Reasonable Efforts to shorten, avoid, and mitigate the effects of the Force Majeure Event.
- 9.3 Notice of Resumption of Performance. The affected Party must promptly notify the other Party in writing when the Force Majeure Event has ended and when performance will resume.
- 9.4 Liability; Termination Option. Utility is not liable to Applicant for Total Costs incurred as a result of any delay or failure to perform as a result of a Force Majeure Event. In accordance with Rule 9, Section A. 27.c.4 and with prior written notice to Applicant, Utility may terminate the Agreement without liability to Applicant provided Utility, in consultation with Applicant, first determines the Force Majeure Event renders Project performance impossible or impractical.
- 9.5 Notice to Utility's Legal Department. In addition to sending notices required under this "Force Majeure" Section to the Project Coordinator, Applicant must also send a copy of all required notices to Utility's Legal Department at the address specified in the "Notices" Section of this Agreement.

10. Representations

- 10.1 No Pending Actions, Suits or Proceedings. Applicant represents that to its knowledge as of the date of this Agreement, there are no actions, suits or proceedings pending or threatened against Applicant in any court or before any administrative agency that would prevent its performance under this Agreement.
- 10.2 Authority. Each Party has taken all actions as may be necessary or advisable and proper to authorize this Agreement, the execution and delivery of it, and the performance contemplated in it. The individuals executing this Agreement state and acknowledge that they are authorized and empowered to do so on behalf of the Party so designated.

11. Miscellaneous Provisions

- 11.1 Indemnity. Applicant will indemnify and hold harmless Utility and all of its affiliates and all of their respective directors, officers, employees, representatives and agents (collectively, "**Indemnified Parties**") from and against any and all thirdparty claims, demands and lawsuits, including those for personal injury, death and property damage, against one or more Indemnified Parties (and all associated judgments, damages, losses, liabilities, fines, penalties and attorney's fees and expenses) based in whole or in part on (1) any violation or breach of any Property Rights for the Project or any

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agreements or instruments creating or evidencing any Property Rights for the Project (collectively, "**Property Rights Documents**") by Applicant or any of its contractors or any of their respective subcontractors, directors, officers, employees, representatives or agents ("**Responsible Parties**"); (2) any requirement of or obligation imposed by any Property Rights or Property Rights Documents in connection with any Rule 9, Section A.12.a improvements or other work performed by one or more Responsible Parties in connection with this Agreement (the "**Work**"); or (3) any violation of applicable Law or of a Permit by one or more Responsible Parties in connection with the Work (all of the foregoing being collectively, "**Indemnified Claims**"). Additionally, at Utility's election, Applicant will defend an Indemnified Party(ies) against Indemnified Claims. This indemnity will be effective regardless of any negligence (whether active, passive, derivative, joint, concurrent or comparative) on the part of the Indemnified Parties. Applicant expressly waives all immunity given to Applicant under the workers' compensation or other employee benefits Laws of any state or jurisdiction that conflict with Applicant's obligations under this Section.

- 11.2 Utility's Tariff Schedules: Commission. This Agreement is made by the Parties pursuant to Utility's Tariff Schedules. Those Tariff Schedules apply to this Agreement, are binding on the Parties and supersede any portion of this Agreement should a conflict arise. However, Rule 9 is the version in effect on the Effective Date unless otherwise specified. Notwithstanding Section 11.10, this Agreement is, at all times, subject to such changes or modifications by the Commission as the Commission may from time to time direct in the exercise of its jurisdiction. This Section survives default, expiration, or termination of this Agreement or excuse of performance.
- 11.3 Integration. This Agreement, together with documents executed with the same formality as this Agreement, represent the entire and integrated agreement between Utility and Applicant and supersedes all prior and contemporaneous communications, representations, and agreements, whether oral or written, relating to the subject matter of this Agreement.
- 11.4 Assignment. This Agreement is binding upon the successors and assigns of Applicant effective upon receipt of written consent of Utility, such consent not to be unreasonably withheld. However, no assignment is effective until after the requirements in Rule 9, Section A.19 are complied with, including but not limited to (A) Applicant's successor or assignee agrees in writing to assume all obligations and liabilities under this Agreement and (B) Applicant (in Utility's discretion) agrees in writing to continuing liability in connection with certain obligations.
- 11.5 Limitation of Damages. Notwithstanding anything to the contrary, Utility is not liable to Applicant for any consequential, indirect, exemplary or incidental damages, including but not limited to damages based upon delay, lost revenues or profits. This Section survives default, expiration, or termination of this Agreement or excuse of performance.
- 11.6 Choice of Law and Venue. This Agreement is governed by and will be construed in accordance with the laws of the State of Nevada, without giving effect to its choice or conflicts of law provisions. All actions that are beyond the scope of the Commission's jurisdiction must be initiated in the courts of Washoe County, Nevada or the federal district court with jurisdiction over Washoe County, Nevada. The Parties agree they will not initiate an action against each other in any other jurisdiction.
- 11.7 No Waiver. The failure of either Party to enforce any of the provisions of this Agreement at any time, or to require performance by the other Party of any of the provisions of this Agreement at any time, will not be a waiver of any provisions, nor in any way affect the validity of this Agreement, or the right of any Party to enforce each and every provision.
- 11.8 Independent Contractor. Neither Applicant nor Utility is, nor will they be deemed to be, for any purpose, the agent, representative, contractor, subcontractor or employee of the other by reason of this Agreement. Nothing in this Agreement or any contract or subcontract by Applicant will create any contractual relationship between Applicant's employee, agent, contractor or subcontractor and Utility.

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- 11.9 Interpretation. Each Party to this Agreement acknowledges that it has carefully reviewed this Agreement and that each fully understands and has participated in drafting its provisions, and, accordingly, the normal rules of construction to the effect that any ambiguities are to be resolved against the drafting party are not to be employed or used in any interpretation of this Agreement.
- 11.10 Amendments. Any changes, modifications, or amendments to this Agreement are not enforceable unless consented to in writing by the Parties and executed with the same formality as this Agreement.
- 11.11 No Third-Party Beneficiaries. Nothing expressed or implied in this Agreement is intended, or should be construed, to confer upon or give any Person not a party to this Agreement, such as a Party's contractors, any third-party beneficiary rights, interests, or remedies under or by reason of any term, provision, condition, undertaking, warranty, representation, or agreement contained in this Agreement.
- 11.12 Remedies. All rights and remedies of a Party provided for in this Agreement will be cumulative and in addition to, and not in lieu of, any other remedies available to a Party at law, in equity, or otherwise.
- 11.13 Headings; Exhibits; Cross References. The headings or section titles contained in this Agreement are used solely for convenience and do not constitute a part of this Agreement, nor should they be used to aid in any manner in the construction of this Agreement. All exhibits attached to this Agreement are incorporated into this Agreement by reference. All references in this Agreement to Sections, Subsections, and Exhibits are to Sections, Subsections, and Exhibits of or to this Agreement, unless otherwise specified. And, unless the context otherwise requires, the singular includes the plural and the plural includes the singular and the neuter includes feminine and masculine.
- 11.14 Discretion. Reference in this Agreement to the "discretion" of a Party means the Party's sole and absolute discretion. Such discretion is not subject to any external standard, including but not limited to any standard of custom or reasonableness.
- 11.15 Severability. If any portion or provision of this Agreement is invalid, illegal, or unenforceable, or any event occurs that renders any portion or provision of this Agreement void, the other portions or provisions of this Agreement will remain valid and enforceable. Any void portion or provision will be deemed severed from this Agreement, and the balance of this Agreement will be construed and enforced as if this Agreement did not contain the particular portion or provision held to be void. The Parties further agree to amend the Agreement to replace any stricken portion or provision with a valid provision that comes as close as possible to the intent of the stricken portion or provision.
- 11.16 Counterparts. The Parties may execute this Agreement in counterparts. Each of these counterparts, when signed and delivered, is deemed an original and, taken together, constitutes one and the same instrument. A facsimile or email copy of a signature has the same legal effect as an originally-drawn signature.
- 11.17 Performance of Acts on Business Days. Any reference in this Agreement to time of day refers to local time in Nevada. All references to days in this Agreement refer to calendar days, unless stated otherwise. Any reference in this Agreement to a "business day" refers to a day that is not a Saturday, Sunday or legal holiday (or observed as a legal holiday) for Nevada state governmental offices under the Nevada Revised Statutes. If the final date for payment of any amount or performance of any act required by this Agreement falls on a Saturday, Sunday or legal holiday, that payment is required to be made or act is required to be performed on the next business day.
- 11.18 [INTENTIONALLY OMITTED]

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11.19 Jury Trial Waiver. TO THE FULLEST EXTENT PERMITTED BY LAW, EACH OF THE PARTIES HERETO WAIVES ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN RESPECT OF LITIGATION DIRECTLY OR INDIRECTLY ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS AGREEMENT. EACH PARTY FURTHER WAIVES ANY RIGHT TO CONSOLIDATE ANY ACTION IN WHICH A JURY TRIAL HAS BEEN WAIVED WITH ANY OTHER ACTION IN WHICH A JURY TRIAL CANNOT BE OR HAS NOT BEEN WAIVED.

12. Term and Termination

- 12.1 Term of Agreement. This Agreement is effective on the Effective Date and will continue for a term of five (5) years unless terminated earlier under this Agreement.
- 12.2 Termination of Project by Applicant or Mutual Agreement. Applicant may terminate the Project with prior written notice to Utility. If Applicant terminates the Project, this Agreement will terminate thirty (30) days after Utility receives that termination notice. If the Parties mutually agree to terminate the Project, Utility will document that in a writing sent by Utility to Applicant; and, this Agreement will terminate thirty (30) days thereafter.
- 12.3 Termination of Project by Utility. Utility may terminate the Project in accordance with Rule 9, Section A.27.c. If Utility terminates the Project under Rule 9, Section A.27.c(2) or Rule 9, Section A.27(c)(3), this Agreement will terminate thirty (30) days after Utility provides Applicant with written confirmation that Utility met and conferred with Applicant, or made Commercially Reasonable Efforts to do so.
- 12.4 Surviving Obligations. Any default or termination of this Agreement or excuse of performance for a Force Majeure Event or otherwise does not release Applicant from any liability or obligation to Utility for:
- (A) Obligations under Section 4.3;
 - (B) Obligations under Section 4.4;
 - (C) Obligations under Section 4.7;
 - (D) Obligations under Section 5;
 - (E) Obligations under Section 6;
 - (F) Obligations under Section 8;
 - (G) Obligations that arise under Section 11.1; and
 - (H) Paying the Total Costs associated with this Agreement incurred before default or termination or excuse of performance and paying Total Costs that result from default, termination and excuse of performance.

The provisions of Section 4.5, Section 4.6, Section 11.2, Section 11.5, Section 11.6, Section 11.19 and Section 13 continue to apply to this Section.

13. Notices

- 13.1 Method of Delivery; Contacts. Each notice, consent, request, or other communication required or permitted under the Agreement must be in writing, delivered personally, sent by electronic mail or sent by certified mail (postage prepaid, return receipt requested) or by a recognized international courier, and addressed to the Party's Project Coordinator's as follows:

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Utility:

NV Energy
Lino, Robert (NV Energy)
Physical Address: 4216 Ruby Vista Drive, Elko, NV 89801
Mailing Address: P.O. Box 10100, Mail Code: R77CSE, Reno, NV 89520
Telephone No.: (775)834-2828
Email Address: Robert.Lino@nvenergy.com

Applicant:

GREAT BASIN WATER CO.
SEAN TWOMEY
Physical Address: 1240 E. STATE ST., SUITE 115, PAHRUMP, NV 89408
Mailing Address: 1240 E. STATE ST., SUITE 115, PAHRUMP, NV 89408
Telephone No.: 775-727-5941
Email Address: Sean.twomey@greatbasinwaterco.com

- 13.2 Additional Notice to Utility. For any notice given by Applicant to Utility under Section 7, Section 8.6, Section 9, Section 12.2, Rule 9, Section A.28, Rule 9, Section A.32.b, Rule 9, Section A.32.d, to review certain CIAC True-up Support or to review certain Total Cost True-up Support, Applicant must also send a copy to:

NV Energy
Attn.: Rule 9 Contract Administration
7155 Lindell Rd M/S B90SD
Las Vegas, NV 89118
Email Address: Rule9department@nvenergy.com

- 13.3 Notice to Utility's Legal Department. For any notice given by Applicant to Utility under Section 7, Section 8.6, Section 9, Section 12.2 or Rule 9, Section A.28, Applicant must also send a copy to Utility's Legal Department. Notwithstanding Section 13.1, this notice is not effective if provided through electronic mail and may only be delivered to the following address:

NV Energy
Attn: Legal Department
6226 West Sahara Avenue, M/S 3A
Las Vegas, Nevada 89146

- 13.4 Receipt of Notice; Change of Information. Each notice, consent, request, or other communication required or permitted under this Agreement is deemed to have been received by the Party to whom it was addressed (A) when delivered if delivered personally; (B) on the third business day after the date of mailing if mailed by certified mail; (C) on the date the Party sends the electronic mail provided that Party does not receive a failed delivery notification; or (D) on the date officially recorded as delivered according to the record of delivery if delivered by courier. Each Party may change its Project Coordinator or contact information for purposes of the Agreement by giving written notice to the other Party in the manner set forth above.

14. Definitions

- 14.1 Terms Defined in Rule 1. As used in this Agreement, the following capitalized terms have the meanings ascribed to them in Rule 1: Commission; Contribution in Aid of Construction ("**CIAC**"); Customer; Maximum Demand; Line Extension; Service; Standards.

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- 14.2 Terms Defined in Rule 9. As used in this Agreement, the following capitalized terms have the meanings ascribed to them in Rule 9: Advance; Advance Subject to Potential Refund; Affiliate; Allowance True-up; Alteration of Existing Facilities; Commercially Reasonable Efforts; Construction Complete; Contingent Facilities; Estimated Total Costs; Maximum Allowance; Person; Project; Property Rights; Proportionate Share Allocation; Refund; Tax Gross-up; Total Costs; Total Cost True-up; Total Cost True-up Support; Up-front Allowance.
- 14.3 Additional Definitions. In addition to the terms defined elsewhere in this Agreement, as used in this Agreement, the capitalized terms below will have the following definitions:
- (A) Acceptance: Utility's written acknowledgement that a particular component of applicable drawings or work is, to the best of its knowledge, compliant with applicable Utility Standards.
 - (B) Betterment: Any deviation or upgrade to the Project made primarily for the benefit of and at a Party's voluntary election that involves:
 - (1) Facilities in excess of the Minimum Requirements necessary to meet the Applicant's requirements for Service or Utility's requirements for an Alteration of Existing Facilities; or
 - (2) An alternate route for the facilities as set forth in Rule 9, Section A.5.
 - (C) Development: Applicant's project for which Applicant has requested that Utility prepare the Design for new Service and/or an Alteration of Existing Facilities.
 - (D) Effective Date: The date this Agreement is last signed below.
 - (E) Electric System: Utility's underground and/or above-ground communication facilities and electric line systems for the distribution and transmission of electricity.
 - (F) Force Majeure Event: An event or condition that is beyond the affected Party's control, occurs without the fault or negligence of the affected Party and renders Project performance impossible or impractical. Force Majeure may include, but is not limited to, government agency orders, war, riots, acts of terrorism, civil insurrection, fires, floods, earthquakes, epidemics, weather, strikes, lock-outs, work stoppages and other labor difficulties.
 - (G) Law: Any federal, state, or local code, ordinance, rule, statute, enactment, regulation, or order. Any specific reference to a Law in this Agreement refers to the Law as amended from time to time unless otherwise specified.
 - (H) Permit: Any applicable approval, permit, consent, waiver, exemption, variance, franchise, order, authorization, right, action, or license required from any federal, state, or local governmental authority, agency, court or other governmental body having jurisdiction over the matter in question which is necessary for the Parties to perform their obligations under this Agreement and under the applicable Laws. Any specific reference to a Permit in this Agreement refers to the Permit as amended from time to time unless otherwise specified.
 - (I) Project Coordinator: The individual with authority to act on behalf of Utility or Applicant for purposes of the Agreement, as identified in Section 13.1.
 - (J) Project ID or PID: The identification number Utility assigns to a Project.
 - (K) Property: The premise(s) owned or controlled by Applicant commonly known as 317 SCRUB OAK and further described as being within Assessor's Parcel Number(s) (APN(s)) 047001061
 - (L) Rule 1: Utility's Electric Service Rule No. 1, Definitions. Rule 1 is part of the Tariff Schedules.



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- (M) Rule 9: Utility's Electric Service Rule No. 9, Electric Line Extensions. Rule 9 is part of the Tariff Schedules.
- (N) Tariff Schedules: The entire body of effective rates, charges, and rules, collectively, of Utility as set forth in its rate schedules and rules for electric Customers, as those rates, charges, and rules are amended from time to time.

[signature page follows]



**RULE 9
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UTILITY:

Sierra Pacific Power Company d/b/a NV Energy

By: Joshua Carson
Printed Name: JOSHUA CARSON
Title: MANAGER
Date: 02/09/2024

APPLICANT:

GREAT BASIN WATER CO.

By: [Signature]
Printed Name: [Faint Name]
Title: [Faint Title]
Date: [Faint Date]

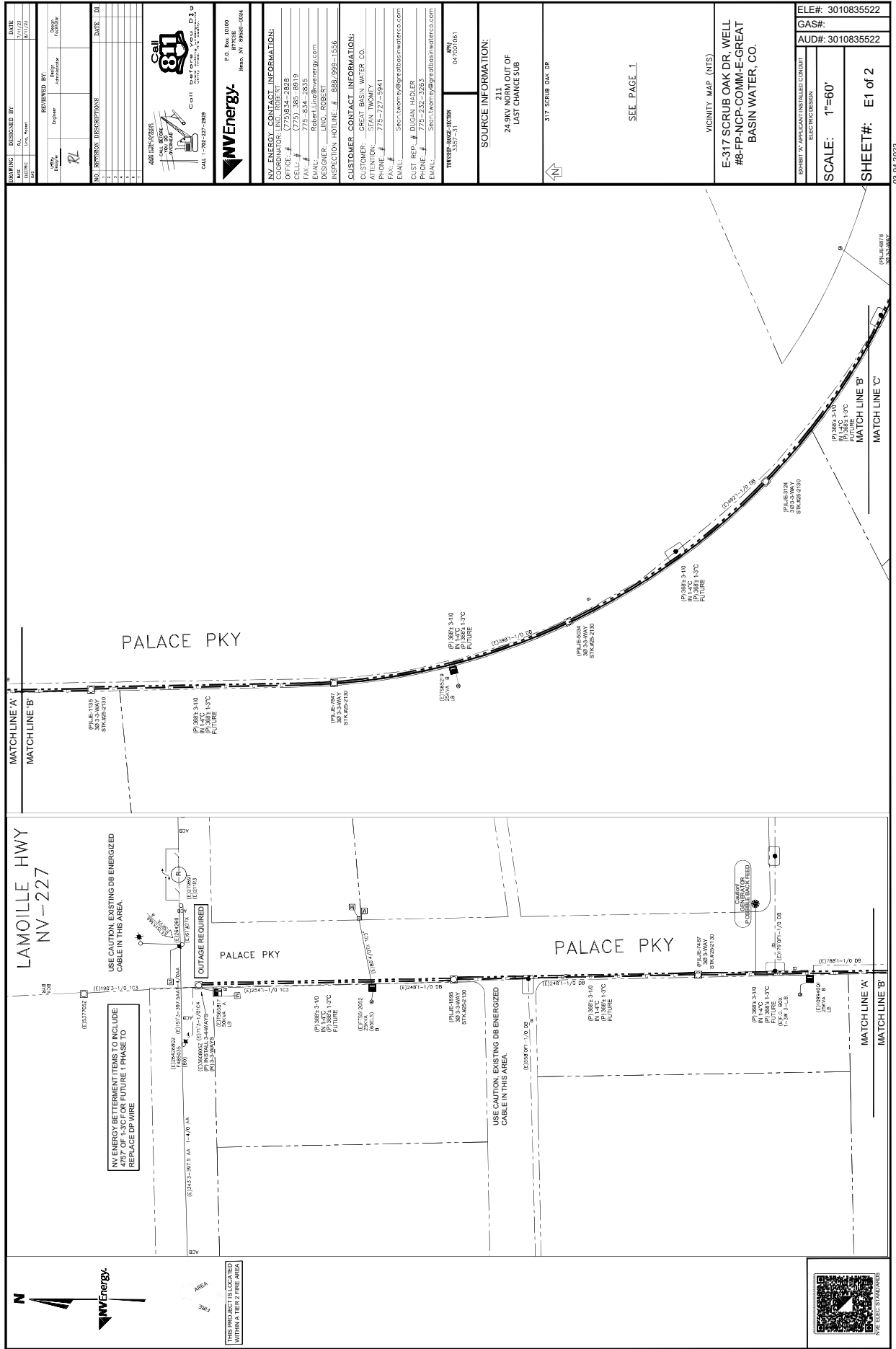


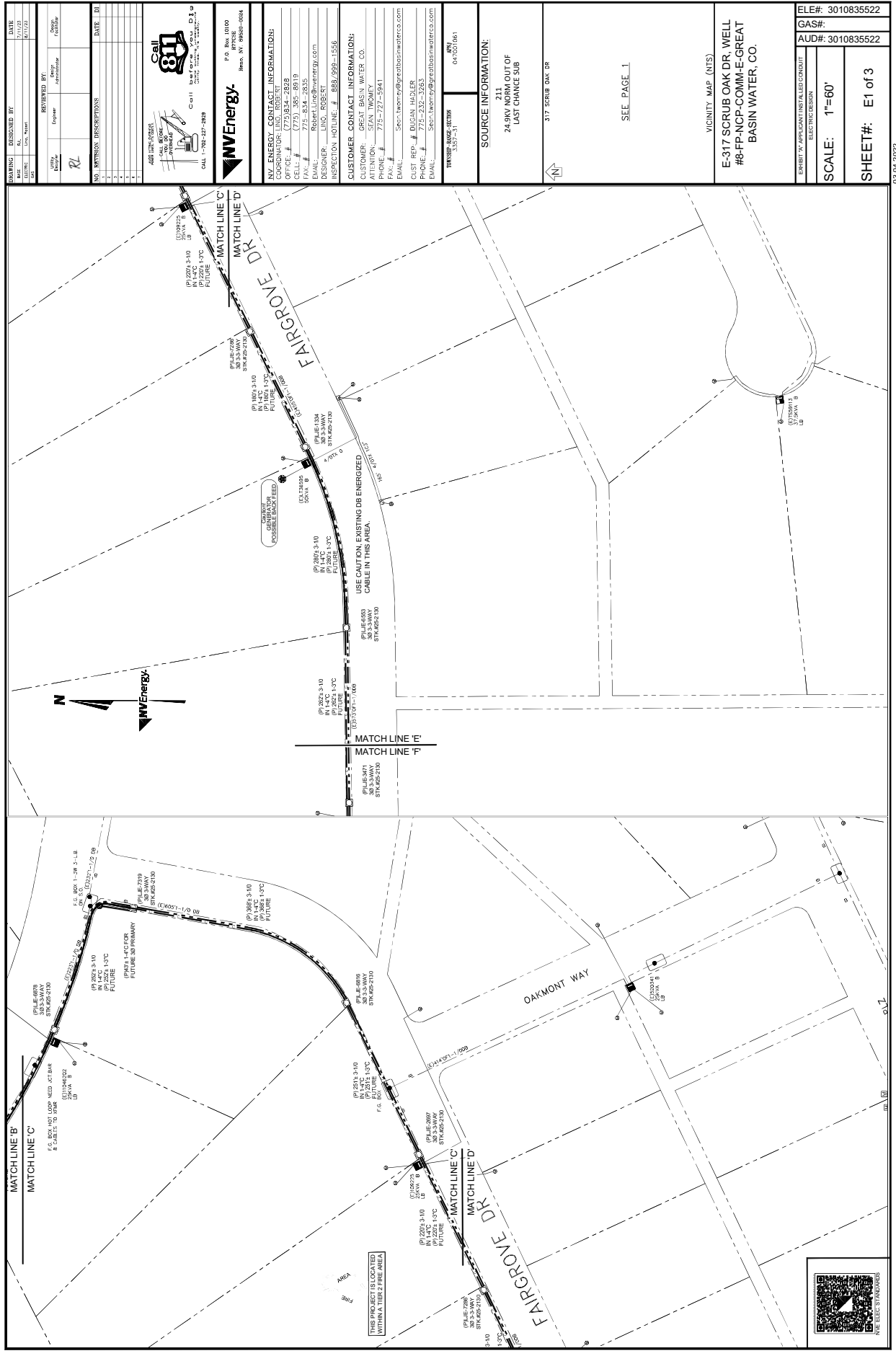
**RULE 9
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**Exhibit A
Design**

[Attached]





DATE	2/1/23
DESIGNED BY	RL
REVIEWED BY	RL
DATE	01/20/23

NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			



NY Energy
 110 Box 10100
 Ithaca, NY 14850-0104

NY ENERGY CONTACT INFORMATION:
 COORDINATOR: LINCOLN ROBERT
 OFFICE: # (775) 934-2828
 CELL: # (775) 385-8819
 FAX: # (775) 385-8819
 DESIGNER: LINCOLN ROBERT
 INSPECTION HOTLINE: # 888/999-1556

CUSTOMER CONTACT INFORMATION:
 ATTENTION: GREAT BASIN WATER CO.
 PHONE: # 775-232-2263
 FAX: # 775-272-5941
 EMAIL: Sean.Lawmyer@greatbasinwater.com
 CUST REP: # EUGAN HALLER
 PHONE: # 775-232-2263
 EMAIL: Sean.Lawmyer@greatbasinwater.com

WORKSHEET NUMBER:
 3357-5-11
 01/20/23

SOURCE INFORMATION:
 211
 24.9KV NORM OUT OF
 LAST CHANGE SUB

317 SCRUB OAK DR


SEE PAGE 1

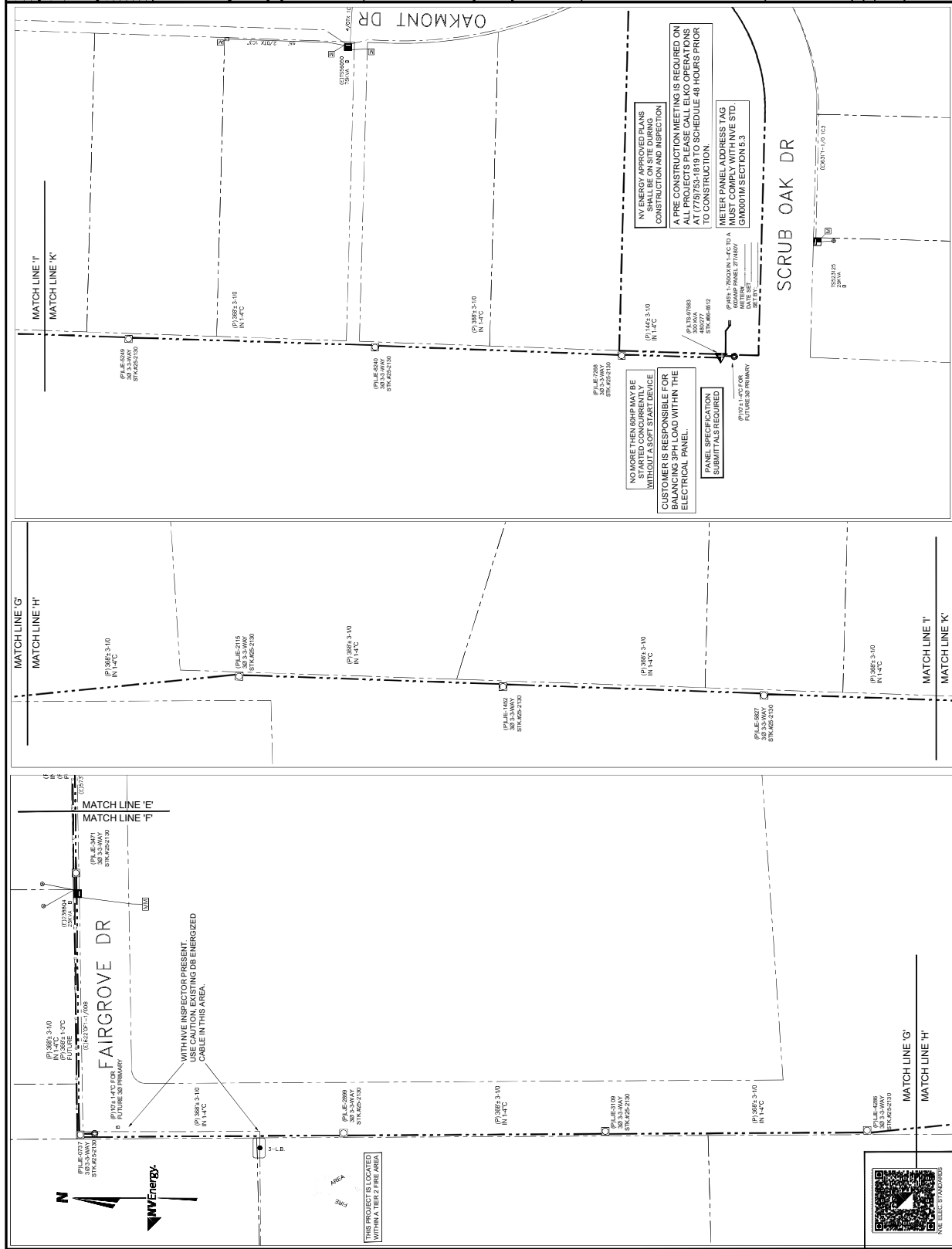
VICINITY MAP (N/S)

E-317 SCRUB OAK DR, WELL #8-FP-NCP-COMM-E-GREAT BASIN WATER, CO.



ELE#: 3010835522
GAS#: 3010835522
AUD#: 3010835522
SCALE: 1"=60'
SHEET#: E1 of 3

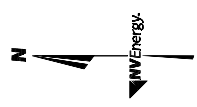
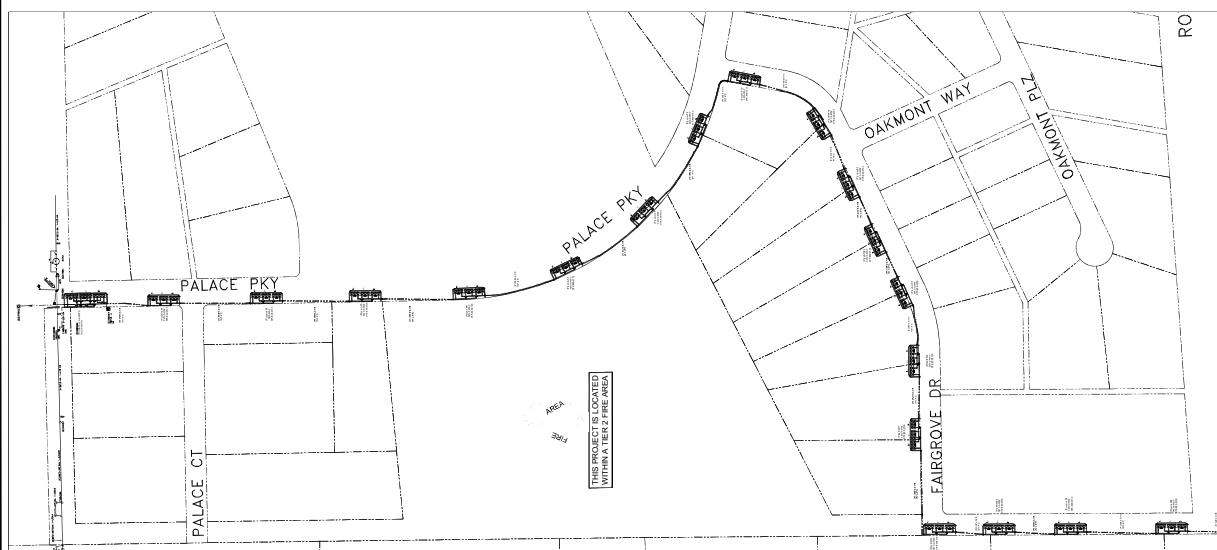
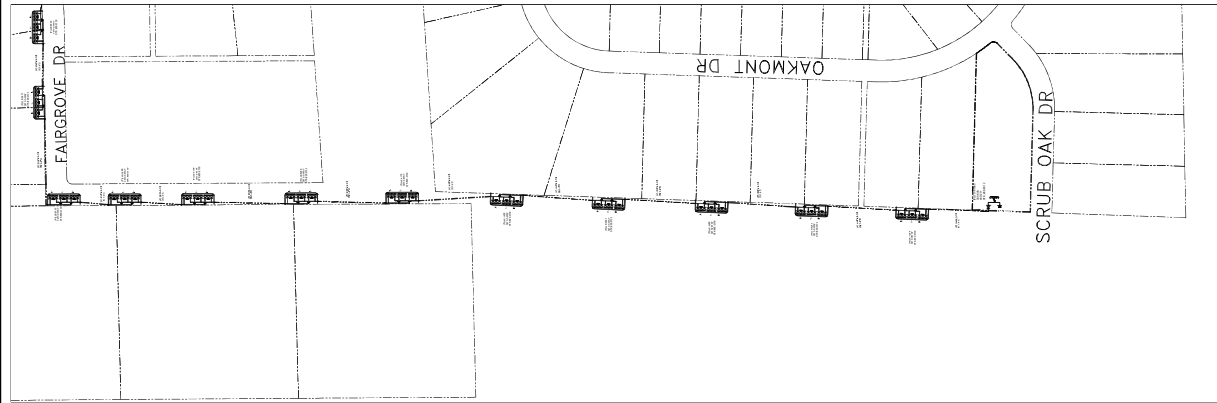
03/04/2022

DATE 3/1/23	DESIGNED BY R. L.	DATE 3/1/23
SCALE 1"=60'	REVIEWED BY R. L.	DATE 3/1/23
		
NW Energy 10 Box 10100 Herts, NY 12091-0244 CALL 1-702-277-2929		
NW ENERGY CONTACT INFORMATION: COORDINATOR: LINDA ROBERT OFFICE: (775) 934-2829 CELL: (775) 395-8819 FAX: (775) 395-8819 EMAIL: Linda.Robert@nwenergy.com DESIGNER: LINDA ROBERT INSPECTION HOTLINE: (888) 999-1556		
CUSTOMER CONTACT INFORMATION: ATTENTION: GREAT BASIN WATER, CO. NAME: SEAN WOLFEY PHONE: (775) 772-5941 FAX: EMAIL: Sean.Wolfey@greatbasinwater.com CUST REP: DUGAN HALEY PHONE: (775) 232-2263 EMAIL: Sean.Wolfey@greatbasinwater.com URL: http://www.greatbasinwater.com		
SOURCE INFORMATION: 211 24.9KV NORM OUT OF LAST CHANGE SUB 317 56208 OAK DR 04/02/04		
VICINITY MAP (NYS) E-317 SCRUB OAK DR, WELL #8-FP-NCP-COMM-E-GREAT BASIN WATER, CO.		
ELE#: 3010835522 GAS#: AUD#: 3010835522 SCALE: 1"=60' SHEET#: E1 of 4		



03/04/2022

DATE 2/17/23	DESIGNED BY R. L. ...
DATE 2/17/23	REVIEWED BY R. L. ...
DATE 2/17/23	DATE 2/17/23
	
	
NW ENERGY CONTACT INFORMATION: COORDINATOR: LINO, ROBERT OFFICE # (775) 934-2828 CELL # (775) 385-8819 FAX # (775) 385-8819 DESIGNER: LINO, ROBERT INSPECTION HOTLINE # 888/999-1556	
CUSTOMER CONTACT INFORMATION: CUSTOMER: GREAT BASIN WATER CO. ATTENTION: SEAN WOLFEY PHONE # 775-727-5941 FAX # EMAIL: Sean.Wolfey@greatbasinwater.com CUST REP # DUGAN HANLER PHONE # 775-232-2263 EMAIL: Sean.Wolfey@greatbasinwater.com	
SOURCE INFORMATION: 211 24.9KV NORM OUT OF LAST CHANGE SUB 317 SCRUB OAK DR	
SEE PAGE 1	
VICINITY MAP (N/S) E-317 SCRUB OAK DR, WELL #8-FP-NCP-COMM-E-GREAT BASIN WATER, CO.	
ELE#: 3010835522 GAS#: AUD#: 3010835522	
SCALE: 1"=60' SHEET#: E1 of 5	



03/04/2022



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**Exhibit B
Cost Worksheet**

[Attached]



Project ID : 3010835522 Project Title : E-317 SCRUB OAK DR, WELL #8-FP-NCP-COMM-E-GREAT BASIN WATER, CO.
 Units : 1 kVA : 150
 Estimate Version : 4 Estimate Request Number : 92829
 Contract Type : NVEnergy Contact : Robert Lino
 Substation PID :

Cost Estimate Summary				
	Total Cost Estimate	Applicant Minimum	Applicant Non-Refundable	NVEnergy Responsibility
Labor & Overhead	111,651.75	111,334.78	0.00	316.97
Material & Overhead	262,068.84	261,480.89	0.00	587.95
DCA	0.00	0.00	0.00	0.00
Substructure	40,834.09	0.00	0.00	40,834.09
Permits & Vouchers	1.16	1.16	1.16	0.00
Applicant Installed Costs	0.00	0.00	0.00	0.00
Contingency Cost	0.00	0.00	0.00	0.00
Total Amount	414,556.00	372,817.00	1.00	41,739.00

Advance Calculation					
Refundable		Non-Refundable		North Street Light Non Refundable	
		A		C	
Total Customer Minimum Cost Subject to Refund	372,816.00	Total Customer Minimum NonRefundable	1.00	Total Street Light Customer Min Non Refundable cost	0.00
Proportionate Share	0.00	(Subject to Salvage Credit & Not Subject to Excess Allowance)		(Subject to Salvage Credit & Not subject To Street Light Allowance)	
Proportionate Share Waived	0.00	Salvage/Scrap To be applied		Salvage/Scrap To be applied	
Refund Subject to Allowance & Excess Salvage	372,816.00	Excess Salvage Credit to be applied from B	0.00	Excess Salvage Credit to be applied from D	0.00
Excess Salvage Credit from A & B to be applied to Refundable	0.00	Applicant Non-Refundable Cost	1.00	Applicant Non-Refundable Cost	0.00
Initial Allowance	14,340.00	(Not Subject to Street Light Allowance After applying Salvage Credit)		(Not Subject to Street Light Allowance After applying Salvage Credit)	
Total Refundable	358,476.00	B		D	
		Total Customer Minimum NonRefundable	0.00	Street Light Applicant Non-Refundable Cost	0.00
		(Subject to Salvage Credit & Initial Allowance)		(Subject to Salvage Credit & Streetlight Allowance)	
		Salvage/Scrap To be applied		Salvage/Scrap To be applied	
		Excess Salvage Credit to be applied from A	0.00	Excess Salvage Credit to be applied from C	0.00
		Total Customer Minimum NonRefundable	0.00	Street Light Applicant Non Refundable Cost	0.00
		(Subject to Initial Allowance After applying Salvage Credit)		(Subject to Streetlight Allowance After applying Salvage Credit)	
		Excess Allowance	0.00	Streetlight Allowance	0.00
		Total Customer Minimum NonRefundable	0.00	Street Light Applicant Non Refundable Cost	0.00
		(After applying Excess Allowance and Salvage Credit)		(After applying Streetlight Allowance and Salvage Credit)	
		Total Non-Refundable	1.00		
		Removal Cost Without Salvage	158.00		
		Rule 9 Removal of Existing Facilities	0.00		
		Streetlight Removal of Existing Facilities	0.00		
		Rule9 TotalTaxable NonRefundable Cost	1.00		
		Streetlight Total Taxable NonRefundable Cost	0.00		
		Rule9 Total NonTaxable NonRefundable Cost	0.00		
		Streetlight Total NonTaxable	0.00		



Advance Summary			
Advance Subject to Refund		Current Tax Rate	12.20
Non-Taxable Advance	0.00	Total Non-Taxable	0.00
Taxable Advance	358,476.00	Total Taxable (Less Tax)	358,477.00
Tax	43,734.00	Total Tax	55,366.00
Total Advance Subject to Refund	402,210.00	Total Contract Amount	413,843.00
		(subject to credits)	
Non-Refundable Advance			
Non-Taxable Advance	0.00		
Taxable Advance	1.00		
Tax	0.00	Customer Contributed facilities value	95,342.00
Substructures Tax	11,632.00		
Streetlight Non-Refundable Advance			
Street Light Non-Taxable Advance	0.00		
Street Light Taxable Advance:	0.00		
Street Light Tax	0.00	Street light Customer Contributed facilities	0.00
Street Light Substructures Tax	0.00		
Total Non-Refundable Advance	11,633.00		
Total Contract Amount	413,843.00		
(subject to credits)			
Applicant Installed Conduit Credit	35,202.00		
Streetlight Conduit Credit	0.00		
Applicant Installed Oversized Facilities Credit	0.00		
Applicant Installed Gas Mains Credit	0.00		
Applicant Installed Service	0.00		
Reimbursement Credit			
Utility Betterment Expenses			
Retention Percentage	0.00		
Applicant Credit	0.00		
Retention Amount	0.00		
Design Advance	5,000.00		
Total Applicant Advance/Credit	373,641.00		