LAKE MEAD NATIONAL RECREATION AREA
BOULDER CITY, NEVADA

PMIS No. 306375

DEMOLISH LAS VEGAS BAY LAUNCH RAMP RESTROOM AND LIFT STATION

PROJECT SPECIFICATIONS

NATIONAL PARK SERVICE

JUNE 11, 2026

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ATTACHMENT(S)

1. Park Map with Project Location
2. Project Maps
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SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Location: This project is located at Las Vegas Bay (LVB) in Lake Mead National Recreation Area, Clark County, Nevada.

1. LVB Launch Ramp Public Restroom (36°07'07.95"N, 114°51'58.26"W)

B. The work consists of the following: Work includes, but is not limited to, demolishing restroom; decommissioning lift station; and removing/abandoning utilities. Work also includes selective site demolition and restoring site.

1. Miscellaneous Preparation:
   - Install enclosure fence or barrier to prevent people and animals from entering the project limit/site.
   - Protect existing asphalt pavement and asphalt/concrete curbs.
   - Protect irrigation system and vegetation that are irrigated.
2. Selective Site Demolition:
   - Remove vegetation except those that are irrigated.
   - Remove and recycle approximately 536 sq ft of sidewalk.
   - Remove and recycle approximately 662 linear feet of handrails.
   - Remove and recycle four (4) bollards.
3. Demolish Restroom:
   - Demolish and recycle public restroom (approximately 26’-0” x 17’-4” x 8’-0” ceiling height).
4. Remove/Abandon Utilities In-Place:
   - Confirm all utilities (i.e. water, sewer, and electricity) are disconnected and terminated at the service mains before demolition begins.
   - Lift Station
     1. Empty and dispose of all water, sewage, sludge, and sediment from fiberglass wet well.
     2. Remove and dispose of the below-grade lift station.
   - Sewer Lines
     1. Remove and dispose vertical sewer lines and cleanout, including curb box.
     2. Clean and plug abandoned sewer lines with concrete or grout for a length of at least 1.5 times the pipe diameter at each end.
   - Water Lines
     1. Remove and dispose vertical waterlines and valve, including curb box.
     2. Cap/plug water lines at each end.
     3. Disinfect and test water lines.
   - Electricity

1. Power for LVB Picnic Area Restroom comes from LVB Launch Ramp Restroom.
2. After award/NTP contact NV Energy to deenergize and request relocation of existing meter from LVB Launch Ramp Restroom to LVB Picnic Area Restroom.
    a. Assessor's Parcel Number (APN): 15800002001.
    b. Service Address: None but provide meter number.
    c. Legal Owner's Contact Information:
        i. Lake Mead National Recreation Area, 601 Nevada Way, Boulder City, NV 89005.
    d. Meter Number: 007178855.
3. Remove and dispose of existing electrical service, except meter, at LVB Launch Ramp Restroom. Reuse existing meter at LVB Picnic Area Restroom.
4. Install and connect new electrical service at LVB Picnic Area Restroom. Install and connect new 100A panel inside utility chase at LVB Picnic Area Restroom.
5. If using existing underground pull box(es) and conduit, clean out conduit before splicing new electrical cable to existing electrical cable.
6. Maintain power to LVB Picnic Area Restroom during demolition of LVB Launch Ramp Restroom.

5. Restore Site
    - Fill all excavated areas with 95% compacted earth.
        1. Grade the demolition area to match surrounding landscape and ensure proper drainage.
    - Connect existing asphalt/concrete curbs with approximately 100 linear feet of new concrete curbs.

C. Additional Information and Instructions:
1. After award and before pre-work meeting, prepare, submit, and implement an Under-An-Acre Pollution Prevention Plan (UPPP) in conformance with NPS guidelines and adherence to applicable storm water management practices.
2. Maintain Quality Control Daily Reports.
    - An example/template will be provided upon request.
    - A Quality Control Daily Report will be prepared by the contractor representing the work that was performed that day.
    - Two or more representative photos of the tasks being performed that day shall be included in each daily log.
    - The submitted Quality Control Daily Report shall be in a PDF format. Emailing the CO/COR is acceptable.
    - The daily logs shall be sent to the CO/COR once a week for each week worked.
3. Submit documentation of disposal and/or recycling of debris and hazardous materials.
4. Electrical power service is not available from facilities at or near the project site for use on the contract.
5. Water service is available from fire hydrants at or near the project site for use on the contract with charge. Rate is $13.80 per 1,000 gallons. Prior to starting work, contact

CO/COR at least three (3) business days in advance to schedule the installation of government meter/backflow preventer device by park employee.

6. Contractor will not use public restrooms.
7. Clean project site and work areas daily.
8. At completion of work, remove all remaining debris and clean all exposed surfaces (e.g. existing asphalt pavement).
9. Asbestos-containing materials (ACM) are not anticipated.

D. Field Verification: The vendor shall field verify existing conditions affecting the work in this contract before ordering materials. The scheduling of field verification site visit(s) shall be coordinated with the Contracting Officer's Representative (COR).

E. Project will be under a single prime contract.

F. Performance Period: 180 calendar days after Award.

1.3 PUBLIC USE OF THE SITE

A. General: The project site will be closed to the public during onsite work.

1.4 VENDOR USE OF SITE

A. Working Hours: Regular work hours and days shall be limited to daylight hours from 8:00 a.m. until 5:00 p.m. Monday through Friday, excluding federal holidays. Work outside regular hours and days requires approval from the contracting officer.

1. January 1, New Year's Day
   i. January 1 on Saturday, New Year's Day observed on Friday
   ii. January 1 on Sunday, New Year's Day observed on Monday
2. 3rd Monday in January, Martin Luther King, Jr Birthday
3. 3rd Monday in February, Washington's Birthday (Presidents' Day)
4. 4th Monday in May, Memorial Day
5. June 19, Juneteenth National Independence Day
   i. June 19 on Saturday, Independence Day observed on Friday
   ii. June 19 on Sunday, Independence Day observed on Monday
6. July 4, Independence Day
   i. July 4 on Saturday, Independence Day observed on Friday
   ii. July 4 on Sunday, Independence Day observed on Monday
7. 1st Monday in September, Labor Day
8. 2nd Monday in October, Columbus Day
9. November 11, Veterans Day
   i. November 11 on Saturday, Veterans Day observed on Friday
   ii. November 11 on Sunday, Veterans Day observed on Monday
10. 4th Thursday in November, Thanksgiving Day

11. December 25, Christmas Day
    i. December 25 on Saturday, Christmas observed on Friday
    ii. December 25 on Sunday, Christmas observed on Monday

B. No Smoking Policy: Smoking is prohibited inside or outside within 25 feet of any buildings in the park. This applies to existing buildings, buildings under installation, and buildings under renovation. Discarding of tobacco products or debris anywhere other than into designated tobacco receptacles is considered littering and subject to fines.

C. Staging and Storage: Confine storage of equipment and materials to the staging / lay-down / storage areas as established by the COR.

D. Parking: The vendor shall park vehicles and heavy equipment in designated areas for vendor use or as established at the COR. Vehicles are not permitted within long-term or overnight parking along roads or in associated overlooks / pull-outs.

END OF SECTION 01 11 00

SECTION 01 11 40

WORK RESTRICTIONS

PART 1 – GENERAL

1.1 PARK REGULATIONS

A. General: The vendor must comply with the following rules and conditions:

1. Emergency Medical and Accident Reporting:

a. The vendor shall contact Park Dispatch for any medical emergency or traffic accident occurring within the Park.
Emergency number: Dial 911 as needed.

Park Dispatch: 702-293-8932 (emergency)

Park Dispatch is called so that the entrance station will be prepared should any emergency vehicles (e.g. ambulance) need to enter the Park and so that any available Emergency Medical Services personnel in the Park might respond until such time as the ambulance arrives.

b. The vendor is required to report ANY personal injury and / or property damage incident occurring within the park. This report must be made to a Law Enforcement Ranger at the first available opportunity before leaving the park:

Park Dispatch: 702-293-8998 (non-emergency)

1.2 RESOURCE PROTECTION

A. General: The park is committed protecting natural and cultural resources found within the park and adjacent lands. The vendor must comply with the following rules and conditions:

1. Invasive Species (i.e. Equipment Inspection): The introduction of non-native invasive species can threaten rare and endangered species or can create new populations of non-native species not traditionally found in the park. The vendor is required to inform personnel to thoroughly clean all vehicles, equipment, tools, supplies, and materials prior to packing / loading. The park requires, and will perform, inspections to ensure non-transport of non-native species PRIOR to arriving at the park entrance. Contact the Contracting Officer's Representative (COR) at least five (5) business days in advance of park entry to arrange for inspection(s) at the loading dock or point of origin.

2. Endangered Species (i.e. Desert Tortoise Training): Endangered species are protected by Federal law. Obey all park regulations. Drivers must obey all traffic laws and keep an eye out for animals on or alongside road. Contact park dispatch at 702-293-8998 immediately if animal is hit or injured or will not move off of the road. All vendor personnel working in Lake Mead National Recreation Area must have up-to-date Lake Mead Desert Tortoise Awareness Training. Prior to starting work, contact the Contracting Officer's

Representative (COR) at least five (5) business days in advance to schedule the desert tortoise awareness training.

3. Archaeological Resources: Archaeological resources are physical evidence of past human activity, including evidences of the effects of that activity on the environment. Archaeological resources are found above and below ground and underwater. The vendor shall appoint an archaeological monitor during all ground-disturbing activities in archaeological sensitive areas. If the monitor discovers resources, the vendor shall stop work or relocate work to a non-sensitive area and contact the contracting officer immediately.

4. Mitigations:

   a. Equipment used at the site shall be pressure cleaned and free of weeds, seed, debris, and mud to prevent the introduction and/or spread of exotic, invasive plants.
   b. If cultural materials are encountered during work activities, all work within 100ft must cease and contact the park's Cultural Resource Program Manager or Park Archeologist for further evaluation.
   c. For any projects involving trenching or digging holes, provisions (generally in the form of ramps; with a slope < 45°) must be made every 20-50' to allow for the escape of animals that may fall into these recesses, and/or they must be covered in such a way as to prevent animals (vertebrates) from falling in them.
   d. Migratory birds may seek respite within trees or on buildings. The Migratory Bird Treaty Act of 1918 prohibits the removal of all listed species or their parts (feathers, eggs, nests, etc.) from such property. However, in extreme circumstances, a federal permit might be obtained for the relocation of listed species (in some states a state permit is required in addition to a federal permit). Pursuant to the spirit of the treaty, it is not trivial to obtain a permit; the applicant must meet a certain criteria as outlined in Title 50, Code of Federal Regulations, 21.27, Special Purpose Permits.
   e. Care shall be taken not to disturb any wildlife species (reptiles, migratory birds, raptors, or bats) found nesting, hibernating, estivating, or otherwise living in, or immediately nearby, worksites.
   f. In the event that human remains are discovered during maintenance activities, all work on the project must stop and the park archeologist contacted immediately. As required by law, the coroner will be notified first. All provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.
   g. Resource Management personnel shall be notified/consulted when these, or any other wildlife, must be disturbed or handled. They will be available to assist with moving/relocating snakes or any other wildlife, when necessary; and/or to make recommendations for relocating any disturbed animals.

END OF SECTION 01 11 40

SECTION 01 27 00

DEFINITION OF CONTRACT PRICE ITEMS

PART 1 – GENERAL

1.1 LIST OF CONTRACT LINE ITEMS

A. Contract Price Item No. 10 – Demolish Las Vegas Bay Launch Ramp Restroom.

1. This price item consists of all necessary material, labor, and equipment required to demolish public restroom at Las Vegas Bay launch ramp. All demolished equipment and materials shall be transported and legally disposed/recycled off-site.
2. Payment(s) will be made monthly.

1.3 SCHEDULE OF VALUES (PRICE SCHEDULE)

A. Submit a schedule of values IAW Section 01 32 16 Project Schedule.

Item No.	Schedule of Values DEMO LVB LAUCNH RAMP RESTROOM	Quantities	Unit	Unit Price	Total ($)
1	Mobilization	1	LS		
2	Selective Site Demolition (Material Cost)	1	LS		
3	Selective Site Demolition (Labor Cost)	1	LS		
4	Selective Site Demolition (Equipment Cost)	1	LS		
5	Demolish Restroom (Material Cost)	1	LS		
6	Demolish Restroom (Labor Cost)	1	LS		
7	Demolish Restroom (Equipment Cost)	1	LS		
8	Remove/Abandon Utilities (Material Cost)	1	LS		
9	Remove/Abandon Utilities (Labor Cost)	1	LS		
10	Remove/Abandon Utilities (Equipment Cost)	1	LS		
11	Restore Site (Material Cost)	1	LS		
12	Restore Site (Labor Cost)	1	LS		
13	Restore Site (Equipment Cost)	1	LS		
14	Demobilization	1	LS		
	TOTAL				

END OF SECTION 01 27 00

SECTION 01 31 00

PROJECT MANAGEMENT & COORDINATION

PART 1 – GENERAL

1.1 SUBMITTALS

A. Division 01 documents: The following items shall be submitted a minimum of one week prior to the Pre-Work Conference. Contracting Officer will notify Contractor of tentative date for the Pre-Work Conference.

1. Letter designating Project Superintendent.
2. Project Schedule.
3. A comprehensive breakdown of the Schedule of Values.
4. Accident Prevention Plan.
5. A list of Subcontractors for this project.
6. Written statements from subcontractors certifying compliance with applicable labor standard clauses.
7. Satisfactory evidence of liability insurance coverage and workman's compensation for the Contactor and all subcontractors.

B. All items listed must be provided to the Contracting Officer before the Pre-Work Conference is held. If all of these documents have not been received one week prior to the scheduled Pre-Work Conference date, the conference will be cancelled, Notice to Proceed will not be issued, and the Contracting Officer will consider other contractual remedies. Work shall not commence until written Notice to Proceed has been issued

END OF SECTION 01 31 00

SECTION 01 32 16

PROJECT SCHEDULE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section consists of Project Schedule requirements including but not limited to the following:

1. Schedule of Values
2. Project Schedule Requirements.
3. Project Schedule Updates.

B. Purpose: The purpose of the Project Schedule is to ensure adequate planning, coordination, scheduling, and reporting during execution of the work by the Contractor. The Project Schedule will assist the Vendor and Contracting Officer in monitoring the progress of the work, evaluating proposed changes, and processing the Vendor's monthly progress payment.

1.2 SUBMITTALS

A. Schedule of Values: After contract award submit a schedule of dollar values based on the Contract Price Schedule.

B. Project Baseline Schedule: After contract award submit a baseline schedule, large enough to show entire schedule for entire project period.

C. Project Schedule Updates: Prior to the progress payment request date, submit estimates of the percent completion of each schedule activity and necessary supporting data.

END OF SECTION 01 32 16

SECTION 01 35 23

SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. General: This section includes providing a safe environment for all personnel and visitors.

1.2 SUBMITTALS

A. Accident Prevention Plan: After contract award and before commencing work, submit for review an Accident Prevention Plan. The Contracting Officer will review the proposed Plan. If the plan requires any revisions or corrections, the Contractor shall resubmit the Plan within ten (10) days. No progress payments will be made until the Plan is accepted.

1.3 ACCIDENT REPORTING

A. Reportable Accidents: A project reportable accident is defined as death, occupational disease, traumatic injury to employees or the public, fires, and property damage by accident in excess of one hundred dollars ($100). Notify Contracting Officer immediately in the event of a reportable accident. Within seven (7) days of a reportable accident, fill out and forward to Contracting Officer an Accident/Property Damage Report (Form CM-22). Form may be obtained from the Contracting Officer.

PART 2 - PRODUCTS

2.1 ACCIDENT PREVENTION PLAN

A. The Plan shall be written to comply with OSHA and project requirements (a generic plan is not acceptable) including but not limited to the following:

1. Name of responsible supervisor to carry out the program.
2. Weekly and monthly safety meetings.
3. First aid procedures.
4. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to provide for property protection and safety of the public, National Park Service personnel, and Contractor's employees. Identify the work included under each phase.
5. Training, both initial and continuing.
6. Planning for possible emergency situations, such as floods, fires, cave-ins, slides, explosions, power outages, and wind storms. Such planning shall take into consideration the nature of work, site conditions, and degree of exposure of persons and property.

2.2 FIRST AID FACILITIES

A. Provide adequate facilities for the number of employees and the hazards associated with the types of ongoing work at the site.

2.3 PERSONNEL PROTECTIVE EQUIPMENT

A. Meet requirements of applicable ANSI standards.

PART 3 - EXECUTION

3.1 EMERGENCY INSTRUCTIONS

3.2 Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.

3.3 FIRE AND LIFE SAFETY

A. Comply with the requirements of NFPA 241 (Standard for Safeguarding Work, Alteration, and Demolition Operations).

B. Store hazardous materials in accordance with manufacturers and OSHA recommendations. Maintain readily available, on site, MSDS for each chemical.

1. Immediately report all spills of hazardous materials to the park.
2. Maintain a spill emergency response kit.

3.4 PROTECTIVE EQUIPMENT

A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair personal items, as appropriate, before issuing them to another individual.

B. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.

3.5 SAFETY MEETINGS

A. As a minimum, conduct weekly fifteen (15) minute "toolbox" safety meetings. These meetings shall be conducted by a foreman or supervisor and attended by all personnel at the worksite. Topics need to coincide with work scheduled for the following week. Document and submit meeting minutes to the Contracting Officer within one (1) day after the meeting.

B. Conduct monthly safety meetings for all levels of supervision. Meetings shall be attended by all contractors and subcontractors performing work on the site. Notify the Contracting Officer of meeting dates and times. These meetings shall be used to review the effectiveness of the Contractor's safety effort, to resolve current health and safety problems, to provide a forum for planning safe work activities, and for updating the Accident Prevention Plan. The Contracting Officers Representative will attend the meeting and enter the results of the meetings into the daily log.

3.6 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

A. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary personal protective equipment at all times. As a minimum, provide six (6) six hard hats for use by visitors.

3.7 TRAINING

A. First Aid: Provide adequate training to an adequate number of personnel to ensure prompt and efficient first aid.

B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage. Hazardous materials are defined as explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

END OF SECTION 01 35 2

SECTION 01 74 19

PROJECT WASTE MANAGEMENT & DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and project waste.
2. Recycling nonhazardous demolition and project waste.
3. Disposing of nonhazardous demolition and project waste.

1.2 DEFINITIONS

A. Project Waste: Building and site improvement materials and other solid waste resulting from work, remodeling, renovation, or repair operations. Project waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Solid Waste: Garbage, debris, sludge, or other discharged material (except hazardous waste) including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations.

D. Debris: Non-hazardous solid waste generated during the work, demolition, or renovation of a structure which exceeds 2.5 inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

E. Disposal: Removal off-site of demolition and project waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

F. Environmental Pollution and Damage: The presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances; or degrade the utility of the environment for aesthetic, cultural, or historical purposes.

G. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

H. Hazardous Materials: Any material that is regulated as a hazardous material in accordance with 49 CFR 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261.

I. Recycle: Recovery of demolition or project waste for subsequent processing in preparation for reuse.

J. Salvage: Recovery of demolition or project waste and subsequent sale or reuse in another facility.

1.3 PERFORMANCE REQUIREMENTS

A. General: This project shall minimize the creation of project and demolition waste to protect and restore natural habitat and resources. Factors that contribute to waste such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination shall be minimized. A Waste Management Plan shall be developed to ensure that existing site and building materials are reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

B. Salvage / Recycle Requirements: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 50 percent by weight of total waste generated by the Work. The following waste categories, at a minimum, shall be diverted from a landfill:

1. Land clearing debris
2. Clean dimensional wood, palettes
3. Plywood, OSB, and particle board
4. Concrete
5. Asphaltic concrete
6. Cardboard, paper, packaging, newsprint
7. Metals (from banding, stud trim, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze)
8. Gypsum drywall—unpainted
9. Non-hazardous paint and paint cans
10. Beverage containers: Aluminum, glass, and plastic containers
11. Insulation
12. Ceiling grid and tiles
13. Ductwork
14. Wiring
15. Other mixed project and demolition waste as appropriate

C. If any waste materials encountered during the demolition phase are found to contain lead, asbestos, PCBs, (such as fluorescent lamp ballasts), or other harmful substances, they are to be handled and removed in accordance with local, state, and federal laws and requirements concerning hazardous waste.

D. Existing items and material to be removed during the demolition phase shall be reused in the work phase of the Project. Items that cannot be reused shall be recycled. Items considered for reuse must be in refurbishable condition and must meet the quality standards set forth in these specifications. The Contractor shall ensure that the quality of the item(s) in question will meet or exceed accepted industry or trade standards for first quality commercial grade application. During work or demolition the Contracting Officer may designate other objects or materials for reuse.

E. Salvage/Recycle Requirements: Government goal is to salvage and recycle as much nonhazardous demolition and project waste as possible including, but not limited to, the following materials: carpet, doors, glass, linoleum, plumbing fixtures, PVC pipe, windows, and tiles.

1.4 SUBMITTALS

A. Waste Management Plan: After award of the contract and prior to the scheduled Pre-Work Conference, the Contractor shall submit a draft Waste Management Plan to the Contracting Officer for approval. Submit one (1) electronic copy of plan. Revise and resubmit Plan as required by the Contracting Officer. Approval of the Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Progress Documentation: Supplemental to the Waste Management Plan, document solid waste disposal, diversion, and cost/revenue analysis and submit a completed worksheet on a monthly basis. Use Appendix A - Project Waste Management Plan Worksheet, and report totals to date for all column headings. Use Appendix B for solid waste volume to weight conversions.

C. Waste Reduction Calculations: Before request for Substantial Completion, submit three (3) copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. LEED™ Submittal: LEED™ letter template for Credit MR 2.1and 2.2, signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

I. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.

J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

K. Progress payment requirements:

1. With each Application for payment, submit updated Project Waste Management Plan worksheet for solid waste disposal and diversion.
2. With each Application for Payment, submit manifests, weight tickets, receipts, and invoices specifically identifying the Project and waste material.

L. Closeout Submittals

1. With Closeout Submittals, submit a summary of the Project Waste Management Plan worksheet for solid waste disposal and diversion. Submit on form in Appendix A of this Section.

1.5 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a LEED™-Accredited Professional, certified by the USGBC, as waste management coordinator. Waste management coordinator may also serve as LEED™ coordinator.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste Management Meeting: Conduct separate meeting or cover in the Pre-Work Conference and comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

PART 2 - PRODUCTS

2.1 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification and waste reduction work plan. Include separate sections in plan for demolition and project waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing, and project waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

1. Landfill tip fees/ton
2. If diverted, tip fee savings from landfill diversion
3. Costs of recycling, salvage, or reuse
4. Revenue from recycling, salvage, or reuse
5. Total cost or savings from diversion (Calculate by using tip fee savings and subtracting costs of recycling or adding revenue from recycling)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by the Contracting Officer. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. The Contractor shall establish contacts with local recycling and reuse companies to set up the lines of responsibility. Contractor shall be responsible for coordinating with these companies in terms of identifying materials, pickup schedules, and standard quality for recycled materials.

D. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three (3) days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

E. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

F. Separation facilities:

1. The Contractor shall designate and the Contracting Officer shall approve a specific area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return.
2. Waste and recycling bins are to be placed near each other, and close to the point of waste generation but out of the traffic pattern.
3. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid co-mingling of materials.
4. Bins shall be protected during non-working hours from off-site contamination.
5. The garbage dumpsters should be checked periodically to monitor recyclables being thrown away or if there are undocumented materials that could be recycled.

G. Materials handling procedures: Materials to be recycled shall be protected from contamination and shall be handled, stored, and transported in a manner that meets the requirements set by the designated facilities for acceptance. Establish a defined area for the operations of each trade, especially woodcutting so that off-cuts will be kept in one area and can be sorted by dimension for future reuse.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale and Donation: Not permitted on Project site.

C. Salvaged Items for Governments Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Government.
4. Transport items to storage area designated by Government.
5. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND PROJECT WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:

1. Republic Services,

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from project area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Governments property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Grind asphalt to maximum 4-inch size.

B. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

1. Crush asphaltic concrete paving and screen to comply with requirements in Division 31 Section "Earth Moving".

C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 4-inch size.

D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 4-inch size.
2. Clean and stack undamaged, whole masonry units on wood pallets.

E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

F. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

G. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.

H. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

I. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.

J. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

K. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

L. Plumbing Fixtures: Separate by type and size.

M. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

N. Lighting Fixtures: Separate lamps by type and protect from breakage.

O. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

P. Conduit: Reduce conduit to straight lengths and store by type and size.

Q. Electronic Products: Ensure that all non-usable electronic products are reused, donated, sold, or recycled using environmentally sound management practices at end of life.

3.5 RECYCLING PROJECT WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Burning: Burning of waste materials is allowed only at designated areas on Government property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

D. Disposal: Transport waste materials off Governments property and legally dispose of them.

END OF SECTION 01 74 19

017419 - Appendix A

Project Waste Management Plan Worksheet

	A	B	C	D	E	F	G	H	I	J
Material	**Quantity Recycled (in tons)**	**Quantity Salvaged or Reused (in tons)**	**A + B = Total Quantity Diverted from Landfill**	**Quantity To Landfill (in tons)**	**C + D = Total Quantity Generated (in tons)**	**Tip Fee/Ton at Landfill**	**C x F = Tip Fee Savings resulting from Landfill Diversion**	**Cost of Recycling (R), Salvage (S), or Reuse (Re) (Specify R, S, or Re)**	**Revenue from Recycling, Salvage, or Reuse**	**G - H + I = Total Cost (-) or Savings (+) from Diversion**
Asphalt/Concrete										
Brick/Masonry/Tile										
Building Materials (doors, windows, fixtures, shingles, lumber, insulation, sheetgoods, etc.)										
Carpet										
Carpet Padding, Foam Only										
Cardboard										
Ceiling Tile										
Drywall										
Glass										
Scrap Metal Aluminum										
Copper										
Steel										
Unpainted Wood & Pallets										
Yard Trimmings, Brush, Trees, Stumps, etc.										
Garbage/Trash										
Other										
Column Totals										
	Total Quantity Recycled	**Total Quantity Reused or Salvaged**	**Total Quantity Diverted from Landfill**	**Total Quantity To Landfill**	**Total Quantity Generated**		**Tip Fee Savings from Diversion**	**Total Cost of Recycling, Salvage, or Reuse**	**Revenue from Recycling, Salvage, or Reuse**	**Total Cost (-) or Savings (+) from Diversion**

Percentage Diverted = _____ (C divided by E from Column Totals) Should meet specified diversion requirement.

01 74 19 - **Appendix B**

STANDARD SOLID WASTE CONVERSIONS

The following sections provide conversions for solid waste and recyclable materials. Section 1 provides formulas to convert solid waste volume (cubic yards) into tons. Section 2 includes conversion factors to estimate the volume and weight of a number of solid waste and recyclable materials.

1. To convert cubic yards to tons:

A: For un-compacted trash, to convert the units of cubic yards into tons, using the standard density of trash value of 250 pounds per cubic yard:

Using "X" cubic yards, multiply by 250 pounds per cubic yard, divide by 2000 pounds per ton, to obtain value in tons.

"X" *cubic yards* x 250 $\frac{\textit{pounds}}{\textit{cubic yard}}$ ÷ $\frac{1\ \textit{ton}}{2000\ \textit{pounds}}$ = _____ *tons*

This equals:

"X" *cubic yards* x 0.125 $\frac{\textit{tons}}{\textit{cubic yard}}$ = _____ *tons*

In this case, 8 cubic yards = one ton.

B: To determine your own density value for un-compacted trash (instead of using the standard value of 250 pounds per cubic yard), using a 32 gallon trash can:

(1) Weigh the trash can both filled and empty (use a full 32 gallon trash can filled with trash roughly level to the top);
(2) Subtract the empty weight from the filled weight to get the weight of trash (filled weight – empty weight = weight of trash);
(3) Use the formula, using "Y" your weight of trash (pounds), divided by 0.15 cubic yards per 32 gallon trash can, to obtain your value in pounds per cubic yard; which equals:

"Y" $\frac{\textit{pounds}}{\textit{32 gallon can}}$ / 0.15 $\frac{\textit{cubic yards}}{\text{32 gallon can}}$ = _____ $\frac{\textit{pounds}}{\text{cubic yard}}$

(4) Substitute this value for the 250 pounds per cubic yard value in Method A above.

This would be the more accurate measure of your park's specific waste.

C: For compacted trash, to convert cubic yards into tons:

To use a compaction ratio, multiply the appropriate ratio times the un-compacted trash weight in Formula A to obtain the compacted trash weight.

"X" *cubic yards* x $\frac{3}{1}$ (compaction ratio) x 250 $\frac{\textit{pounds}}{\textit{cubic yard}}$ x $\frac{1\ \textit{ton}}{2000\ \textit{pounds}}$ = _____ *tons*

Typical compaction ratios for trash:
3:1 (typical)

4:1 (higher-compaction vehicles)

If you or your hauler don't know the compacting ratio, the typical values for compacted trash are 500 to 1000 lbs./cubic yard, average 700 lbs./cubic yard. **Use 700 lbs. per cubic yard if you don't have more accurate records.**

For compacted trash, 0.4 is used instead of 0.125 in Formula A:

"X" *cubic yards* x 0.4 $\frac{\text{tons}}{\text{cubic yard}}$ = _____ *tons*

D: To convert container size to cubic yards for un-compacted waste:

If you don't have size and weight information on your specific containers, then these typical values can be used:

1 cubic yard = 202 gallons
32 gallon can = 0.15 cubic yards
60 gallon tote = 0.30 cubic yards
90 gallon tote = 0.45 cubic yards

2. EPA's Standard Volume-to-Weight Conversion Factors

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Waste (in pounds)
FOOD SCRAPS[A]	Food scraps, solid and liquid fats	55-gal drum	412
GLASS	Bottles[B]		
	Whole Bottles	1 yd^3	500-700
	A. Semicrushed Crushed	1 yd^3	1,000-1,800
	(mechanically)	1 yd^3	1,800-2,700
	Uncrushed to manually broken	55-gal drum	300
	Refillable Whole Bottles[C]		
	Refillable beer bottles	1 case = 24 bottles	10-14
	Refillable soft drink bottles	1 case = 24 bottles	12-22
	8 oz glass container	1 case = 24 bottles	12
LEAD-ACID BATTERIES	Car[D]	1 battery	39.4 lb
	Truck[E]	1 battery	53.3 lb lead and plastic
	Motorcycle[E]	1 battery	9.5 lb lead and plastic

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Waste (in pounds)
METALS	Aluminum Cans[F]		
	Whole	1 yd^3	50-75
	Compacted (manually)	1 yd^3	250-430
	Uncompacted	1 full grocery bag	1.5
		1 case = 24 cans	0.9
	Ferrous (tin coated steel cans) [G]		
	Whole	1 yd^3	150
	Flattened	1 yd^3	850
	Whole	1 case = 6 cans	22
	Major Appliances[E]		
	Air conditioners (room)	1 unit	64.2
	Dishwashers	1 unit	92
	Dryers (clothes)	1 unit	130
	Freezers	1 unit	193
	Microwave ovens	1 unit	50
	Refrigerators	1 unit	181.1
	Ranges	1 unit	267
	Washers (clothes)	1 unit	177
	Water heaters	1 unit	131
PAPER	Newspaper[F]		
	Uncompacted	1 yd^3	360-505
	Compacted/baled	1 yd^3	720-1,000
	12 in. stack	-	35
	Old Corrugated Containers[F]		
	Uncompacted	1 yd^3	50-150 (300)[1]
	Compacted	1 yd^3	300-500
	Baled	1 yd^3	700-1,100
	Computer Paper[F]		
	Uncompacted	1 yd^3	655
	Compacted/baled	1 yd^3	1,310
	1 case	2,800 sheets	42
	White Ledger[F]		
	Stacked (u/c)	1 yd^3	375-465/755-925
	Crumpled (u/c)	1 yd^3	110-205/325
	Ream of 20# bond; 8.5”x11”	1 ream = 500 sheets	5
	Ream of 20# bond; 8.5”x14”	1 ream = 500 sheets	6.4
	White ledger pads	1 case = 72 pads	38
	Tab Cards[F]		
	Uncompacted	1 yd^3	605
	Compacted/baled	1 yd^3	1,215-1,350
	Miscellaneous Paper		
	Yellow legal pads[F]	1 case = 72 pads	38
	Colored message pads[F]	1 carton = 144 pads	22
	Telephone directories[H]	1 yd^3	250
	Mixed Ledger/Office Paper[F]		
	Flat (u/c)	1 yd^3	380/755
	Crumpled (u/c)	1 yd^3	110-205/610

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Waste (in pounds)
PLASTIC[J]	PET (Soda Bottles)		
	Whole bottles (uncompacted)	1 yd^3	30-40
	Whole bottles (compacted)	1 yd^3	515
	Whole bottles (uncompacted)	gaylord	40-53
	Baled	30” x 62”	500-550
	Granulated	semiload	30,000
	Granulated	gaylord	700-750
	8 bottles (2 L size)	16 L	1
	HDPE (Dairy)		
	Whole (uncompacted)	1 yd^3	24
	Whole (compacted)	1 yd^3	270
	Baled	32” x 60”	400-500
	HDPE (Mixed)		
	Baled	32” x 60”	900
	Granulated	gaylord	800-1,000
	Granulated	semiload	42,000
	Other Plastic		
	Uncompacted	1 yd^3	50
	Compacted/baled	1 yd^3	400-700
	Mixed PET and HDPE (Dairy)		
	Whole	1 yd^3	32
	Film		
	Baled	semiload	50
	Baled	30” x 42” x 48”	400-700
TEXTILES[H]	Mixed Textiles	1 yd^3	175
TIRES	Car Tires		
	Whole tire[E]	1 tire	21
	Crumb rubber[K]	1 tire	12
	Truck Tires		
	Whole tire[E]	1 tire	70
	Crumb rubber[K]	1 tire	60
WOOD	Wood chips[L]	1 yd^3	725
	Pallets[F]	-	30-100 (40 avg)
YARD TRIMMINGS[F]	Grass Clippings		
	Uncompacted	1 yd^3	350-450
	Compacted	1 yd^3	550-1,500
	Leaves		
	Uncompacted	1 yd^3	200-250
	Compacted	1 yd^3	300-450
	Vacuumed	1 yd^3	350
FURNISHINGS[E]	Foam rubber mattress	1 mattress	55
MUNICIPAL SOLID WASTE[M]	Residential waste (uncompacted at curb)	1 yd^3	150-300
	Commercial-industrial waste (uncompacted)	1 yd^3	300-600
	MSW (compacted in truck)	1 yd^3	500-1,000
	MSW (landfill density)	1 yd^3	750-1,250

A. Information obtained from Washington State.
B. Draft National Recycling Coalition Measurement Standards and Reporting Guidelines presented to NRC membership. October 31, 1989.
C. Personal communication with a representative from Allwaste. November 6, 1995.
D. Battery Council International. 1995. 1994 National Recycling Rate Study.
E. U.S. EPA. 1995. Methodology for Characterization of Municipal Solid Waste in the United States: 1994 Update. EPA530-R-96-001. Washington, DC.
F. U.S. EPA. 1993. Business Guide for Reducing Solid Waste. EPA530-K-92-004. Washington, DC.
G. Personal communication with a representative from the Steel Recycling Institute. November 1, 1995.
H. Information obtained from Massachusetts State.
I. Information obtained from New Jersey and New York States.
J. Personal communication with a representative from the American Plastics Council. November 2, 1995.
K. Personal communication with a representative from the Scrap Tire Management Council. November 6, 1995.
L. Information obtained from Northeast Forest Products, Martin Mulch Company, and the Solid Waste Association of North America.
M. Solid Waste Association of North America, Manger of Landfill Operations Training and Certification Course. January 1989.
N. Information obtained from New Jersey and New York States.

Legend

Drive only on approved backcountry roads in the park. Approved roads are signed with a yellow arrow.

Do not use this map for lake or backcountry travel. Use nautical charts and the park's Approved Backcountry Roads maps.

Inquire about unpaved road conditions before traveling.

See *Lake Mead Guide* for GPS coordinates of many park sites.

- Unpaved road
- Hiking trail
- Marina
- Lodging
- Picnic area
- Ranger station
- Campground
- Boat launch
- Emergency telephone

North

0 5 10 Kilometers

0 5 10 Miles

Some facilities may be closed or moved because of low or fluctuating levels of lake water. Inquire before traveling.

To Ely

To St. George, Utah

To Grand Canyon National Park, North Rim *(summer only)*

MOAPA INDIAN RESERVATION

To 15 Logandale

Airstrip

MOAPA VALLEY

Overton
Lost City Museum

Muddy River

Virgin River

BLACK RIDGE

VIRGIN MOUNTAINS

SOUTH VIRGIN PEAK RIDGE

OVERTON WILDLIFE MANAGEMENT AREA

169

8mi 13km

St Thomas Point

109

1mi 2km

3mi 5km

VALLEY OF FIRE STATE PARK

Visitor Center

Entrance Station

25mi 40km

Entrance Station

Blue Point Spring (no drinking water)

Salt Bay

Houseboats not recommended beyond this point

Rogers Spring (no drinking water)

103

Stewarts Point

10mi 16km

Glory Hole

LIME CANYON WILDERNESS (BLM)

NEVADA

ARIZONA

Pacific time zone

Mountain time zone

GRAND CANYON-PARASHANT NATIONAL MONUMENT (NPS/BLM)

GRAND WASH CLIFFS WILDERNESS (BLM)

WASH VALLEY

CLIFFS

MUDDY MOUNTAINS

Muddy Peak 5387ft 1642m

Gypsum Wash

Echo Wash

MUDDY MOUNTAINS WILDERNESS (NPS & BLM)

GALE HILLS

5mi 8km

Airstrip

Echo Bay

Bighorn Island

Quail Springs Wash

SOUTH VIRGIN MOUNTAINS

Gold Butte

Mica Peak 5758ft 1755m

Ramshead Island

Gull Island

Cathedral Cove

Heron Island

Catclaw Wash

Grand Wash

Tassi Spring

Lake Mead NRA lands north of the Colorado River in Arizona are part of Grand Canyon-Parashant National Monument

Northshore Road

Mile 25

Northshore Summit Trail

24mi 39km

Redstone

Redstone Dune Trail (no drinking water)

JIMBILNAN WILDERNESS

OVERTON ARM

Bowl of Fire

Pinto Valley

Jumbo Peak 5763ft 1757m

Garrett Butte

Lava Point

Gods Pocket

Caution shifting sandbars and low water

HELLS KITCHEN

JUMBO SPRINGS WILDERNESS (BLM)

Bonelli Peak 5334ft 1626m

ICEBERG CANYON

Colorado River

PEARCE CANYON

GRAND WASH CLIFFS

Snap Point 6706ft 2044m

No personal watercraft permitted in Grand Canyon National Park

To Spring Mountains National Recreation Area (USFS), Death Valley National Park, and Reno

LAS VEGAS VALLEY

15 93 604

Las Vegas Blvd

Rancho Drive

North Las Vegas

95

Summerlin Pkwy

BR 95

Las Vegas

2mi 3km

Lake Mead Boulevard

147

14mi 22km

Sunrise Mountain 3364ft 1025m

Frenchman Mountain 4052ft 1235m

159

To Red Rock Canyon National Conservation Area (BLM)

Charleston Blvd

Las Vegas Wash

Entrance Station

Lava Butte

3mi 5km

8mi 13km

4mi 6km

Callville Bay

Hamblin Mountain 3225ft 983m

PINTO VALLEY WILDERNESS

Boulder Peak

Boulder Wash

Pinto Valley

BLACK MOUNTAINS

The Narrows

Boathouse Cove

Middle Point

Sandy Cove

Beacon Rock

Wishing Well Cove

BOULDER CANYON

LAKE MEAD

East Point

Napoleons Tomb

Boat Wreck Point

The Haystacks

The Head

Delmar Butte

Gold Cross Peak 3414ft 1041m

Sandy Point

4mi 6km

Airstrip

South Cove (no drinking water)

146

Columbine Falls

GRAND CANYON NATIONAL PARK

SANUP PLATEAU

Colorado River

Wetlands Trail

Bluffs Trail

86

89

90

91

Las Vegas Bay

Tents only

DESERT WETLANDS PARK

Lake Las Vegas

2mi 3km

Entrance Station

7mi 11km

LVB LAUNCH RAMP RESTROOM

BOULDER BASIN

VIRGIN BASIN

GYPSUM REEFS

NEVADA ARIZONA

LAKE MEAD NATIONAL RECREATION AREA

Fish hatchery

Saddle Island

Sentinel Island

Castle Reef

Petroglyph Wash

BOWLER BAY

BIG GYPSUM LEDGES

TEMPLE BASIN

Heron Point

The Temple

HILLER MOUNTAINS

VIRGIN CANYON

GREGG BASIN

Hualapai Bay

Meadview

Greggs Hideout

Temple Bar

Airstrip

14mi 22km

Lakeshore Drive

Lake Mead Parkway

564

10mi 16km

Boulder Harbor

Boulder Beach

Entrance Station

Historic Railroad Trail

Hemenway Harbor

Lakeview Overlook

2mi 3km

Fortification Hill

Point Pete

Kingman Wash

Hoover Dam Visitor Center

Visitor Center

Hoover Dam

3mi 5km

Liberty Bell Trail

White Rock Canyon Trail

Boulder City

Park Headquarters

Railroad Pass

7mi 11km

Boulder City Airport

Tropicana Ave

Las Vegas Blvd

Paradise Rd

The Strip

McCarran International Airport

12mi 19km

515

93 95

Boulder Highway

Henderson

River Mountains Loop Trail

8mi 13km

582

215

160

To Death Valley NP

146

15

Jean
To Los Angeles

McCULLOUGH RANGE

Mount Wilson 5445ft 1660m

MOUNT WILSON WILDERNESS (BLM)

BLACK CANYON WILDERNESS

BLACK CANYON

Colorado River

Willow Beach

Fish hatchery

4mi 6km

15mi 24km

93

Temple Bar Road

13mi 21km

Detrital Wash

Squaw Peak 3200ft 975m

Golden Rule Peak 3863ft 1177m

17mi 27km

Diamond Bar Road

261

To Grand Canyon Skywalk, Hualapai Indian Reservation *(not part of Grand Canyon National Park)*

HUALAPAI INDIAN RESERVATION

GRAND WASH

ELDORADO MOUNTAINS

ELDORADO WILDERNESS (NPS & BLM)

95

165

Malpais Flattop Mesa

Copper Basin

CANYON

Airstrip

Nelson

Eldorado Canyon

46

36mi 58km

Fire Mountain

43

42

LAKE MOHAVE

DETRITAL VALLEY

WHITE HILLS

Senator Mountain 5127ft 1563m

Table Mountain Plateau 5175ft 1577m

22mi 35km

Red Lake

Pierce Ferry Road

25

20

Grasshopper Junction

27mi 43km

Chloride

Silver Mountain

Long Mountain 4351ft 1326m

Hackberry

Peacock Peak

Antares Road

Stockton Hill Road

MOUNT TIPTON WILDERNESS (BLM)

Mount Tipton 7148ft 2179m

Dolan Springs

Mount Perkins 5456ft 1663m

HUALAPAI VALLEY

CERBAT MOUNTAINS

SACRAMENTO VALLEY

Union Pass

26mi 42km

68

Kingman

40 93

To Grand Canyon National Park, South Rim

To Needles, California

MOUNT NUTT WILDERNESS (BLM)

McCullough Mountain 7026ft 2141m

Crescent Peak 5997ft 1828m

To 15 and Los Angeles

164

Searchlight

Airstrip

Entrance Station

14mi 22km

31

Cottonwood East

36

Cottonwood Cove

Black Mountain

Copper Mountain

Arizona Bay

ARIZONA BASIN

COTTONWOOD BASIN

ARIZONA NEVADA

MOHAVE

Mount Davis 2034ft 620m

NEW YORK MOUNTAINS

PIUTE VALLEY

NEVADA CALIFORNIA

NELLIS WASH WILDERNESS

NEWBERRY

PYRAMID

Jeep Cove

Sidewinder Cove

Chili Pepper Cove

Princess Cove (no drinking water)

North Arizona Telephone Cove

South Arizona Telephone Cove (no drinking water)

Katherine Mine

Entrance Station

Katherine Landing

Nevada Telephone Cove

Davis Dam

5mi 8km

SPIRIT MOUNTAIN WILDERNESS (NPS & BLM)

Airstrip

Cal-Nev-Ari

19mi 31km

Spirit Mountain 5639ft 1719m

Christmas Tree Pass (steep and rocky)

20

BRIDGE CANYON WILDERNESS

Grapevine Canyon

9

95

163

20mi 32km

Laughlin

Bullhead City

To Needles, California and 40

MOJAVE NATIONAL PRESERVE

Nevada Bay

Opal Mountain

IRETEBA WILDERNESS (NPS & BLM)

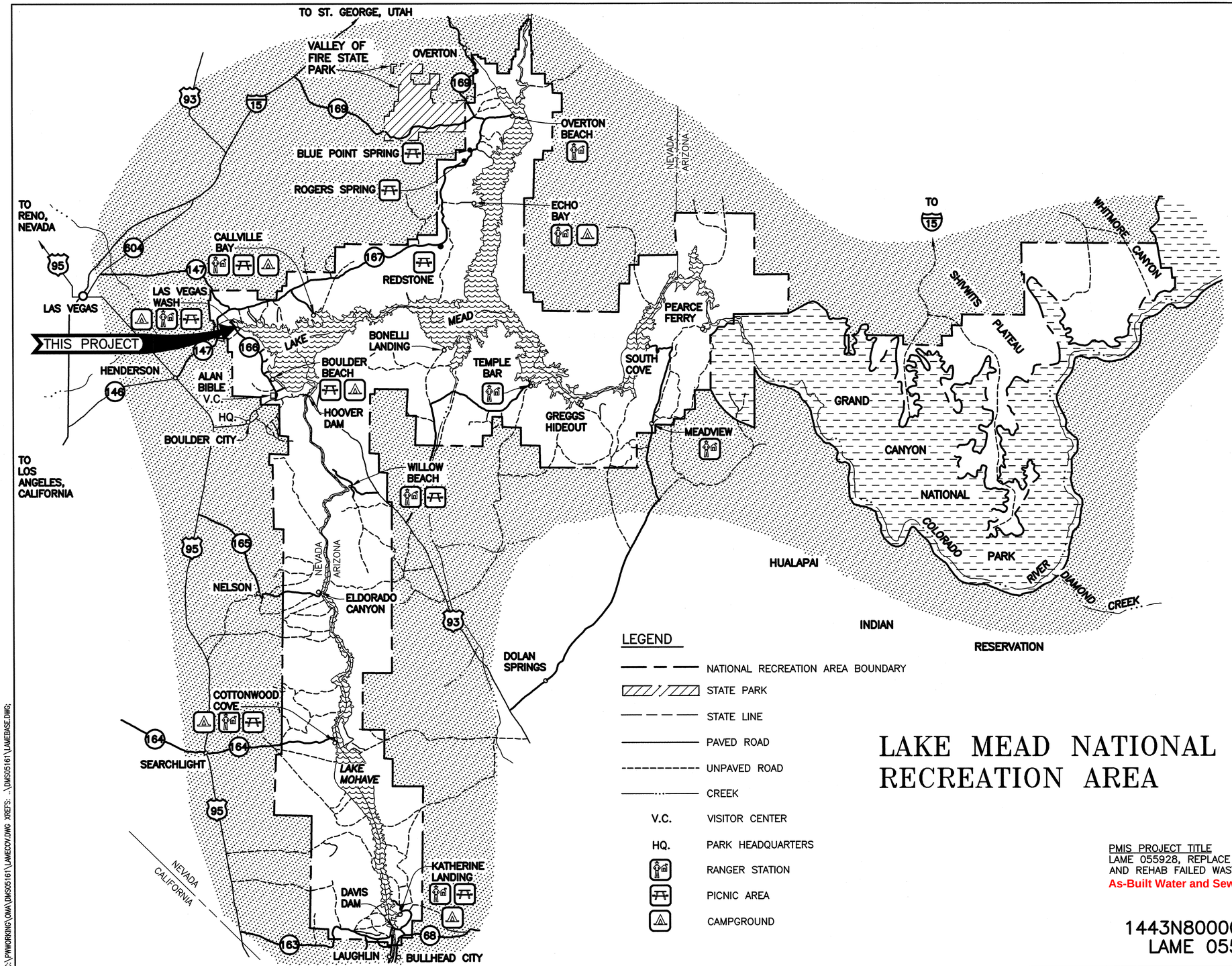
LAKE

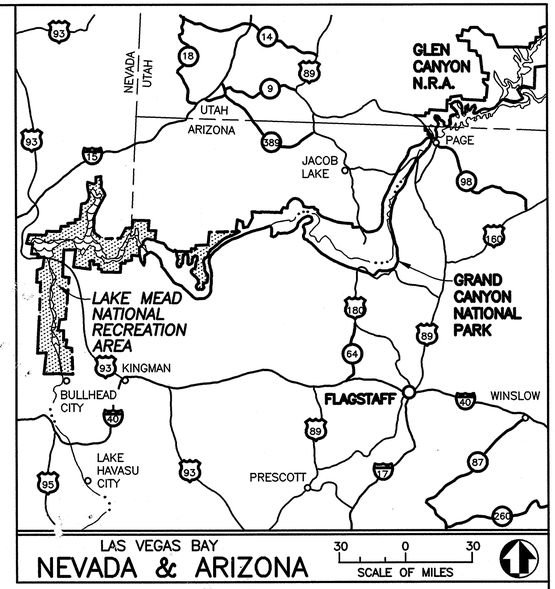
ROAD TO LVB CAMPGROUND
LVB PICNIC AREA
DEMOLISHED BOAT LAUNCH RAMP
Demo LVB Launch Ramp Restroom
CLOSED LVB RANGER STATION
LVB OVERLOOK
LAKESHORE RD
Upper Gypsum Wash Cove
Google Earth
Image © 2026 Airbus
N

LVB PICNIC AREA
CONNECT EXISTING ASPHALT/CONC CURBS W/ NEW CONC CURBS
Demo LVB Launch Ramp Restroom
EXISTING DEMOLISHED BOAT LAUNCH RAMP
CONNECT EXISTING ASPHALT/CONC CURBS W/ NEW CONC CURBS
Google Earth
Image © 2025 Airbus
N

LVB PICNIC AREA
Demo LVB Launch Ramp Restroom
EXISTING DEMOLISHED BOAT LAUNCH RAMP
PROTECT IRRIGATION AND VEGETATION (TREES AND SHRUBS) WITH IRRIGATION
N
Google Earth
Image © 2025 Airbus

LVB PICNIC AREA RESTROOM
EXISTING CONDUIT TO LVB PICNIC AREA RESTROOM
EXISTING DEMOLISHED BOAT LAUNCH RAMP
NEW ELEC SERVICE
Demo LVB Launch Ramp Restroom
EXISTING PULL BOX
APPROXIMATE LOCATION OF EXISTING BURIED POWER
EXISTING PULL BOX
EXISTING POLE MOUNTED TRANSFORMER
N
Google Earth
Image © 2025 Airbus





LEGEND

- NATIONAL RECREATION AREA BOUNDARY
- STATE PARK
- STATE LINE
- PAVED ROAD
- UNPAVED ROAD
- CREEK
- V.C. VISITOR CENTER
- HQ. PARK HEADQUARTERS
- RANGER STATION
- PICNIC AREA
- CAMPGROUND

LAKE MEAD NATIONAL RECREATION AREA

PMIS PROJECT TITLE
LAME 055928, REPLACE FAILED AND LEAKING WATER DISTRIBUTION SYSTEMS, AND REHAB FAILED WASTEWATER SYSTEMS.
As-Built Water and Sewer from 2007/2008 Project.

1443N8000070906
LAME 055928

SCALE OF MILES
5 0 5 10
SCALE OF KILOMETERS
5 0 5 10 15

DANIEL L. WEBER — PROFESSIONAL ENGINEER — STATE OF NEVADA — No. 12538 — CIVIL
11-24-07
Expires: 12/31/07

HDR ENGINEERING, INC. — 1443CX2000041400

ALL DISIPLINES:

HDR ENGINEERING, INC.
OMAHA, NE. 68144

Mark	Sheet	REVISION	Date	Initial

QUALITY DESIGN CERTIFICATION
☒ Prepared in Accordance with Schematic Design 602/41,160 AND 41,157 (Drawing No.)
OR
☐ Variance from Schematic Design Approved by Superintendent on ____ (Date)
OR
☐ Construction Drawing Not Preceded by Schematic Design
Richard Marshall — Project Manager — 5-2-07 (Date)

CONSTRUCTION DRAWINGS

UNITED STATES
DEPARTMENT OF THE INTERIOR

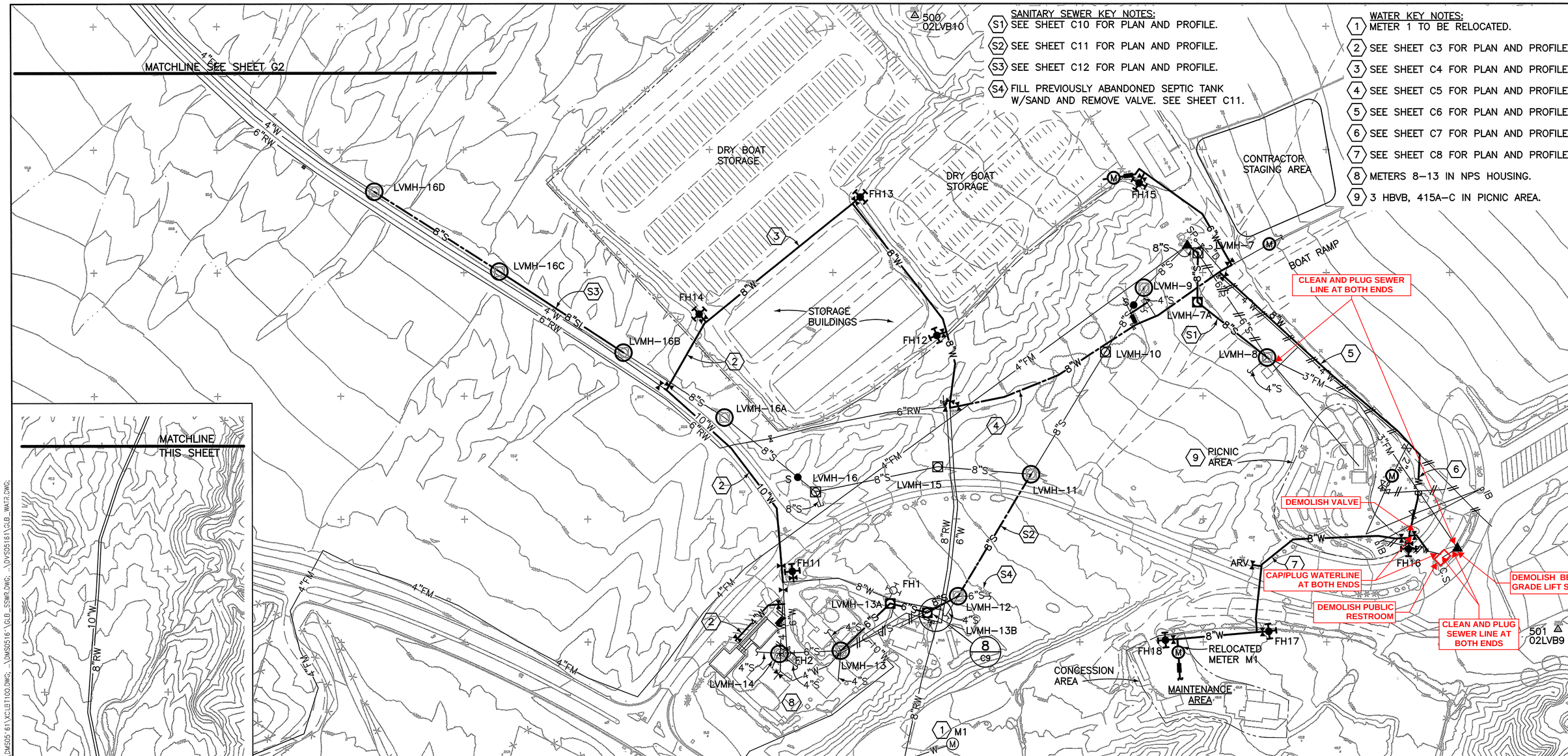
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

TITLE OF PROJECT
REHAB WATER DISTRIBUTION AND WASTEWATER COLLECTION SYSTEMS
LOCATION WITHIN PARK
LAS VEGAS BAY
NAME OF PARK
LAKE MEAD NATIONAL RECREATION AREA
REGION: PACIFIC WEST — COUNTY: CLARK — STATE: NEVADA

DRAWING NO. 602 41,165
PMIS/PKG NO. 055928
SHEET 1 OF 30

BASIC DATA: LAND STATUS MAP 602/30,000 6/74; PARK MINI FOLDER 1990; REVISED & REDRAWN 3/91. UPDATED 11/98. SGS.

8/29/06 15:33 GPETERS R16 C:\PWWORKING\OMA\DMS05161\LAMECOV.DWG XREFS: ..\DMS05161\LAMEBASE.DWG;



SANITARY SEWER KEY NOTES:

S1 SEE SHEET C10 FOR PLAN AND PROFILE.

S2 SEE SHEET C11 FOR PLAN AND PROFILE.

S3 SEE SHEET C12 FOR PLAN AND PROFILE.

S4 FILL PREVIOUSLY ABANDONED SEPTIC TANK W/SAND AND REMOVE VALVE. SEE SHEET C11.

WATER KEY NOTES:

1. METER 1 TO BE RELOCATED.
2. SEE SHEET C3 FOR PLAN AND PROFILE.
3. SEE SHEET C4 FOR PLAN AND PROFILE.
4. SEE SHEET C5 FOR PLAN AND PROFILE.
5. SEE SHEET C6 FOR PLAN AND PROFILE.
6. SEE SHEET C7 FOR PLAN AND PROFILE.
7. SEE SHEET C8 FOR PLAN AND PROFILE.
8. METERS 8–13 IN NPS HOUSING.
9. 3 HBVB, 415A–C IN PICNIC AREA.

SURVEY CONTROL POINTS

POINT NO	NORTHING	EASTING	ELEVATION	BENCHMARK	DESCRIPTION
500	746823.55	866920.23	1263.17	02LVB10	2–1/2" ALUM CAP
501	745577.20	868220.89	1210.88	02LVB9	2–1/2" ALUM CAP
502	749486.76	865198.90	1312.09	VW 1	3" BRASS CAP
503	749813.88	863824.20	1281.53	02LVB12	2–1/2" ALUM CAP

CONTRACTOR SHALL LOCATE AND FIELD VERIFY CONTROL POINTS BEFORE CONSTRUCTION.

DANIEL J. GRABER CIVIL No. 12536 PROFESSIONAL ENGINEER STATE OF NEVADA Expires 6-30-07

DESIGNED: HDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 602 41,165
CADD HDR	G3	PROJECT OVERVIEW SITE PLAN	PMIS/PKG NO. 055928
TECH. REVIEW: HDR		LAS VEGAS BAY LAKE MEAD NRA	SHEET 4 OF 30
DATE: APR 2007			

8/2/06 07:45 GPETERS R16 C:\PWWORKING\OMA\DMS05161\PR_ORNT2.DWG XREFS: ..\DMS05161\XCLBT100.DWG; ..\DMS05161\GLB_SSWR.DWG; ..\DVS05161\GLB_WATR.DWG;

KEY NOTES:

1. INSTALL NEW METER 15(5/8") INSIDE.
2. PROVIDE BFP 413 INSIDE FISH CLEANING STATION.

STA 0+00
90° BEND
N 746509.17
E 867379.85

STA 0+07
6"x6" TEE
N 746504.87
E 867385.83

STA 1+52
22.5° BEND
N 746420.71
E 867503.58

STA 2+71
6"x6" TEE
CTE
N 746317.00
E 867561.22

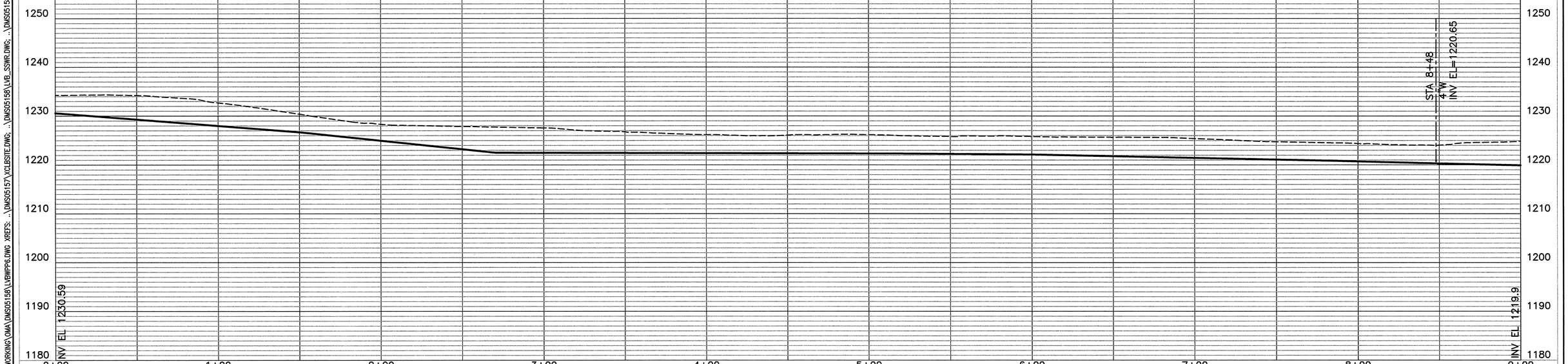
STA 2+99
8"x8" TEE
N 746302.60
E 867536.57

STA 8+48
45° BEND
N 745932.16
E 867941.46

GAS STATION

METER 3(1")
BFP 37R
EH15
CTE
GATE
6"W
1+00
2+00
6"x8" REDUCER
2"W
BFP 463(2")
NO WORK
SP
W METER
EXIST. BOUNDARY MONUMENT
EXIST. PROPOSED UTILITY CONFLICT
LVP-7
LVMH-7
LVP-7A
6"S
LVP-8
8"S
LVP-LS1
4"FM
LVMH-9
4" PVC FISH CLEANING STATION
SEE SHEET C5 FOR PLAN AND PROFILE
11
11B
12
12A
EXTEND EXISTING SERVICE
PROVIDE 2" TAP
CONNECT TO NEW 8"W
8"W
4"W
3+00
4+00
5+00
6+00
7+00
8+00
9+00
LVP-LS2
3"FM
2" TAP CTE
CLEAN AND PLUG SEWER LINE
LVMH-8
6"VCP
FISH CLEANING STATION
1
2
4" PVC FISH CLEANING STATION
FROM RESTROOM
PICNIC AREA
MATCHLINE SEE SHEET C7
BFP 5
NO WORK
METER 5 (1")
12B
12C
VALVE ASSEMBLY
1220
1225
1230
1235
1240
1245
1250

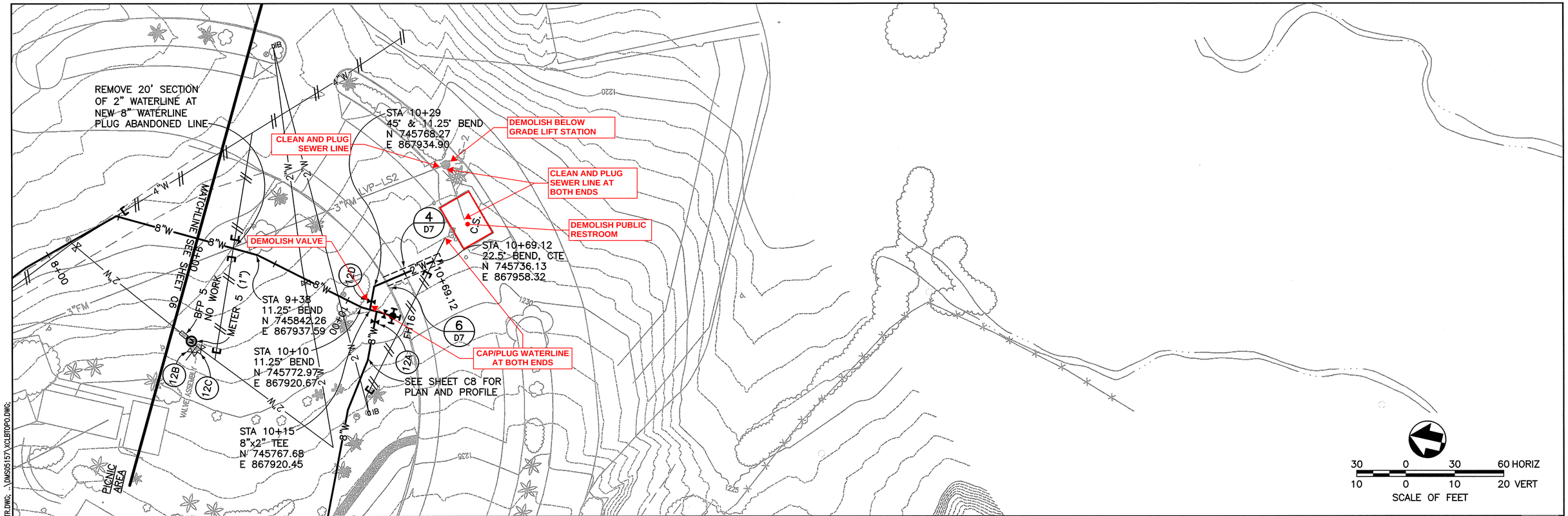
30 0 30 60 HORIZ
10 0 10 20 VERT
SCALE OF FEET



DANIEL J GRASER
No. 12539
CIVIL
NEVADA
PROFESSIONAL ENGINEER
Exp 3-30-07

DESIGNED: HDR / DRAWN: HDR / TECH. REVIEW: HDR / DATE: APR 2007	SUB SHEET NO. C6	TITLE OF SHEET: WATERLINE PLAN AND PROFILE — LAS VEGAS BAY, LAKE MEAD NRA	DRAWING NO. 602 41,165 / PMIS/PKG NO. 055928 / SHEET 12 OF 30

8/26/06 14:18 GPETERS R16 C:\PWWORKING\OMA\DM305158\LVBWPP6.DWG XREFS: ..\DM305157\XCLBSITE.DWG; ..\DM305158\LVB_SSWR.DWG; ..\DM305158\LVB_WATR.DWG; ..\DM305157\XCLBTOPO.DWG;



Ø = 1/D3 OR 3/D3 PROVIDE 2' MIN CLEAR

DESIGNED: HDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 602 / 41,165
CADD HDR	C7	WATERLINE PLAN AND PROFILE	PMIS/PKG NO. 055928
TECH. REVIEW: HDR		LAS VEGAS BAY LAKE MEAD NRA	SHEET 13 OF 30
DATE: APR 2007			

9/11/06 09:11 GPETERS R16 C:\PWWORKING\OMA\DMS05158\LVBWPP7.DWG XREFS: ..\DMS05157\XCLBSITE.DWG; ..\DMS05158\LVB_SSWR.DWG; ..\DMS05158\LVB_WATR.DWG; ..\DMS05157\XCLBTOPO.DWG;

KEY NOTES:

1. RESTORE FENCE TO ITS ORIGINAL CONDITION.
2. INSTALL NEW METER 7(1") INSIDE MAINTENANCE BUILDING.
3. INSTALL NEW METER 16(5/8") INSIDE COMFORT STATION.

STA 3+64
22.5° & 11.25° BEND
N 745760.13
E 867684.80

STA 2+82
45° BEND
N 745709.00
E 867621.02

STA −0+22
8"x8" TEE,
8"X6" REDUCER
N 745555.54
E 867436.08

STA 1+71
11.25° BEND
N 745599.27
E 867608.94

STA 1+43
8"x8" TEE AND
8"x6" REDUCER
N 745570.78
E 867611.41

STA 5+69
11.25° BEND
N 745762.21
E 867890.07

STA 5+36
11.25° BEND
N 745767.17
E 867857.24

N 745763.32
E 867920.26

SEE SHEET C7 FOR PLAN AND PROFILE

BFP 5
NO WORK

METER 5 (1")

BFP 407
RELOCATED
METER #1 (2")

35', 2" W DRAINLINE

DEMOLISH VALVE

CAP/PLUG WATERLINE AT BOTH ENDS

CLEAN AND PLUG SEWER LINE

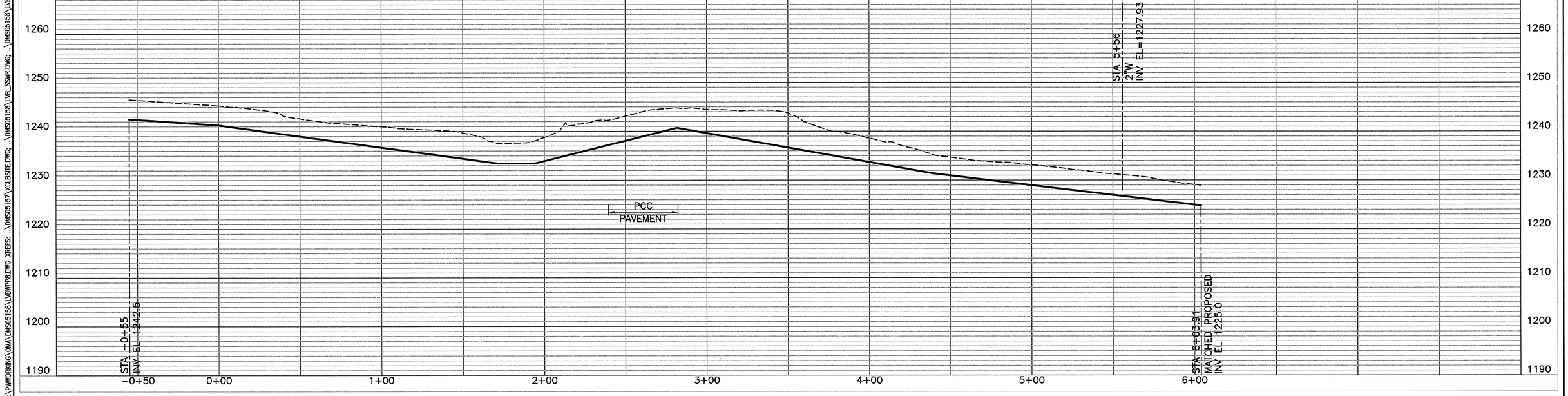
DEMOLISH BELOW GRADE LIFT STATION

DEMOLISH PUBLIC RESTROOM

CLEAN AND PLUG SEWER LINE AT BOTH ENDS

MAINTENANCE AREA

30 0 30 60 HORIZ
10 0 10 20 VERT
SCALE OF FEET



DESIGNED: HDR
CADD: HDR
TECH. REVIEW: HDR
DATE: APR 2007

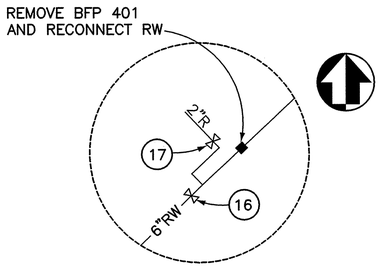
SUB SHEET NO. C8

TITLE OF SHEET
WATERLINE
PLAN AND PROFILE

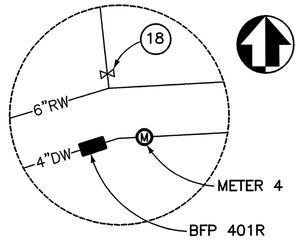
LAS VEGAS BAY
LAKE MEAD NRA

DRAWING NO. 602
41,165
PMIS/PKG NO. 055928
SHEET 14 OF 30

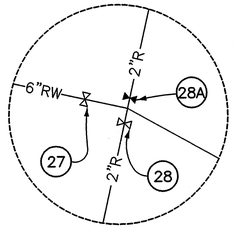
8/26/06 14:18 GPETERS R16 C:\PMWORKING\OMA\DMS05158\LVBWPP8.DWG XREFS: ..\DMS05157\XCLBSITE.DWG, ..\DMS05158\LVB_SSWR.DWG, ..\DMS05158\LVB_WATR.DWG,



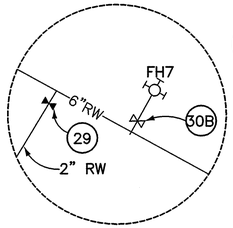
1 G2 DETAIL NO SCALE



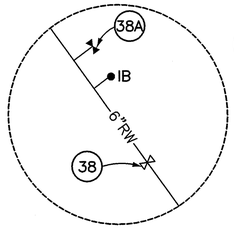
2 G2 DETAIL NO SCALE



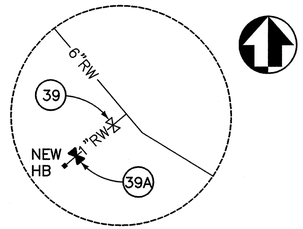
3 G2 DETAIL NO SCALE



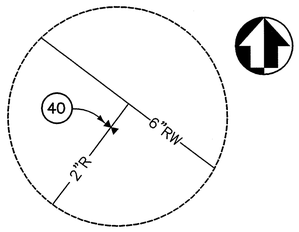
4 G2 DETAIL NO SCALE



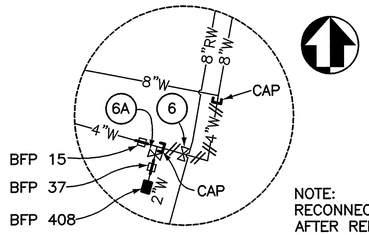
5 G2 DETAIL NO SCALE



6 G2 DETAIL NO SCALE



7 G2 DETAIL NO SCALE

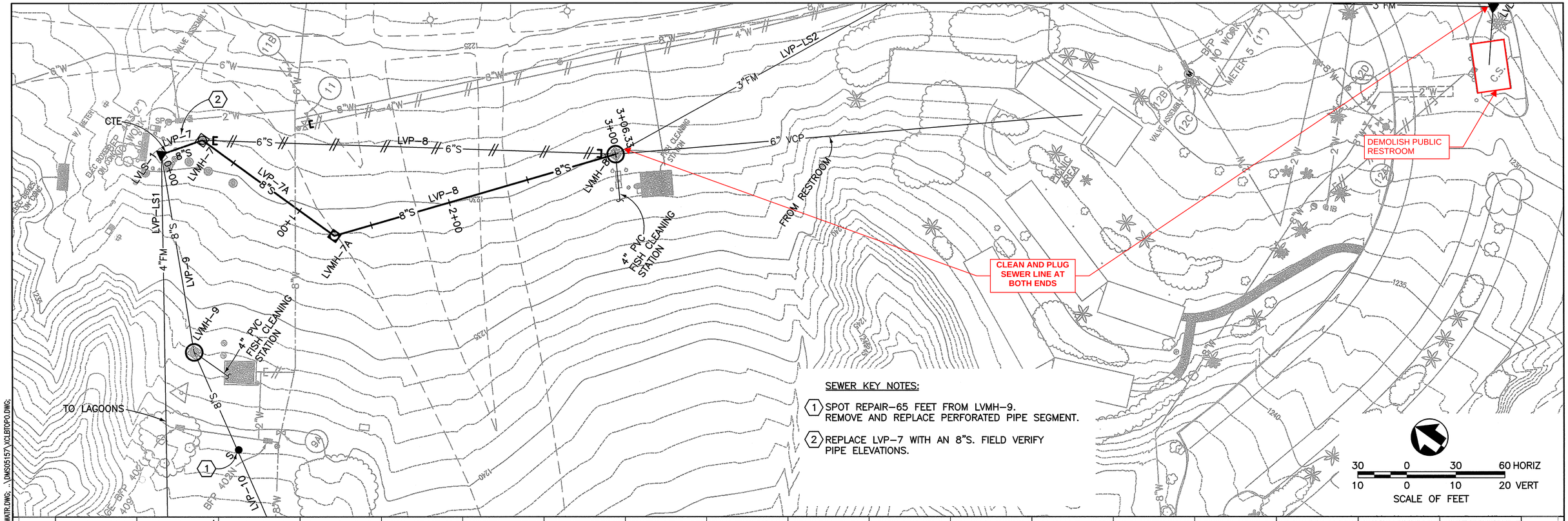


8 G3 DETAIL NO SCALE

NOTE:
RECONNECT SERVICE LINES
AFTER REMOVAL OF
BFPs 15 & 37.

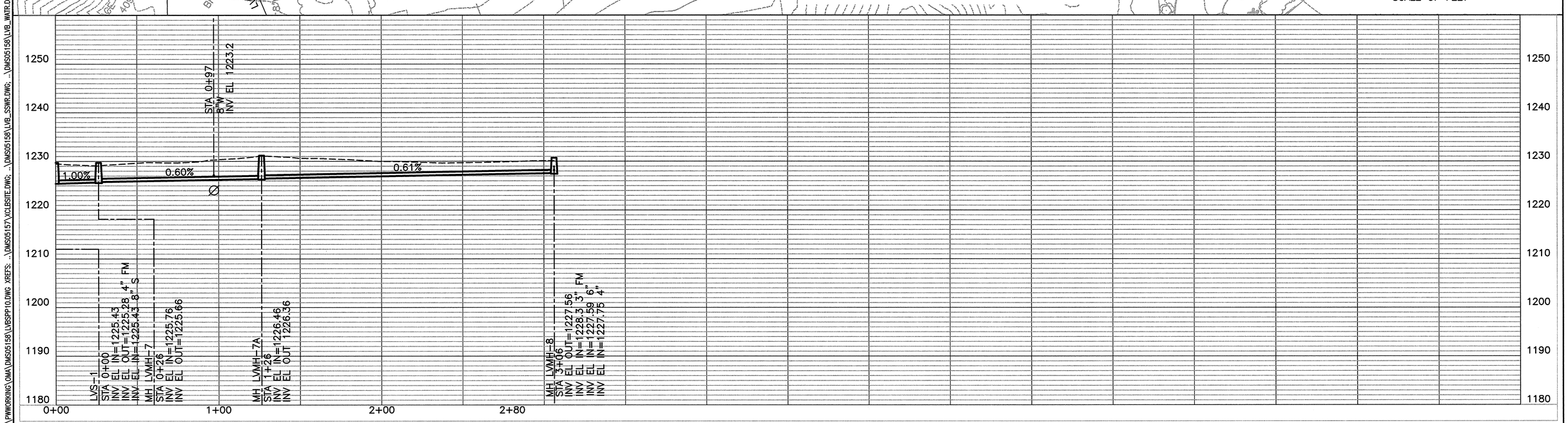
DESIGNED: HDR CADD: HDR TECH. REVIEW: HDR DATE: APR 2007	SUB SHEET NO. C9	TITLE OF SHEET WATER SYSTEM ENLARGED AREA DETAILS LAS VEGAS BAY LAKE MEAD NRA	DRAWING NO. 602 41,165 PMIS/PKG NO. 055928 SHEET 15 OF 30

8/21/06 07:58 GPETERS R16 C:\PWWORKING\OMA\DMS05158\DETAIL9.DWG XREFS: X-WT-LVB.DWG; ..\DMS05161\XLB_WATR.DWG;



SEWER KEY NOTES:

1. SPOT REPAIR–65 FEET FROM LVMH–9. REMOVE AND REPLACE PERFORATED PIPE SEGMENT.
2. REPLACE LVP–7 WITH AN 8"S. FIELD VERIFY PIPE ELEVATIONS.



Ø = 1/D3 OR 3/D3 PROVIDE 2' MIN CLEAR

DANIEL J. GRABER CIVIL No. 12538 Expires 6-30-07

DESIGNED: HDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 602 41,165
CADD HDR	C10	SANITARY SEWER PLAN AND PROFILE	PMIS/PKG NO. 055928
TECH. REVIEW: HDR		LAS VEGAS BAY LAKE MEAD NRA	SHEET 16 OF 30
DATE: APR 2007			

8/21/06 08:02 GPETERS R16 C:\PWWORKING\OMA\DMS05158\LVBSPP10.DWG XREFS: ..\DMS05157\XCLBSITE.DWG; ..\DMS05158\LVB_SSWR.DWG; ..\DMS05158\LVB_WATR.DWG; ..\DMS05157\XCLBTOPO.DWG;

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

Protect tree and larger shrub.

Demolish LVB Launch Ramp Restroom

Protect palm tree(s) and shrubs with irrigation.

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

- Utility Chase.

Demolish LVB Launch Ramp Restroom

- Manhole for Below Grade Lift Station.

Demolish LVB Launch Ramp Restroom

- Below Grade Lift Station.

Demolish LVB Launch Ramp Restroom

- Sewer Curb Box.

Demolish LVB Launch Ramp Restroom

- Water Curb Box.

Demolish LVB Launch Ramp Restroom

- Control Panel for Lift Station (Top).
- Electrical Subpanel “A” (Middle).
- Junction Box (Bottom).

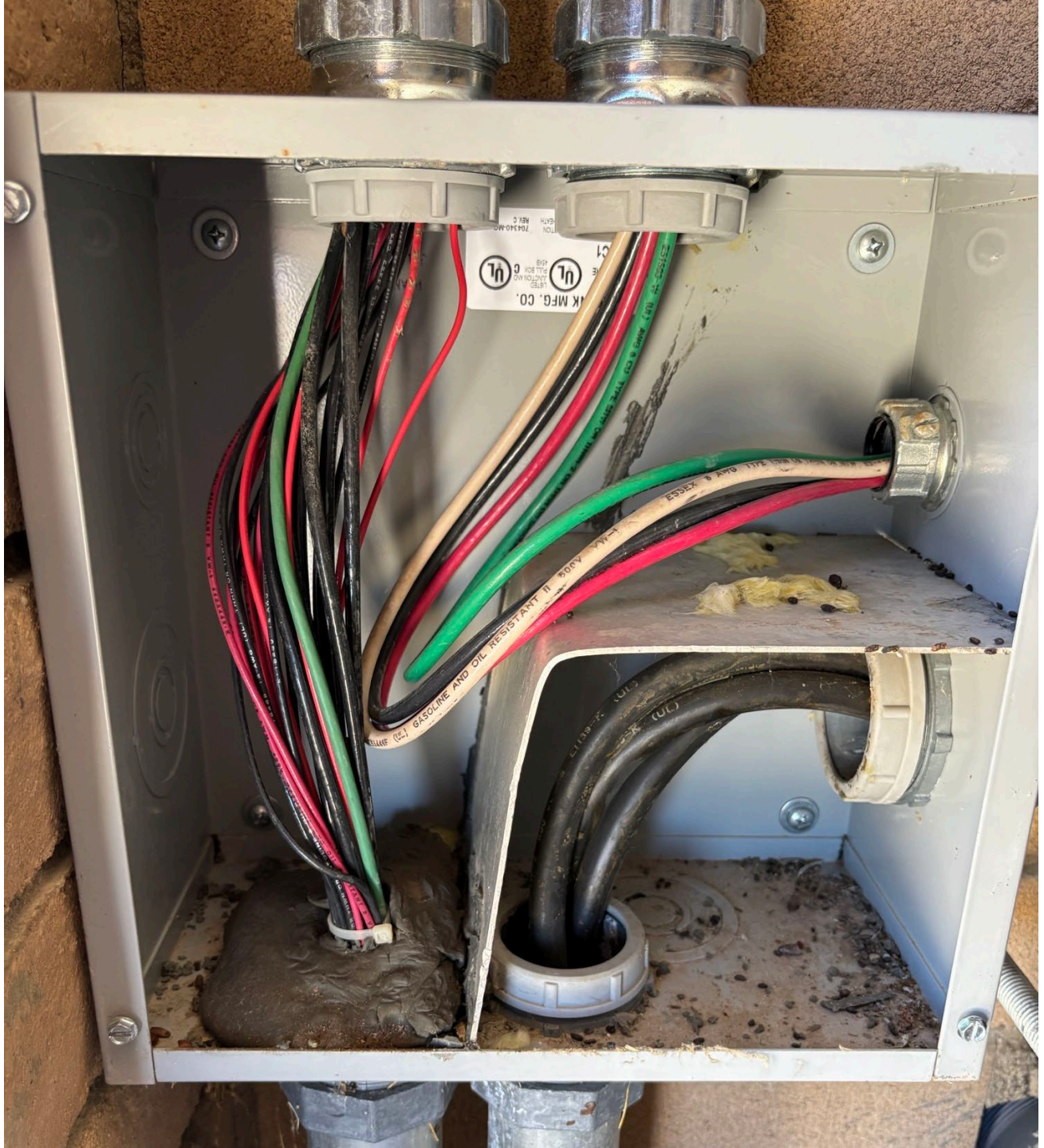
Demolish LVB Launch Ramp Restroom

- Lift Station Control Panel.

Demolish LVB Launch Ramp Restroom

Demolish LVB Launch Ramp Restroom

- Junction Box.



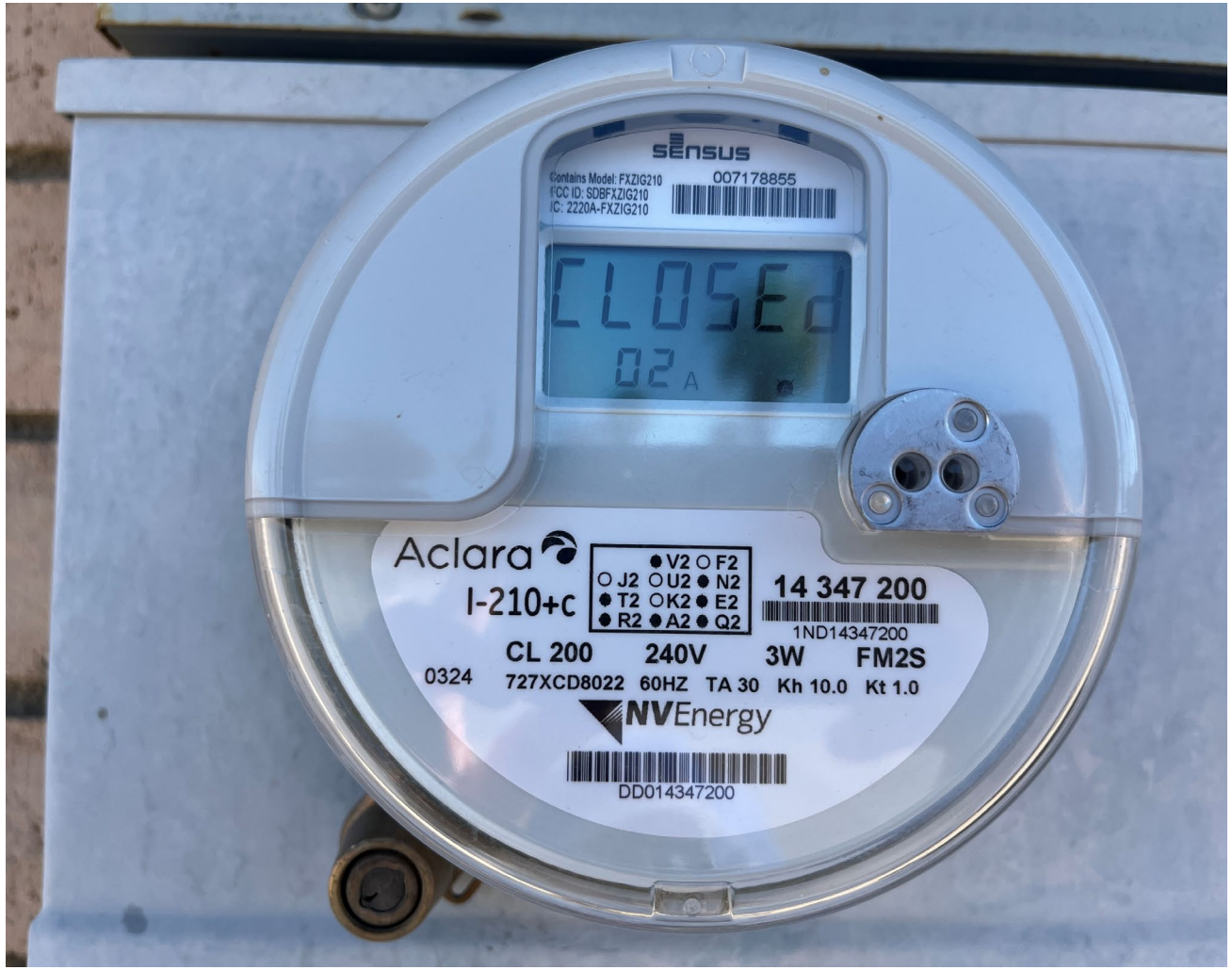
Demolish LVB Launch Ramp Restroom

- Electrical Service and Pull Box.

Demolish LVB Launch Ramp Restroom

- Main Circuit Breaker.

Demolish LVB Launch Ramp Restroom



Demolish LVB Launch Ramp Restroom

- Pull Box with 2” Diameter Conduit (Bottom Conduit) to LVB Picnic Area Restroom and conduit (Top Conduit) from Subpanel “A” at LVB Launch Ramp Restroom.

Demolish LVB Launch Ramp Restroom

- Previous Sawcut for Existing Conduit from LVB Launch Ramp Restroom to LVB Picnic Area Restroom. Shown is LVB Launch Ramp Restroom.

Demolish LVB Launch Ramp Restroom

- Existing Subpanel at LVB Picnic Area Restroom.