GLEN CANYON
NATIONAL RECREATION AREA (GLCA)
LAKE POWELL, UTAH

SOLICITATION 140P2026R0010
GLEN CANYON LOW WATER RAMPS (BULLFROG DISTRICT)
GLCA 318882

DESIGN-BUILD (DB) SCOPE of WORK (SOW)

NATIONAL PARK SERVICE (NPS)
DENVER SERVICE CENTER (DSC)

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1.0 PROJECT INTRODUCTION

Park Acronym and PMIS Number: GLCA 318882B

Project Title: GLEN CANYON LOW WATER RAMPS (BULLFROG DISTRICT)

Project Drawing Number: 608 186913

1.1 Scope

In accordance with terms and conditions of the Contract, the Design-Build (DB) Contractor shall perform the work of this Request for Proposal (RFP) for the National Park Service (NPS) as described below.

Architect-Engineer (A/E) Services required in this RFP shall be performed and sealed by an appropriately licensed Architects and Engineers registered in the State of Utah (as required).

Complete this task order using requirements and criteria on Denver Service Center (DSC) Design-Build (DB) Workflows website.

The DB home page includes links to design phases that describe required workflow processes from Predesign (PD) through Construction Documents (CD). Each design phase web page contains links to definitions, forms, templates, samples, and guidelines.

The DB home page also includes links to the Design Standards and Design Deliverables sections, which provide design requirements and criteria that will be used for completing the work of this contract, as follows:

- Predesign (PD) through Construction Documents (CD) design phase requirements with definitions plus forms, templates, samples, and guidelines used for a typical project.
- Division 1 Specifications Templates: These templates represent standard information that may need clarification and addition to the DB RFP template on some projects.
- Design Standards are arranged by discipline and/or specialty.
- DB Design Deliverables - Content and Format Requirements
    - Design phase submission requirements for:
        - Technical content
        - Submission format
- In addition, the Information section has links directly to the following:
    - Definitions: A list of terms relevant to design and construction in National Parks.
    - Forms/Templates/Samples/Guidelines: A list of forms, templates, samples, and guidelines used for a typical project.
    - Law/Regulations/Polices/Guidance: A list of sources for retrieving laws, regulations, policies, and guidance applicable to NPS projects.
    - Quality Assurance (QA) Guideline & Review Checklists: Overview of the DSC QA process for reviewing design documents.

In case of conflict between this contract and the DSC DB Workflows website, this contract shall take precedence and shall be used in lieu of conflicting portions.

The Design-Build (DB) Contractor remains fully responsible for determining if the standards or provisions cited on the DSC DB Workflows website have been revised or updated. Any such conflicts between the website and the identified standard or provisions shall be brought to the attention of the Contracting Officer (CO).

1.2 Project Websites

Use the Government provided website to host and manage project communication and documentation until Final Completion. The project website will be used for:

- Project directory
- Project correspondence
- Meeting agendas and minutes
- Contract modifications documentation and logs
- RFI (Request for Information) form and processing
- Task and issue management
- Photo documentation
- Baseline schedule, schedule updates and calendar management
- Submittal form and processing
- Drawing and specification document hosting, viewing, and updating
- Online document collaboration
- Reminder and tracking functions
- Archiving functions
- Notification of submittal and RFI statuses and current responsible party

Submit to the CO a list of employees needing access to the Government provided website. The Department of Interior (DOI) will send these users an invitation to the site. Users are required to have Internet Explorer version 7 or later and Adobe Acrobat Professional version 9 or later.

DB Contractor to provide a website for public information and project status. Provide website layout for review and approval by the CO within the first 21 days after contract award.

1.3 Location

This project is located at Glen Canyon National Recreation Area (GLCA), Bullfrog District, in Utah.

1.4 Background

Glen Canyon National Recreation Area (GLCA) is predicting that within the near future North Lake Powell will have no operable boat launch ramps due to historically low water levels. The area currently has two marinas, Bullfrog and Halls Crossing, which are operated and maintained primarily by Aramark, a concessioner of the National Park Service. The area also has many land-based structures which include lodging facilities, campgrounds, boat rentals and boat storage while the marinas are the two floating structures that have fuel pumps, stores, snack bars and covered boat slips for storing vessels. Utilities servicing the local need are operated by both Aramark and NPS as there are no independent power, sewer, water companies in this area. . Facilities at Halls Crossing are currently open although these services vary seasonally and based on launch ramp water levels. A ramp extension at Bullfrog was completed this spring and provides access to 3529’ for houseboats and to 3525’ for smaller vessels. As of November 21, 2022, the elevation of Lake Powell is 3528.6’.

Bullfrog remains the only low-water access to North Lake Powell. Constructing an additional low-water ramp at Bullfrog would provide continued lake access to an elevation of 3450'.

This project will address low water lake access for the Bullfrog District based upon the relocation of the launch ramp to a new deep pool location. The work includes a new access road, water, wastewater, power, and telecom utility extensions, parking lot, and launch ramp.

1.5 Description

The specific purpose of the project is to ensure long term sustainable lake access at Antelope Point by designing and constructing a new high and low water launch ramp. The ramp will be designed to accommodate lake elevations between 3,450 and 3,700 feet. Due to funding limitations, construction will match the full design grade, but the actual service elevation will depend on the awarded bid option. This approach ensures that any future extensions can be built without reconstructing any of the ramp completed under this project. Facilities supporting the new ramp include new boat and passenger vehicle parking areas.

Boat Ramp Water Surface Elevation Performance and Risk Balancing

Baseline Condition for Construction Planning

For purposes of construction planning, sequencing, and risk allocation, the Government establishes a baseline lake surface elevation of 3,520 feet as the assumed water surface elevation during design development and construction.

The Design-Builder shall base its construction approach, sequencing, temporary works, and cost assumptions on this baseline condition.

Normal Fluctuations (No Adjustment)

The Design-Builder shall accommodate normal lake surface elevation fluctuations between 3,495 feet and 3,545 feet (±25 feet from the baseline) through reasonable design and construction means, without entitlement to adjustment in contract price or time.

Seasonal Construction Assumption

For purposes of construction planning and risk allocation, the Design-Builder shall assume that **in-water** construction activities will occur during the Fall and Winter seasons.

The Design-Builder shall plan sequencing, access, temporary works, and means and methods accordingly.

Seasonal conditions typical of Fall and Winter operations including reduced daylight, colder temperatures, precipitation, and expected seasonal lake surface elevation trends, shall not, by themselves, constitute a changed condition.

Any in-water work performed outside the seasonal construction assumptions described above shall be undertaken at the Contractor's sole risk and shall not constitute a basis for a change condition, time extension, or additional compensation.

Changed Condition Evaluation Trigger

Notwithstanding the design performance requirements above and the seasonal construction assumptions herein, a lake surface elevation shall be considered eligible for evaluation as a changed condition only if the following threshold is met:

- The lake surface elevation exceeds 3,545 feet or falls below 3,495 feet for a continuous period of seven (7) consecutive calendar days.

Short-term fluctuations, seasonal trends, or conditions reasonably anticipated during Fall and Winter in-water work shall not constitute a changed condition.

Higher Water Levels (Government Risk)

If the lake surface elevation exceeds 3,545 feet and meets the changed condition evaluation trigger during construction, the Government will consider this a changed condition.

The Government may issue a contract modification to reduce, adapt, or modify the ramp to maintain functional performance, with an equitable adjustment in time and/or price for the benefit of the Design-Builder.

Lower Water Levels (Government Benefit)

If the lake surface elevation falls below 3,495 feet and meets the changed condition evaluation trigger during construction, the Government will consider this a changed condition.

The Government may issue a contract modification for credit, or other adjustment for the benefit of the Government.

Risk Clarification

Notwithstanding the requirement to design the ramp to function across elevations 3,700 feet to 3,450 feet, contractual risk for lake surface elevation during construction is directly tied to the 3,520-foot baseline and the fluctuation limits and triggers defined above.

To align the project with available funding, a base schedule and optional betterments will be evaluated as follows:

BASE SCHEDULE:

- CLIN 1 BASE – DESIGN
  - 150-foot-wide low water boat ramp servicing elevation 3700 to 3450-ft, a 2,419-ft length on the horizontal along a 10.5% grade.
  - 8.3 Acre asphalt boat parking area connected to the top of the ramp
  - 0.7 Acre asphalt passenger vehicle parking area
  - Includes supplemental design effort supporting the awarded construction base + scalable options and NPS support needs for NEPA/Permitting.

- CLIN 2 BASE - CONSTRUCTION - ACCESS ROAD/UTILITIES
  - Construct a two-lane gravel access road connecting US 276 to the parking area.
  - Construct utilities (potable water, wastewater, power, and communications) servicing the top of the launch ramp.

- CLIN 3 BASE - CONSTRUCTION - PARKING AREA (8 ACRE)
    - Construct an 8-acre gravel parking area.

- CLIN 4 BASE - CONSTRUCTION - 90-FOOT WIDE LOW WATER RAMP (3700 to 3570) (matching the 3450 design in CLIN 1)

- CLIN 5 BASE - CONSTRUCTION - 90-FOOT WIDE LOW WATER RAMP (3570 to 3545) (matching the 3450 design in CLIN 1)

- CLIN 6 BASE - CONSTRUCTION - 90-FOOT WIDE LOW WATER RAMP (3545 to 3520) (matching the 3450 design in CLIN 1)

- CLIN 7 BASE - CONSTRUCTION (IN WATER) - 90-FOOT WIDE LOW WATER RAMP (3520 to 3490) (matching the 3450 design in CLIN 1)

BID OPTIONS:

- CLIN 8 Option E - CONSTRUCTION (IN WATER) - 90-FOOT WIDE LOW WATER RAMP (3490 to 3450) (matching the 3450 design in CLIN 1)

- CLIN 9 Option A - CONSTRUCTION - Widen from 90-FOOT to 150-FOOT WIDE LOW WATER RAMP (3700 to 3570) (matching the 3450 design in CLIN 1)

- CLIN 10 Option A - CONSTRUCTION - Widen from 90-FOOT to 150-FOOT WIDE LOW WATER RAMP (3570 to 3545) (matching the 3450 design in CLIN 1)

- CLIN 11 Option A - CONSTRUCTION - Widen from 90-FOOT to 150-FOOT WIDE LOW WATER RAMP (3545 to 3520) (matching the 3450 design in CLIN 1)

- CLIN 12 Option A - CONSTRUCTION (IN WATER) - Widen from 90-FOOT to 150-FOOT WIDE LOW WATER RAMP (3520 to 3490) (matching the 3450 design in CLIN 1)

- CLIN 13 Option F - CONSTRUCTION (IN WATER) - Widen from 90-FOOT to 150-FOOT WIDE LOW WATER RAMP (3490 to 3450) (matching the 3450 design in CLIN 1)

- CLIN 14 OPTION B - PARKING AREA (CONSTRUCTION)
    - Expand the 8-acre gravel parking area (Base) to a 16-acre gravel parking area.

- CLIN 15 Option C - ACCESS ROAD PAVING (CONSTRUCTION)
    - Add asphalt surfacing to the gravel access road (Base).

- CLIN 16 Option D - PARKING AREA PAVING (CONSTRUCTION)
    - Add asphalt surfacing to the 16-acre gravel parking area (Option G).

1.6 Schedule

Complete work in this SOW according to following schedule, with a total of 730 days for design and construction:

1.6.1 Post Award Site Evaluation

The DB Contractor will meet with NPS onsite to review the proposed solution presented in the proposal package.

This site visit is to occur no later than 21 calendar days after award. It is expected that a 3-day visit will be required. A pre-visit teleconference meeting will be conducted with NPS and the Park at least 14 calendar days before the site visit, such that logistics can be coordinated before the visit.

1.6.2 DB Design Development (DD) Documents:

Submit DB DD Documents no later than (to be defined by Design Build Contractor proposed scheduled) calendar days after award.

Allow no less than 15calendar days for NPS Review after submitting DB DD Documents.

1.6.3 100% Draft DB Construction Documents (CD):

Continue work on 100% Draft DB CD during DB DD Documents review. After receiving DB DD review comments, address and incorporate comments in 100% Draft DB CD.

Submit 100% Draft DB CD and responses to NPS Review form with responses to DB DD Documents no later than (to be defined by Design Build Contractor proposed scheduled) calendar days after receiving NPS Review comments of the DB DD Documents.

Allow no less than 15calendar days for NPS Review after submitting 100% Draft DB CD.

1.6.4 100% Complete DB Construction Documents (CD):

Submit 100% Complete DB CD and NPS Review form with responses to 100% Draft DB CD review comments no later than (to be defined by Design Build Contractor proposed scheduled) calendar days after submitting 100% Draft DB CD.

Allow no less than 15 calendar days for NPS Review after submitting 100% Complete DB CD.

1.6.5 Complete Stamped and Signed DB Construction Documents (CD):

Submit Complete Stamped and Signed DB CD and NPS Review form with responses to 100% Complete DB CD review comments no later than 15 calendar days after receiving NPS review comments.

1.6.6 Construction:

Construction begins when CO issues DB On-site Notice to Proceed (NTP) – authorizing ground disturbing activities.

Complete design and construction no later than 710 calendar days following issuance of the NTP . Actual contract completion date will be established based on the proposer's schedule. Site mobilization is to begin before construction start. Refer to Section 2.1.5 Project Schedule.

1.6.7 As-Constructed Drawings:

As constructed plans of the completed construction project are needed to provide a historic record of all work accomplished on this project. These plans are used as future references for needed repairs, maintenance, and construction projects.

Maintain one record copy of all design documentation at the site, in good order and regularly updated to show all changes made during construction. Make these documents, along with all other submittals made by the DB Contractor, available to the CO during construction.

Submit Final As-Constructed Drawings no later than 21 calendar days after Substantial Completion to the CO for review and approval.

Submit DB DD Documents, DB CD, and As-Constructed Drawings to the NPS Construction Management Representative (CMR), the NPS Project Manager (PM), and the NPS Project Specialist.

Include within Division 1 Specifications, regular updates, and submittals of the as constructed drawings to keep current and accurate record.

A retention amount of $500k will held by the Government until final acceptance of the as-constructed drawings by the CO.

1.7 NPS Contacts & Address:

Contractual:

Contracting Officer (CO): Tony Jasper, 303-969-2789, anthony_jasper@ios.doi.gov

Contract Specialist (CS): None

Technical:

Project Manager (PM) and Contracting Officer's Representative (COR): Michael Will, PE, 303-956-5054, mike_will@nps.gov

Project Specialist (PS) and Alternate Contracting Officer's Representative: Travis Kraft,, 303-918-9997, travis_kraft@nps.gov

Address:

National Park Service - Denver Service Center
12795 West Alameda Parkway
Post Office Box 25287
Denver, Colorado 80225

1.8 Data and Materials Provided by NPS

Schematic Design (SD) dated January 2023 has been performed for the site. The initial engineering documents and concepts will be provided as reference documents by the government; however, these reference documents are not considered design-build bridging documents and may be used at the discretion of the DB Contractor.

The Bullfrog Launch Ramp SD package includes the following ultimate full build elements (base schedule plus options):

- Approximate 3.1 mile, 2-lane asphalt access road with 3ft asphalt shoulders to new boat launch location.
- Approximate 700,000 SF asphalt parking area
- 150ft wide concrete launch ramp serving water elevations 3,450' to 3,700'
- New utility service to the top of ramp including water, wastewater, electrical and communications lines that terminate and capped at the top of the ramp.

NPS will provide to DB Contractor the following data and materials:

- Project Program
- NPS Design Build Workflow
  - Design-Build (DB) - (U.S. National Park Service) (nps.gov)
  - Design Build Deliverable Requirements
  - Quality Assurance Guidelines
- SD Basis of Design Report (BDR)
- Visitor Use Study
- Approved Schematic Design Preferred Alternative Full Build – Plan
- NPS Project Sustainability Checklist
- Field Mapped Utility survey data
- Topographic (arial and bathymetric) survey data
- Geotechnical Subsurface Investigation Information
- Wetlands delineation
- *NEPA compliance authorization (in process)

*NPS is in process of securing NEPA compliance approvals. Approvals are expected no later than June 1, 2023. No ground disturbance is permitted prior to NEPA approvals. Current documents include anticipated NEPA compliance requirements, however final approval has not been received.

2.0 PROJECT REQUIREMENTS

2.1 General Requirements

2.1.1 Scope of Work and Project Summary/Requirements

The project will consist of the design and construction of a new access road, which is approximately 3.1 miles long, from US 276 to the new launch ramp location. A new parking area will be designed and constructed that is between 6 and 16-acre of area with a houseboat turnaround at the top of the ramp. A new launch ramp between 90 and 150 ft wide will be designed and constructed accommodating lake access between elevations 3445 and 3700. New water, wastewater, power, and telecom utilities will be installed servicing the top of the new launch

ramp.

The project will include, but not be limited to:

- Design and Construction of roadway, parking area, utilities (water, wastewater, electric, communications), and a launch ramp system including associated incidental work.
- Review Schematic Design preferred alternative provided in the RFP package
- Review site data.
- Submit DB Design Development and DB Construction Documents for review and approval, as required.
- Secure all permits necessary to support construction in accordance with all local, state, and federal requirements. Refer to Section 2.2.3.
- Project Management
- Geotechnical investigation/analysis as necessary to complete the work.
- Survey as necessary to complete the work.
- Lifecycle cost analysis
- Provide, manage, and update schedule of design and construction work.
- Quality Control
- Materials Sampling and Testing
- Maintenance during construction including but not limited to erosion management, traffic management, etc.
- Conduct Paleontological monitoring during ground disturbance.
- Provide for continued access to existing facilities.
- Provide new construction GIS data supporting updates to the NPS GIS database
- Provide as-constructed drawings.

The DB Contractor will identify any previously undefined deficiencies or failures that are uncovered as part of their due diligence.

2.1.2 Definition of Contract Line Items

In general, explain what is included in each contract line item, limits or cut-off points where one item ends, and another begins. If no item exists for a portion of the work, include costs in a related line item.

See subsection 1.5 above.

2.1.3 Progress Payments

Design Phase - Progress payments will be based on submission, review, and acceptance of design deliverables.

Construction Phase - Progress payments will be based on percentage of work completed on items listed in approved schedule of values. Actual construction completed and in place will form basis for payment. DB Contractor shall verify percent complete under direction of the COR unless CO waives this requirement in a specific instance. DB Contractor shall make computations for payment based on Government's verification of work completed and in place for periods which progress payments are requested.

DB Contractor shall furnish to the CO originals of field notes and other records relating to basis for payment. The CO shall use as necessary to determine final amount of progress payments. DB Contractor shall retain copies of material furnished to CO.

2.1.4 Project Meetings

Kickoff and Design Meeting

After award of the contract and acceptance of Performance and Payment bonds, the CO will arrange a kickoff and design meeting with DB Contractor. Meeting agenda shall include the following as a minimum:

- Areas available for use by DB Contractor
- Access requirements of the Park
- Design schedule including dates each required permit will be secured (minimum two color hard copies).
- Environmental and sustainability requirements
- Natural and Cultural Resource Protection
- Payments to DB Contractor
- Review and emphasize Park needs and design objectives.
- Modifications during design
- Schedule of Values
- Submittals during design
- Site Visit
- Utility connection/outages

Preconstruction Meeting

Submit following Part 2 Project Requirement deliverables a minimum of one week prior to Preconstruction Meeting.

- Accident Prevention Program (APP)
- Evidence of liability insurance coverage and workman's compensation for DB Contractor and Subcontractors
- Letter designating your Project Superintendent
- List of obtained and required construction permits
- List of Subcontractors for project (same as proposal)
- Project Schedule with construction portion fully developed
- Quality Control Plan
- Comprehensive breakdown of the Schedule of Values for all elements of work
- National Pollutant Discharge Elimination System (NPDES) permit application forms including Storm Water Pollution Prevention Plan (SWPPP)
- Waste Management Plan
- Written statements from Subcontractors certifying compliance with applicable labor standard clauses

After 100% Complete DB CD are approved (or completed portions of DB Construction Documents necessary for fast tracking the project), and before start of construction, The CO will arrange on-site Preconstruction meeting with DB Contractor. Meeting agenda will include the following as a minimum:

- Accident reporting
- Construction schedule (provide electronic copy in software it was created in and a Portable Document File [PDF] copy)
- Correspondence procedures
- Jobsite safety

- Labor standards
- Lines of Authority
- Modifications
- Government provided project website
- Park Rules and Regulations
- Payroll reports
- Progress Payments
- Resolution to comments provided by NPS on the Part 2 Project Requirements
- Roles and responsibilities
- Schedule of Values
- Submittal process
- Access and site constraints.
- Medical emergency processes, availability, emergency numbers, and contacts.
- Park permits, burning construction waste, rules of the road, alcohol use, housekeeping, firearms, pets, natural and cultural resource concerns.
- Public relations.
- Archeological Resources Protection Requirements
- Environmental and sustainability requirements for the Project, required tracking for sustainability (related submittals), and use of NPS Project Sustainability Checklist.
- Saturdays, Sundays, holidays and night work.
- Traffic control.

Progress Meetings

DB Contractor shall participate in weekly telephone conference calls with CO and other project team members with updates to following meeting agenda items:

- Approval of minutes of previous meetings.
- Review of off-site fabrication and delivery.
- Requests for Information (RFI) and issues.
- Schedule update to include the following:
    - Provide updated CPM (Critical Path Method) schedule
    - Provide hard copies for all on-site meetings
    - Three week lookahead
    - Work in progress and projected
    - Three Phase Meeting Schedule
- Status of Project Record Drawings and O&M (Operation & Maintenance) Manuals.
- Submittal status.
- DB Contractor website updates
- Project Risk and Opportunity Identification and Monitoring
- Safety Debrief
- Other business relating to work.

Over-the-Shoulder Reviews

Over-the-Shoulder reviews are strongly encouraged to enhance the partnering efforts between the DB Contractor and the Government. The intent of Over-the-Shoulder reviews is to provide guidance to the DB Contractor during the project. Over-the-Shoulder reviews will be conducted for informal review of designs only and do not

replace the Overall Project Submittals. Over-the-Shoulder reviews may be scheduled by the DB Contractor or NPS. Requests for reviews must be in writing and allow at least 7 calendar days-notice prior to the proposed review. The number and timing of the reviews will be discussed at the Project Kick-off Meeting. Reviews will be held at a location approved by the CO.

2.1.5 Project Schedule

The DB Contractor must ensure construction materials, supplies, and equipment are procured with sufficient time to start construction without delay.

General: DB Contractor shall upload project schedule to Government provided project website and provide two (2) color copies after award and before the design kick-off meeting. Schedule shall include detailed design phase with design deliverable submission dates, review periods, and summary construction schedule with important milestones included for both phases.

Fully develop construction portion of project schedule and submit to CO. Update the full project schedule monthly throughout contract period until project substantial completion. Status date of each schedule update shall be 10 days before the progress payment request date.

Construction work cannot begin until Government approval is obtained for any of the following or as described otherwise:

- Entire set of 100% Complete DB CD.
- Fast track construction: 100% Complete DB CD affecting work to be constructed.
- DB Contractor obtains required permits as listed in Section 2.2.3
- CO issues DB Start Work Notice
- DB Contractor provided project website
- CO may authorize a limited NTP for any portion of the project or for purchasing or stockpiling of approved material.
    - Early construction may begin on any approved Specific Element Submittal at the sole risk of the DB Contractor. Do not start work prior to approval or acknowledgement by the CO. The extent, acceptability, and schedule for early construction reviews will be mutually agreed as requested based on information contained in the Schedule and its approval. The CO will stop any work that does not comply with environmental, legal, standard or permitting requirements of the contract or project.

Purpose: Project schedule ensures adequate planning, coordinating, scheduling, and reporting of DB Contractor’s design and construction activities. Project schedule will assist DB Contractor and CO to monitor work progress, evaluate proposed changes, and process DB Contractor's monthly progress payment requests.

Software: Latest version of Microsoft Project, Primavera Project Planner, SureTrak, or approved equal.

Schedule Development: Project schedule shall cover entire contract period. Late finish date is same as contract’s established completion date.

DB Contractor shall use Critical Path Method (CPM) with limited use of lead or lag durations between schedule activities. DB Contractor's project schedule shall consist of procurement activities (including mobilization, submittal, and fabrication and delivery of key and long-lead procurement items) and construction activities.

DB Contractor's project schedule shall consist of, but not be limited to, the following for each activity:

- Identify activities and numbers numerically (maximum 5-digit). Number activities in increments of 10.
- Concisely describe work represented by activity (maximum 48 characters). Avoid using non-standard abbreviations. Limit work related to each activity to one work trade.
- Activity duration shall be in whole working days with maximum duration 15 workdays each, unless otherwise approved by the CO, except for non-construction activities including mobilization, shop drawing and sample submittals, fabrication of materials, delivery of materials and equipment, and concrete curing.

DB Contractor shall ensure project schedule includes own work and Subcontractor work.

Follow all Federal, state, and local labor laws. Schedule at least 2 non-work days out of every 14 calendar days. The selected non-work days do not need to be consecutive, but they must be scheduled.

Project schedule shall show sequence and interdependence of activities required for complete performance of work and shall be cost and resource loaded. DB Contractor shall ensure work sequences are logical and project schedule shows a coordinated work plan. Proposed durations assigned to each activity shall be DB Contractor's best estimate of time required to complete activity, considering scope and resources planned. Resource loading of each activity shall list personnel by labor category and equipment type, and capacity proposed to complete activity in duration shown. Include permit requirements and constraints. Consider and include seasonal weather conditions in planning and scheduling of work influenced by high or low ambient temperatures and wind and/or precipitation, to ensure completion of work within contract time.

Project Schedule Updates

Monthly updates: Monthly updates of project schedule shall be an integral part and basic element of estimate upon which progress payments shall be made under this contract. If, in judgment of the CO, the DB Contractor fails or refuses to provide schedule of values and complete schedule update or revision as specified hereinafter, the DB Contractor shall be deemed to have not provided required information upon which progress payment may be made and shall be subject to retainage of a portion of the payment.

Narrative: Include in report:

- Brief description actual progress made during update period.
- Actual and potential delaying activities.
- Impediments to progress.
- Issues related to inclement weather.
- Progress toward established milestones.
- Project float.
- Brief description of work anticipated to be performed in next month.
- Identify minor revisions to schedule for evaluation and accepted or rejected.

As work progresses, indicate Actual Completion percentage for each activity. If schedule update shows late finish date after contract completion date, at a minimum, include the following in narrative with submission:

- Known delays.
- Actions taken to get back on schedule.

- Pending modifications.
- Impediments or constraints affecting progress.

Progress Payments: Update currently accepted construction schedule monthly. If DB Contractor fails to provide monthly updates or revisions to currently accepted construction schedule, a portion of monthly payment may be retained until updates/revisions made.

Time Impact Analysis for Contract Modifications, Changes, Delays, and DB Contractor Requests Requirements: When contract modifications or changes are initiated, delays are experienced, or DB Contractor revises project schedule, DB Contractor shall submit to the CO a written time impact analysis illustrating influence of each modification, change, delay, or DB Contractor's request on the contract time.

- **Time Extensions:** Activity delays shall not automatically mean an extension of contract time is warranted or due to DB Contractor. It is possible that modification, change, or delay will not affect existing critical activities or cause non-critical activities to become critical. A modification, change, or delay may result in only absorbing a part of available total float that may exist within an activity chain of the project schedule, thereby not effecting the contract time. Time extensions will be granted according with terms of contract.
- **Float:** Float is not for exclusive use or benefit for NPS or DB Contractor. Extension of contract time is granted only to extent the equitable time adjustments to activity or activities affected by modification, change, or delay exceeds total (positive or zero) float available on a particular activity.

2.2 Design Requirements

2.2.1 Design Documents

2.2.1.1 Design Basis

The proof of concept for the project is defined by the BDR documents, SD drawings, and RFP documents. These documents demonstrate the ultimate build concept for the following project elements:

- Access Roadway alignment
- Parking lot layout and location
- Utility Services
- Launch ramp size, location, and alignment.

2.2.2 DB Design Development (DD) Documents and DB Construction Documents (CD)

Prepare DB Design Development Documents and DB Construction Documents using English System of Weights and Measurements and according to DSC Design Standards and DSC Design Deliverables - Content and Format Requirements for DB Design Development Documents and DB Construction Documents.

List salient characteristics for products and materials specified. Refer to Guide for Specifiers.

Deliverables

- Submit documents in native and PDF (Portable Document Format) file formats.
- PDF files shall be unlocked to allow printing and saving.

- See DB Submittal Requirements, Design Deliverables.

The following deliverables are required (refer to Section 1.6 for schedule):

- Submit DB DD Documents for Review
  - Draft DB Design Development Drawings
  - Divisions 2 through 49 Outline Specifications
  - Product File
  - Statement of Structural Tests and Special Inspections
  - Design Calculations
- Submit 100% Draft DB CD for Review
  - 100% Draft DB CD
  - Divisions 2 through 49 Construction Specifications (Construction Specifications Institute (CSI) MasterFormat 04 Edition). A/E shall utilize and modify their own Divisions 2 through 49 Construction Specifications templates.
  - Product File
  - Statement of Structural Tests and Special Inspections
  - Design Calculations
  - Checklists for internal review of drawings, specifications, calculations, and cost estimates
    - Required documents for each submission are included and complete per contract requirements.
    - Required documents have been through a Quality Control (QC) review. NPS requires documentation and submittal of QC work performed.
  - NPS Review form with responses to DB DD Documents review comments
- Submit 100% Complete DB CD for Final Approval
  - 100% Complete DB Construction Drawings
  - Divisions 2 through 49 Construction Specifications
  - Product File
  - Statement of Structural Tests and Special Inspections
  - Design Calculations
  - Checklists for internal review of drawings, specifications, calculations, and cost estimates
    - Required documents for each submission are included and complete per contract requirements.
    - Required documents have been through a Quality Control (QC) review. NPS requires documentation and submittal of QC work performed.
  - NPS Review form with responses to 100% Draft DB Construction Documents review comments
- Submit Complete Stamped and Signed DB CD
  - Upon final approval of 100% Complete DB CD, submit the complete stamped and signed DB CD in accordance with Table 2.1 for construction, NPS archiving, and general use. For format and media submission requirements, refer to Design Deliverables – Content and Format Requirements DB Hard Copy and Electronic Submittal Requirements.

TABLE 2.1. Deliverables

Complete Stamped and Signed DB CD	Electronic Formats[a]	Hard Copy Formats
DB Construction Drawings	AutoCAD and PDF	N/A
Divisions 2 through 49 Construction Specifications	PDF and MS (Microsoft) Word	N/A
Product File	PDF	N/A
Statement of Structural Tests and Special Inspections	PDF and MS Word	N/A
Supplemental Design Reports	PDF	N/A
Design Calculations	PDF	N/A
Checklists for Internal Review of Drawings, Specifications, Calculations, and Cost Estimate	PDF and MS Excel	N/A
NPS Review Form with Responses to 100% Complete DB CD Review Comments	PDF and MS Excel	N/A

[a] The recipient of the electronic files is TIC (Technical Information Center).
DB Construction Drawings printed from secondary software (e.g., Adobe.pdf) are not acceptable as they often result in off-scale product.

The DB Contractor will provide electronic copies of the DD and Draft CD drawings to the PM, project specialist, and the Park for each review.

Changes to CD documents. The DB Contractor may initiate design changes at any time during the process.

(a) Design Changes Prior to CD Submission. If the proposed design change occurs after a scheduled intermediate review, notify the CO in writing. In the notification, provide the following regarding the change: a general overview, reasons and justifications, and schedule impacts. Incorporate the change into the Final Submittal after receiving written approval from the CO.

(b) Design Changes After Final Design Submission. If the proposed design change occurs after a final design submission, submit a revised final design submittal for the affected segment of the project. Conform with the technical requirements specified for that submittal type. In addition, provide the following regarding the change: a general overview, reasons and justifications, and schedule impacts.

The Government turn-around time for changes to approved CD documents is 21 calendar days, from the day the submittal is received to the day it is sent back to the DB Contractor.

2.2.3 Environmental, Regulatory Compliance, Permitting, and Sustainability Requirements for Design

NPS established environmental and sustainability requirements for the project. Notify the CO if conflicts arise between performance of work and environmental and sustainability requirements. NPS does not intend to limit alternative means of achieving these requirements.

For sustainability requirements for design, see Part 3 Performance Requirements and NPS Project Sustainability Checklist. Complete checklist by concisely explaining how each credit/requirement will be met.

National Environmental Policy Act Compliance

NPS is in process of securing authorizations for compliance with the National Environmental Policy Act (NEPA). Compliance authorizations are anticipated no later than (June 1, 2023). No ground disturbance is permitted prior to NEPA approvals.

Permits:

Table 2.2 summarizes the environmental regulatory compliance and permitting requirements for the project, along with identifying relevant legal citations, typical associated time frames, and NPS and the DB contractor's roles and responsibilities in relation to the development of the document for each.

TABLE 2.2. Permits

Item	Legal Citation(s)	NPS Role	DB Role	Time Frame
Sec. 404/10 Sec. 401 State Water Quality Certification (if necessary)	Clean Water Act (CWA) § 404, Executive Order (EO) 11990, 33 U.S.C. 1344, 33 U.S.C. 403 (R&HA 1899 §§9-10), CWA § 401	Lead	Support	Permit authorizations secured prior to initiating in-water work.
Utah Pollutant Discharge Elimination System (UPDES) General Construction (Storm Water)	CWA § 402, Utah Administrative Code R317-8-3.9	Support	Lead	Permit authorizations secured prior to initiating ground-disturbance work.

NOTE: Other regulatory compliance and permitting actions for construction and operation of the system may be required. The Contractor is responsible for obtaining any other Federal, State, or local authorizations not listed above, as required by law.

Clean Water Act

Section 404 Permit; Section 401 Water Quality Certification

The Government will be responsible for securing authorization and complying with Clean Water Act approvals and provisions.

UPDES Storm Water General Permit for Construction

A UPDES General Permit authorizing discharges of storm water associated with construction activity will be required for the project. The DB contractor will lead all actions related to requesting coverage under the state's existing UPDES permit program, and will apply as the operator on the permit.

Construction activities that disturb one or more acres of land must be authorized under the Utah Pollutant Discharge Elimination System (UPDES). Owners and general contractors are required to obtain a Storm Water Permit, UPDES Construction General Permit Number UTRC00000 effective July 8, 2020. This permit may cover all types and sizes of construction activity. Utah Administrative Code R317-8-3.9 requires UPDES construction storm water permits for soil disturbances of an acre or more, including less than an acre if it is part

of a common plan of development or sale (that is over an acre). Soil disturbance is described as clearing, grading, or excavating. A Notice of Intent (NOI) must be filed for this permit and an SWPPP must be developed and submitted to the state as well as the payment of a fee. There is no automatic coverage under the permit.

The DB contractor will be responsible for identifying and obtaining all required UPDES permits and permit requirements (including NOI, SWPPP, Notice of Termination [NOT], and any other requirements) for construction of the project.

Noise Permit or Variance

The DB contractor will be responsible for obtaining all necessary noise permits or variances.

2.3 Construction Requirements

2.3.1 Environmental and Sustainability Requirements

The National Park Service Contracting Officer will oversee the construction of the project to ensure all environmental commitments detailed in the plans and special contract requirements are met. Provide immediate corrective measures as directed by the CO when notification is given that the work is out of compliance.

Specific sustainability requirements generated in design will dictate more stringent environmental requirements for this project. Refer to Part 3 Performance Requirements, Part 4 Technical Requirements, and NPS Project Sustainability Checklist. General requirements:

- **Site Disturbance:** Minimize construction limits of project to reduce impact on site.
- **Toxic Chemicals:** Avoid materials that can leach toxic chemicals into ground water. Do not allow toxic chemicals to enter sewers or storm drains or contaminate land or any body of water. Refer to NPS Project Sustainability Checklist for additional requirements.
- **Soil Erosion:** Protect against erosion and topsoil depletion according to Stormwater Pollution Prevention Plan (SWPPP).
- **Habitats:** Protect natural habitats and ecological systems on facility site as identified in the biological assessment.
- **Noise:** Minimize noise during construction. Operate power equipment according to local noise restrictions.
- **Waste Management:** Employ processes ensuring minimal waste output and in landfills. Recycling is a requirement of this project. Legally dispose materials unsuitable for recycling at public or private dumping areas outside the Park.
- **Hazardous Materials:** Preliminary analysis indicated there are no contaminated sites. However, if the DB contractor identifies any hazardous materials, they should notify NPS and develop a plan for correct handling and disposal.

DB Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing environmental and sustainability requirements of this project. Distribute copies of environmental and sustainability requirements to Job Site Foreman and each Subcontractor.

Waste Management Plan: Prior to scheduled Preconstruction meeting, DB Contractor shall submit draft Waste Management Plan to CO for approval. Develop and implement according to ASTM E1609 and as required in contract documents. Plan shall include, but not be limited to:

- List of recycling facilities, reuse facilities, municipal solid waste landfills, and other disposal area(s) to be used. Include name, location, and phone number.
- List of proposed materials to be reused or recycled.
- List of materials that cannot be recycled or reused with explanation or justification.
- Storage and collection methods of waste and recyclables, handling procedures, and means of keeping recyclables free of contamination.
- Describe means of transporting recyclable materials and estimate frequency of emptying bins.
- Identity person or persons responsible for ensuring project recycling goals are achieved.
- Revise and resubmit Plan per Contracting Officer. Approval of DB Contractor's Plan does not relieve DB Contractor of complying with applicable environmental regulations.

Progress Documentation: Supplemental to Waste Management Plan; document solid waste disposal, diversion, and cost/revenue analysis, and submit completed worksheet when waste is removed from the Park. Use Appendix A – Project Waste Management Plan Worksheet and report totals to date for column headings. Use Appendix B for solid waste volume to weight conversions

Prior to commencement of work, schedule and conduct meeting with CO. Discuss proposed Waste Management Plan and develop mutual understanding of details of environmental protection.

Minimize Construction Impacts

Implement following mitigation measures to minimize impacts of construction activities:

Soil Erosion: Protect against erosion and topsoil depletion. An UPDES General Permit and SWPPP is required.

Exotic Vegetation and Noxious Weeds: Prevent introduction and minimize spread of exotic vegetation and noxious weeds. Incorporate following procedures:

- Obtain fill, rock, or additional topsoil needed from a Government-approved source.
- Imported commercially sourced materials must be certified weed free before entering the Park.
- Prevent propagation of nuisance weeds: Wash equipment if moving between sites within the Park and if working in a weedy area.
- All vehicles/vessels, machinery, tools, and equipment used to implement project will be cleaned (dirt, weed/seed free or cleaned, drained, and dried) and inspected prior to entering the park to ensure they do not introduce or spread non-native species (terrestrial or aquatic).

Revegetation: The National Park Service is responsible for revegetation activities on this project. Notify the CO and its representative when sites will be available for revegetation treatments. Maintain erosion management devices in accordance with the Storm Water Pollution Prevention Plan until NOT.

Air and Water Pollution Control: Air quality impacts are expected to be temporary and localized. To minimize these impacts, take following actions:

- To reduce tailpipe emissions, do not leave construction equipment idling longer than necessary for safety and mechanical reasons.
- To reduce construction dust, apply water to problem areas. Limit equipment to fenced project area to minimize soil disturbance and dust generation.
- Take necessary reasonable measures to reduce air and water pollution with material or equipment used during construction. Keep volatile wastes in covered containers.

- Storm Water Pollution Prevention Plan (SWPPP): Submit a SWPPP, according to applicable State Water Resources Control Board's (SWRCB) requirements, to CO for approval. (See Technical Requirements.) Before starting construction, DB Contractor shall implement approved SWPPP.
- Handle onsite drainage to minimize sedimentation or other pollution discharge to streams and reservoirs.
- Remove all pollutants from project related materials and equipment before placing in water.
- Collect and dispose of groundwater in accordance with applicable permit requirements.
- Implement permit and water quality certification conditions during construction to avoid or minimize effects to the water quality of Lake Powell.

Threatened and Endangered Species

Razorback Sucker
To mitigate potential impacts to razorback sucker and other aquatic species, install a barrier (e.g., turbidity curtain) in the water to isolate the construction activities to prevent fish and other aquatic species from entering the work area. Install the barrier in such a way as to flush aquatic species out of the work area and minimize trapped species within the work area.

The barrier would provide sediment retention, turbidity control, and noise reduction during high decibel work activities, including rock blasting. The bottom of the curtain would be weighted with a lead rope to keep the curtain anchored to the lake floor and would be suspended from floats at the surface to fully enclose and prevent aquatic species intrusion to the active work area. In addition, implement stormwater management best management practices throughout the APE to prevent sediment from reaching Lake Powell.

Mexican Spotted Owl Critical Habitat
NPS determined the area contained no suitable nesting habitat for Mexican spotted owl. However, if individual Mexican spotted owls are observed in the APE during construction, construction activities will halt until the bird has left the area.

Cultural Resources:

Archeological Monitoring – Government Provided
A National Park Service archeologist/monitor (NPS archeologist/monitor) must be present during ground disturbing activities. The NPS archeologist/monitor is responsible for halting work when necessary to protect and record discoveries. Provide the NPS archeologist/monitor at least 14 days' notice prior to any ground disturbing activities to ensure the NPS archeologist/monitor can be present on site. At least one alternate monitor will be identified to address any personnel shifts or unanticipated logistical challenges or emergencies.

If archeological resources are encountered during construction, stop all work in the immediate vicinity of discovery (defined as a minimum 100-foot radius, or larger as defined by the NPS archeologist/monitor) and protect it from further impact as soon as possible. Immediately report the discovery to the CO, who will notify the NPS archeologist/monitor. The NPS archeologist/monitor will inspect, record, and evaluate any newly exposed cultural material to determine if work can resume or if further investigation is necessary. The NPS archeologist/monitor will send recommendations to the CO and contractor’s field representative (e.g., crew boss/foreman) regarding the need to modify or temporarily cease construction activity in the area to allow for additional consultation and investigation. Work may not resume without approval from the CO and NPS archeologist/monitor.

Additionally, temporary fencing must be approved by and installed under the supervision of the NPS archeologist/monitor prior to ground disturbance. Provide the NPS archeologist/monitor 14 days advance notice prior to installing barrier fencing.

Work limits are confined to the Area of Potential Effect (APE) shown in the plans, with exception to the locations identified below. No access or work will be allowed in the below areas. Provide temporary fencing around the areas to delineate the limits and prevent access, with final approval by the CO and NPS archeologist/monitor. The area is a rectangle with the four corners described as follows:

- Sta 122+13, 200 ft left of the ramp alignment (N/E-13,612,209/1,729,505)
- Sta 122+13, 600 ft left of the ramp alignment (N/E-13,612,199/1,729,105)
- Sta 127+50, 200 ft left of the ramp alignment (N/E-13,612,745/1,729,492)
- Sta 127+50, 600 ft left of the ramp alignment (N/E-13,612,735/1,729,092)

Provide temporary fencing along the APE to delineate the limits and prevent access, with final approval by the CO and NPS archeologist/monitor. The line to be delineated is described as follows:

- Sta 131+00, 950 ft right of alignment (N/E-13,613,124/1,730,632) to Sta 144+00, 800 ft right of alignment (N/E-13,614,062/1,730,608)
- Sta 210+00, 200 ft right of alignment (N/E-13,620,248/1,727,614) to Sta 220+00, 200 ft right of alignment (N/E-13,621,116/1,727,792)
- Sta 213+00, 200 ft left of alignment (N/E-13,620,534/1,727,207) to Sta 217+00, 200 ft left of alignment (N/E-13,620,974/1,727,316)
- Sta 240+00, 200 ft right of alignment (N/E-13,623,020/1,728,484) to Sta 249+00, 200 ft right of alignment (N/E-13,624,002/1,728,484)
- N/E-13,627,088/1,724,212 to N/E-13,627,191/1,724,106 to N/E-13,627,326/1,724,104

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.

Paleontological Resources:

Paleontological Monitoring – Contractor Responsibility
Provide paleontologist/monitor (Contractor paleontologist/monitor) during all ground disturbing activities. The Contractor paleontologist/monitor is responsible for halting work when necessary to protect and record discoveries. Provide the CO and Contractor paleontologist/monitor at least 14 days' notice prior to any ground disturbing activities to allow for government quality assurance monitoring.

If paleontological resources are encountered during construction, stop all work in the immediate vicinity of discovery (defined as a minimum 100-foot radius, or larger as defined by the Contractor paleontologist/monitor) and protect it from further impact as soon as possible. Immediately report the discovery to the CO, who will notify paleontologist/monitor. The Park will inspect, record, and evaluate any newly exposed paleontological material to determine if work can resume or if further investigation is necessary. The Park will send recommendations to the CO and contractor's field representative (e.g., crew boss/foreman) regarding the need to modify or temporarily cease construction activity in the area to allow for additional consultation and investigation. The Contract Paleontologist will support the park with investigation, documentation, and coordination as necessary. Work may not resume without approval from the CO and the Park.

Provide a paleontologist/monitor with the following credentials:

1) A degree from an accredited institution in a field of study relevant to paleontology, or demonstration of progress toward an advanced degree from an accredited institution in a field of study relevant to paleontology, or demonstrated training and experience commensurate to the nature and scope of the proposed activities
2) Experience in collecting, analyzing, summarizing, and reporting paleontological data, and preparing collections for long-term care; and
3) Experience in equipping, staffing, organizing, conducting, and supervising fieldwork similar to the type, nature, and scope of the project proposed in the application.

2.3.2 Schedule of Values

After contract award and before Design Meeting, submit schedule of dollar value based on Contract Price Schedule. Breakdown each lump-sum item into component parts of design deliverables or construction work for which progress payments may be requested. Total costs for component parts of work shall equal contract line item amount for that lump-sum item. CO may request data to verify accuracy of dollar values. Include mobilization, general condition costs, overhead, and profit in total dollar value of unit price item and in component parts of work for each lump-sum item, as described below. Do not include mobilization, general condition costs, overhead, or profit as separate items.

Do not break down unit price items. Only use contract line item amount for unit price items.

Total cost of items shall equal contract sum. Schedule of Values will form basis for progress payments.

Before first progress payment is processed, DB Contractor and CO shall agree on an acceptable Schedule of Values. A cost loaded project schedule is an acceptable substitute for a schedule of values in some cases.

2.3.3 Construction Support

Staging Areas

Limit construction sites to smallest feasible area. Carefully control ground disturbance and site management to prevent undue damage to vegetation, soils, and archeological resources, and to minimize air, water, soil, and noise pollution.

Limit staging and stockpiling of equipment and materials to within the limits of construction and outside of drainages, washes, surface waters, and wetlands. Locate construction equipment and material storage in previously disturbed areas near construction site. Obtain CO’s approval for staging area location for construction equipment. Once construction is complete, return staging areas to pre-construction conditions. Consult with CO and develop standards and methods for determining standards.

Staging areas near publicly accessible areas must be fenced to prevent access from the public. Signs will be included at entrances indicating the construction entrance and include warning messages indicating heavy equipment and vehicles are entering and exiting.

Structures: Trailers, Storage, Field Offices, Staging Area and Sheds: CO to approve location.

DB Team Contractor's Field Office: Structurally sound construction and weather tight. Location available is at the connection of the new access road and US 276 bounded by the disturbed area of existing parking. Provide office space for the government construction management team. Utility connection for this location is the responsibility of the contractor.

Storage Sheds: If used, provide weather tight sheds or other covered facilities for materials subject to weather damage and remove temporary water, sewer, sanitary facilities, and electric utilities upon project completion. Remove temporary utility connections.

Government Field Office

Provide a Government Field office beginning 14 days before project on-site work begins and ending 21 days after final acceptance of all contract and Government option work. Locate the Government field office to be co-located with the DB Contractor's on-site design-build office as directed by the CO. Obtain approval from the CO before delivery of a mobile field office or any rental agreements are signed.

Locate the Government field office within 1 mile of the project site and where high-speed Internet service, is available. Furnish the Field Office with the following:

- Laser Copy Machine
- Laser Printer
- Exterior Lighting
- Telephone
- High Speed Internet Access – download 25,000kb/sec – upload 10,000kb/sec Equipped with a modem and a router with a firewall or a router and a firewall appliance;
- Heat and air conditioning (2), maintain temperature of 72±7 °F
- Electrical lighting, surge protectors, adequate electricity (120 and 240 V, 60 cycle as applicable)
- Potable water supply
- Functioning indoor toilet with toilet paper supply
- Locking outside door, deadbolt with keys
- Table, 30-inch wide × 8-foot long × 30-inch high 3
- File cabinet, 2-drawer, fire resistant, metal, with lock and keys 1
- File cabinet, 4-drawer, metal 1
- Desk, 12-square foot (1) 2
- Desk lamp (1) 2
- Office chair (1) 5
- Storage cabinet, 6-foot wide × 36-inch high × 18-inch deep 1
- Fire extinguisher 1
- Compact refrigerator, 2.4 cubic feet minimum 1
- Microwave oven, 1 cubic feet and 700 watts of cooking power

Construction Site Webcam

Provide high definition 12 Megapixel minimum Web Camera which shall provide a full view of the ramp construction area. The Web Camera shall allow users to remotely view the project on a secure network connection.

Construction Camp and Housing

It is the DB Contractors responsibility to secure their own housing accommodations. Potential locations are provided below:

- Aramark manages RV and camp sites properties at Bullfrog for the NPS near the construction project. Information for camping facilities is here: https://www.lakepowell.com/rv-camping/bullfrog-rv-campground/

- Ticaboo Resorts may be available. There are three housing options for construction staff, which include hotel lodge rooms, employee style housing units with kitchens, and rental housing units.

Construction Zones

Before construction activity, use construction barrier, plastic, or portable fencing, approved by CO, to define construction zone, minimum area required for construction at locations where the public has potential to access the construction zone and locations to delineate sensitive sites. Clearly state protection measures in construction specifications and instruct workers to avoid conducting activities beyond construction zone.

Protection of Public

The construction area will be closed to the public during construction activities.

Use fence, barricade, or other means to block immediate work area and prevent unauthorized entry. Erect and maintain fencing, barricades, lights, signals, and warning signs according to current version of Manual on Uniform Traffic Control Devices (MUTCD).

DB Contractor shall protect tree trunks and root systems of trees in, or adjacent to, work areas.

Special Construction Requirements

Work Schedules: Contractor shall at all times conduct operations to ensure the least inconvenience to the public.

The location of all potential utility lines shall be field located and marked prior to work to avoid disturbance conflict.

Inspect equipment for leaks of oil, fuels, or hydraulic fluids before and during use to prevent soil and water contamination. Require contractors to have and implement a plan to promptly clean up any leakage or accidental spills from equipment, such as hydraulic fluid, oil, fuel, or antifreeze.

All work is restricted to the pre-approved construction area. No impacts to areas outside of the construction area shall occur.

Safety plan and safety record of contractor will be supplied to NPS Safety Office prior to construction.

Equipment and materials staging areas will avoid known archeological resources.
Dust containment, in accordance with NPS, state, and local regulations, shall be achieved. This shall include, but is not limited to physical barrier containment and/or water sprinkling dust controls.

Permittee shall provide sufficient portable sanitary facilities for the duration of the event consistent with local health codes and other applicable regulations.

All refueling of equipment shall have spill containment pads in position prior to refueling activities.

Spill containment kits and fire extinguishers shall be available on site at all times.

Project shall comply with NPS and park lighting guidelines to reduce impacts to the night sky and wildlife. This will include, but is not limited to, low-level lighting, minimized glare, downward focused light fixtures, and energy efficient light sources such as low-pressure sodium lamps.

All helicopters used during project work must report identification number, color, and ownership information prior to airflight over park.

Coordinate implementation of project with the CO and Park to ensure that impacts to park visitors, concessioners, and permit holders are avoided or minimized to the greatest extent possible. Notify area staff in advance of project implementation to ensure implementation does not result in unexpected impacts to other park operations.

If blast area is located near Waters of the U.S., the appropriate district for the Army Corps of Engineers shall be contacted for project review. No fill or slide materials should enter any Waters of the U.S.

All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed. The District Resource Management Specialist shall make this determination.

Limit construction hours from 7:00am to 7:00pm

No work is permitted within the ordinary high-water mark until proper authorizations are obtained.

No work is permitted outside of the Area of Potential Effect

No work is permitted until the Government has secured NEPA compliance authorizations

Nighttime construction activities are prohibited

Comply with local noise restrictions

A Notice to Proceed must be issued before commencement of work

Rules and Regulations Governing Visitors to Glen Canyon National Recreation Area

All Park regulations and rules must be followed during the duration of the stay including, but not limited to the following in accordance with visitor regulations:

- **Hunting:** Visitors are not permitted to hunt or accompany hunters at any time. Violations to this rule may result in legal action or fines.
- **Camping:** Camping is allowed at designated camping areas.
- **No Littering:** Please be respectful of this Park.
- **Pets:** Pets will NOT be allowed on the worksite but may be kept at the campground as authorized by the owner.

General Waste

All construction waste must be transported offsite by the DB Contractor in accordance with the requirements in Section 2.3.1 Environmental and Sustainability Requirements (Waste Management).

Coronavirus/Covid-19

The DB Contractor must adhere to the latest Center of Disease Control and State of Utah guidelines.

In the event of discrepancies between federal and state guidance, assume the more restrictive guidance in interest of protecting public health. These rules are subject to change at any time.

Parking of Construction Vehicles

Limit to existing roads in legally designated areas and within approved staging area(s).

2.3.4 Submittals During Construction

Construction Submittals: Anticipated construction submittals are listed in specification sections in Part 4. The DB Contractor will edit and resubmit this list as necessary during the DB DD and CD phase.

Construction Submittal Types

Action Submittals: Written, graphic information, and physical samples that require Government's responsive action.

- **Product Data:** Collect information in single submittal for each element of construction and type of product or equipment.
- **Shop Drawings:** Prepare project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of Contract Documents or standard printed data
- **Samples:** Submit Samples of kind, color, pattern, and texture for reviewing characteristics with other elements and comparing between submittal and actual component as delivered and installed.
- **Construction Materials:** DB Contractor is encouraged to submit, for approval, products made of recycled or environmentally responsible material. NPS will make every effort to approve these materials.

Informational Submittals: Written information not requiring Government's responsive action. Submittals may be rejected for not complying with requirements.

- Prepare and submit Informational Submittals required by individual Specification Sections.
- Informational submittals include, but are not limited to, Coordination Drawings LEED™ Submittals Product Data, Certificates, Test reports, Manufacturer's instructions, Division 01 Management Plans, etc.

Roles and Responsibilities for Review and Approval of Construction Submittals

The DB Contractor is responsible for the preparation and approval of all action and informational submittals. The NPS will review the submittals to evaluate compliance with the project requirements and provide any findings to the DB Contractor. The NPS's procedural review of the action submittals is to assure that the DB Contractor and the EOR (Engineer of Record) have both accepted and signed the drawing, the drawing has been independently reviewed, and is in conformance with the contract. The NPS review is not intended to be a complete and detailed review.

General Submittal Procedures

Prepare and submit submittals shown in Part 4.0 Technical Requirements as a minimum and as determined by the DB Contractor during the DD/CD phase. Refer to individual technical sections for details on requirements for each.

CO reserves the right to require submittals in addition to those identified in individual sections.

Coordination: Coordinate submittal preparation and processing with construction activity performance. Review for legibility, accuracy, completeness, and compliance with Contract Documents.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities requiring sequential activity.
2. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

Processing Time: Allow enough time for submittal review and re-submittals. Start review when CO, or designee, receives email indicating submittal has been posted to the Government provided project website. After CO completes review, an email is sent to the DB Contractor indicating submittal has been processed. Contract time extensions will not be authorized if submittals are not transmitted with enough time to permit processing, including re-submittals.

1. **Action Submittals:** Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
2. **Informational Submittals:** Allow 10 days for review of each submittal.

Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. **Electronic Submittal Review Form (CM-SPE):** Use the Government provided website to transmit submittals. For actions taken on submittal items, this form must accompany:
    a. Complete general information at the top.
    b. Provide required information based on submittal type.
    c. Attach related documents.
    d. Sign Electronic Submittal Review Form in DB Contractor section towards bottom and select **Submit** when complete.
2. **Physical Samples:** Complete Electronic Submittal Review Form as described above. Deliver physical sample to CO, or designee, on site for processing. Document comments and actions on Electronic Submittal Review Form.

Contracting Officer's (CO) Review

Action Submittals: CO will review each submittal, generate comments on corrections or modifications required, and indicate appropriate action on Electronic Submittal Review Form in one of three ways:

1. **Approved:** Acceptable with no corrections required.
2. **Approved with Notations:** Minor corrections or clarifications required. Comments are clear and no further review required. DB Contractor shall address review comments when proceeding with work.
3. **Disapproved - Resubmit:** Rejected for not according with contract or requiring major corrections or clarifications. CO will identify reasons for disapproval. DB Contractor shall revise and resubmit with changes clearly identified.

Informational Submittals: CO will review submittals and accept or reject.

Submittal List

Use the **Submittal List with Review Estimate Template**, included with Division 1 Specifications, to provide overall summary of submittal requirements, not a comprehensive list. Technical requirements indicate type and specify submittal requirements. Contract terms and conditions apply regardless of indication on submittal list.

Use for Construction

Use only final submittals marked with **Received** or **Received with notations**. Ensure notations are incorporated and, at a minimum, keep one copy of final approved submittal on site during construction.

2.3.5 Construction Coordination

Notification: CO provides necessary written notification and/or direction to DB Contractor. An on-site independent Construction Management Representative (CMR) coordinates DB Contractor's construction efforts with Park Staff's daily operations and transmits/receives correspondence between DSC and DB Contractor. CMR does not have authority to accept or reject work, authorize changes to contract terms and conditions, or obligate NPS for time or money.

2.3.6 Other Contracts, Work and Events

During the contract performance period, there may be other contracts, work, or events occurring in the Park or within the project area limits that may affect the DB Contractor's operations. The DB Contractor will conduct their operations in consideration of these other activities. If the other activities affect the critical path of the construction schedule, the DB Contractor will document the issue in the daily reports and report the issue to the CO.

2.3.7 Digital Images

Provide 10 existing condition images and 25 images per week documenting construction progress. Upload digital images to Government provided website and identify sets of images with date, location, title, description, and other information pertinent to subject captured in photos. Tag photos to the existing GIS system.

Capture digital images documenting construction progress and problems. For example, capture items that will be seen later. Post digital images of each work activity weekly or as directed by CO.

2.3.8 Quality Control

General

DB Contractor is responsible for quality of work. Independent testing laboratory is responsible for testing. Inspect and test work as needed to ensure quality of materials, workmanship, construction, and finish, and to ensure functional performance is in compliance with applicable specifications and drawings.

DB Contractor accepts ultimate responsibility, liability and duty to control quality of services provided to the Government as stipulated in FAR Part 36.609-2. DB Contractor shall be responsible for professional quality, technical accuracy, and coordination of designs, drawings, specifications, and other services furnished by DB Contractor, their Employees, Agents, Assignees, and Subcontractors under the contract. DB Contractor shall,

without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services.

DB Contractor shall demonstrate existence of a Quality Control (QC) system used for work submitted to NPS. DB Contractor and Subcontractors shall use this QC system and, at a minimum, include:

- Coordination of drawings and specifications within each discipline and between disciplines.
- Verification that documents to be submitted are accurate and correct.
- Checklists for internal review of drawings, specifications, calculations, and cost estimates.
    - Required documents for each submission are included and complete per contract requirements.
    - Required documents have been through a QC review. NPS requires documentation and submittal of QC work performed.

Use Accessibility Inspection Report (Contractor Quality Control (CQC) & Final) to document compliance with Architectural Barriers Act (ABA) Accessibility Standards. As needed, inspect at various stages of construction ensuring finished product meets guidelines. Complete applicable sections of Accessibility Inspection Report and attach to CMR & CQC Daily Report (Construction Management Representative (CMR) & Contractor Quality Control (CQC)) form *(download and complete using Adobe Acrobat)*.

CQC Supervisor will complete CQC Daily Reports.

Person performing tests will complete test reports.

The CO may designate test locations.

The CO or authorized representative may conduct QA inspections, verification sampling and testing, acceptance testing, and independent assurance testing.

Quality Control Staff

CQC Supervisor is required and may perform other roles with approval from the CO. They will not be allowed to be the Superintendent.

CQC Supervisor, designated by DB Contractor, shall be on project site whenever contract work is in progress.

DB Contractor's job supervisory staff may assist CQC Supervisor supplement, as necessary, by adding certified testing technicians.

Testing Laboratory and Equipment:

- Employ certified independent laboratories to perform sampling and testing. Testing laboratory organization shall be certified for type of testing work.
- Calibrate measuring devices, laboratory equipment, and instruments at established intervals against certified standards according to National Bureau of Standards (NBS) requirements.

Submittals

Quality Control Plan: Prior to Preconstruction meeting, submit written CQC plan for approval.

If plan requires revisions or corrections, DB Contractor shall resubmit plan within 10 days.

Government reserves right to require changes to the plan during contract period as necessary to obtain quality specified.

No change in the approved plan may be made without written concurrence by CO.

The plan shall include:

- A list of personnel responsible for quality control and assigned duties. Document the name, authority, relevant experience, and qualifications of persons with overall responsibility for the inspection system. Document the names, authority and relevant experience of all personnel directly responsible for inspection and testing.
- A copy of a letter of direction to CQC Supervisor outlining assigned duties.
- Names, qualifications, and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms.
- Methods of performing, documenting, and enforcing quality control of work.
- Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.
- Witness and hold points are to be established where notification of NPS is required for the option of observing or visually examining a specific work operation or test. Witness points are points identified within the inspection plan which require notification of NPS. Work may proceed with or without participation by NPS provided proper notification has been given. Hold Points are mandatory verification points identified within the inspection plan beyond which work cannot proceed until mandatory verification is performed and a written release is granted by NPS. Witness and hold points should be identified in the construction process where critical characteristics are to be measured and maintained, and at points where it is nearly impossible to determine the adequacy of either materials or workmanship once the work proceeds past this point. The QC Plan will contain inspection plans for each construction work item included in the project whether performed by the Design Builder or a subcontractor or a Vendor.
- Provide a schedule indicating the minimum number of inspectors that will be supplied at different stages during the project duration.

Daily Reports: Submit and include inspections and tests on first workday following date covered by report. Use Daily Test Report Information Report Sheet and CMR & CQC Daily Report forms.

Test Reports: Submit Daily Test Information Sheets with CQC Daily Reports.

Submit failing test results and proposed remedial actions within four hours of noted deficiency.

Submit three copies of complete test results no later than one calendar day after test performed.

If CQC plan and CQC Daily Reports are not submitted as specified, CO may retain payments until a plan is accepted and implemented. Or CO may retain payments for work completed on days with no CQC Daily Reports.

Accessibility Inspection Report: Submit Accessibility Inspection Report (CQC & Final) no later than three calendar days after inspection.

Off-Site Inspection Reports: Submit prior to shipment.

Execution

Off-Site-Control: Items fabricated or assembled off-site shall be inspected for quality control at the place of fabrication.

On-Site Control: Notify CO at least 48 hours in advance of preparatory phase meeting.

Notify CO at least 24 hours in advance of initial and follow-up phases.

Quality Control Phases

Preparatory Phase: Perform before beginning each feature of work.

- Review control submittal requirements with personnel directly responsible for quality control work. At a minimum, CQC Supervisor and Foreman responsible for the feature of work shall attend.
- Review applicable specifications sections and drawings related to the feature of work.
- Ensure copies of referenced standards, related to sampling, testing, and execution for the feature of work, are available on site.
- Ensure provisions were made for field control testing.
- Examine work area to ensure preliminary work completed.
- Verify field dimensions and advise CO of discrepancies with contract documents.
- Ensure necessary equipment and materials are at project site and comply with approved shop drawings and submittals.
- Document preparatory phase activities and discussions on CQC Daily Report.

Initial Phase: As soon as work begins, inspect and test a representative portion of a particular feature of work for quality of workmanship.

Review control testing procedures to ensure compliance with contract requirements.

Document initial phase activities and discussions on CQC Daily Report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

Follow-Up Phase: Inspect and test as work progresses to ensure compliance with contract requirements until completion of work.

Additional Preparatory and Initial Phases: May be required on the same feature of work for the following reasons:

- Quality of on-going work is unacceptable.
- Changes occurred in applicable quality control staff, on-site production supervision, or work crew.
- Work on a particular feature of work is resumed after a substantial period of inactivity.

Documentation

Maintain CQC Daily Reports, Daily Test Report Information Sheets, and Accessibility Inspection Reports of quality control activities and tests.

CQC Daily Reports may not be substituted for other written reports required under clauses of the contract such as disputes, differing site conditions, or changes.

Enforcement

DB Contractor shall stop work on any item or feature pending satisfactory correction of any deficiency noted by quality control staff or CO.

2.3.9 Working Hour Restrictions

Limit work and deliveries to weekday hours of 7:00 AM to 7:00 PM unless otherwise approved by CO. Work will be allowed on NPS holidays, Saturday, or Sunday.

Federal observed holidays are listed at: United States Office of Personnel Management – Policy, Data, Oversight – Pay and Leave.

2.3.10 Temporary Services

Temporary materials may be new or used but must be adequate in capacity for required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

Fire Protection Equipment: Observe and enforce standards of fire prevention. No open fires allowed. Construction waste cannot be burned.

Vehicles and Equipment: Provide one fire extinguisher on each vehicle or piece of equipment. Extinguishers shall have a minimum UL (Underwriters Laboratory) rating of 2-A:10-B:C, when required by DOT and other codes. A capable and qualified person shall be placed in charge of fire protection. Responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.

Hazard Control: Take necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in existing structures. Provide adequate ventilation during use of volatile or noxious substances.

Spark Arresters: Equip gasoline or diesel powered equipment, used in potential forest or grass fire locations, with spark arresters approved by U. S. Forest Service. CO will issue written determinations of areas and periods of potential fire hazard. Locate internal combustion equipment so exhausts discharge well away from combustible materials. Locate service areas a minimum of 50 feet from buildings. Shut down equipment before refueling.

Smoking and Tobacco Use: Smoking, including tobacco use and vaping within buildings or temporary storage sheds, is prohibited.

Use trash receptacles with ashtrays for used cigarette butts.

Welding: Cutting by torch or welding shall be performed only when adequate fire protection is provided.

Electricity and Lighting: Make arrangements with the Park/Concessionaire for metered connection to existing utility and pay costs. Coordinate work with CO. Temporary electrical work shall meet requirements of current version of NFPA 70 NEC Article 590 (National Fire Protection Association (NFPA), National Electrical Code (NEC)). When temporary connections are removed, restore existing utility services to original condition.

The DB Contractor will be responsible for the cost of energy used from that connection.

Telephone and Wi-Fi: DB Contractor shall make arrangements with local telephone company and pay costs for job-site telephone service.

Cell service is available within the Park but unreliable. The DB Contractor will assume no cell service is available and arrange for alternative forms of communication, such as satellite phone or two-way radio.

Wi-Fi and internet service is not available. The DB Contractor will arrange for a Wi-Fi hotspot.

Water: NPS will allow the DB Contractor to use potable water from the Park system with installation of proper back flow device and approved water meter for billing purpose. The DB Contractor is responsible for all temporary connections. Temporary connections will meet all applicable codes, and when removed, the existing service will be restored to the original condition. DB Contractor shall pay costs.

Heating and Cooling: Furnish temporary heating and cooling for onsite field offices.

Sanitary Facilities: Provide and maintain temporary toilet facilities according to State Health Department and NPS regulations. Provide separate accessible facilities for men and women with privacy locks. Enclosures shall be weatherproof, sight proof, and of sturdy construction. Completely remove sanitary facilities on completion of work.

The DB Contractor will submit a temporary sanitary facility plan for approval by NPS. The plan will include details on type of temporary facility, installation or removal, location, and maintenance details.

The DB Contractor will NOT have access provided to vault toilets by Stanton Creek Campground.

Fuel

The DB Contractor will bring in fuel for their construction vehicles and equipment. They will provide their own temporary tank and secondary containment, meeting all applicable codes and regulations. On completion of the project, the DB Contractor will remove all temporary fuel facilities and restore the site to its original condition.

The DB Contractor may also purchase gas from gas stations within the Park as desired.

The DB Contractor will provide a fuel management plan to NPS for review. To include at a minimum, storage requirements, shipping of additional fuel (if required), spill prevention, and emergency procedures.

Weed Spraying

The DB Contractor will provide weed spraying services through the duration of the project in all disturbed and stockpile areas to prevent the establishment of invasive species. Use only NPS approved herbicide/pesticide and in accordance with the 2018 Glen Canyon IPM Plan.

2.3.11 Access

Coordinate construction efforts with CO towards minimal impact to the work of NPS personnel and to the visiting public.

During construction of scheduled facilities, DB Contractor shall have continuous access to the site. To gain access into the park for anyone associated with the construction project, submit a list of vehicles and personnel that will need access into the park to the CO, 7 days prior to need

Access to the site can be achieved as follows:

- Air Cargo: The nearest airport is Bullfrog Basin Airport and Cal Black memorial Airport, Utah.
- Passenger Flights: The nearest airports are
    - Bullfrog Airstrip – U07, UT-276, Bullfrog, UT 84533Utah.
    - Cal Black Memorial Airport – U96, UT-276, Halls Crossing, UT 84533
    - Hanksville Airport-Hve, Torrey, UT 84775
- Helicopter: There is a helipad near the Bullfrog Airstrip.
- Land Access: There is one land-based entrance into the Bullfrog Basin Area. Access the site from the north along US 276. From Page, AZ, one-way to Bullfrog, UT is 286 miles by road, 5 hours.
    - Some Park roads are closed seasonally; refer to the NPS Glen Canyon website for the most current information on road status.

2.3.12 Preservation of Adjacent Features

Confine operations to the project's work limits. Prevent damage to natural surroundings; restore damaged areas outside work limits; and repair or replace damaged trees and plants, at no additional expense to NPS.

Provide temporary barriers to protect existing trees, plants, and root zones that will remain in place. Do not remove, injure, or destroy trees or other plants without prior approval. Consult with CO and remove roots and branches interfering with construction. To prevent damage, carefully supervise excavation, grading, backfilling, and other construction operations near trees and plants.

2.3.13 Existing Utilities

Existing utilities are owned/maintained by the Park and/or Concessionaire. Utility construction will be authorized through review and approval of the DD/CD packages. Separate utility agreements will not be required.

Minimize service disruptions. Arrange disruptions at least 48 hours in advance with NPS and get approval from CO. NPS will be responsible to advise concessionaires of any outages to support the repair work. Outages are limited to 4 hours at a time, unless approved otherwise by NPS.

Construction procedures shall include preventing accidental disruptions to facilities outside project limits by investigating existing utilities and protection during construction. Accidental disruptions shall be remedied at no cost to NPS.

2.3.14 Hauling Restrictions

Comply with legal and local load restrictions.

2.3.15 Accident Prevention

The DB Contractor will have a full-time, onsite safety manager with a minimum of 5 years of experience with this type of work. The safety manager may have dual roles and perform other duties; however, their role cannot be combined with the project superintendent.

The DB Contractor will at a minimum follow all safety requirements outlined in the technical requirements section, NPS Reference Manual 50B, and documents on the DSC Safety workflow site.

Accident Prevention Program: Prior to Preconstruction Meeting, submit accident prevention program. Program must be accepted by NPS before work on site begins and shall comply with Occupational Safety and Health Administration (OSHA) and project requirements. Include:

- Name of responsible supervisor to carry out the program.
- Monthly safety meetings.
- First aid procedures.
- Outline of each phase of work, hazards associated with each phase, and methods proposed to ensure property protection and safety of the public, NPS staff, and DB Contractor employees.
- Training
- Planning for possible emergency situations.
- Housekeeping and fire protection.

Accident Reporting: Report:

- Accidents defined as death.
- Occupational disease.
- Traumatic injury to DB Contractor's personnel, NPS employees, or the public.
- Property damage of accidents in excess of $100
- Fires within seven days.

Complete DSC Contractor Accident/Property Damage Report (CM-22) and forward to CO.

Quality Assurance: Ensure employees are physically qualified to perform assigned duties safely. Do not allow employees to work if their abilities are impaired. Operators of equipment shall be able to understand signs, signals and operating instructions, and capable of operating such equipment.

Accident Prevention Products:
Provide the following:

- First aid facilities.
- Personnel protective equipment shall meet requirements of NIOSH and MSHA (National Institute for Occupational Safety and Health and Mine Safety and Health Administration).
- Emergency instructions including telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and park ranger. Place in conspicuous locations at work site.
- Adequate egress at all times according to Standard for Safeguarding Construction, Alteration, and Demolition Operations (NFPA 241).
- Hard hats for employees and for up to six visitors.
- Designate and post signs in hard hat areas.

Training: Provide training for first aid, CPR, AED, and hazardous material handling and storage.

2.3.16 Temporary Controls

Housekeeping: Keep project neat, orderly, and in safe conditions.

Lake elevations will fluctuate throughout the construction. Plan construction activities to account for variable conditions.

2.3.17 Field Engineering

DB Contractor shall set initial construction stakes establishing lines, slopes, grades, reference points, base lines and benchmarks, as required. DB Contractor shall execute work according to these stakes and perform additional staking necessary.

Preserve existing survey control used for this project. Controls destroyed by DB Contractor shall be replaced at their expense.

2.3.18 Project Close-out

Project Record Drawings: Maintain one complete full-size set of contract drawings and one full-size set of vendor-supplied drawings. Clearly mark changes, deletions and additions, using NPS standards to show actual constructed conditions. Keep record drawings current. Certification of accuracy and completeness are required for monthly payment requisitions. On completion of total project, submit complete record drawings. Do not record locations of archaeological or cultural sites.

As-Constructed Drawings: Provide by updating approved DB Construction Drawing CAD (Computer Aided Design)/BIM (Building Information Modeling) software equivalent files with information provided on the record drawings, contract modifications, and other applicable shop drawings, sketches, and data. CAD/BIM files should comply with CAD/BIM & Drafting Standards.

Provide as-constructed drawings in the following formats:

- Two USB flash drives of drawing files in both PDF and AutoCAD formats (TIC and Park)
- Four half-size paper copies (2-DSC, 2-Park)
- One full-size paper copy (Park)

Electronic and hard copy submissions will comply with 100% Complete DB Construction Documents Submittal Formats.

All deliverables must have an identified standard spatial coordinate system (not a local system) assigned to the CAD drawings and documented in the deliverables.. All spatial data represented in CAD drawings must also be converted or formatted for Geographic Information Systems (GIS) use by delivery to NPS in an ESRI Geodatabase in the UTM 12N NAD83 (2011) (meters) horizontal datum/coordinate system and, if containing elevation data, in a vertical datum of NAVD88 using the most recent approved Geoid model from the National Geodetic Survey (NGS).

All AutoCAD (.dwg) digital files. Data submitted in .dwg format shall include all information stored in the drawing. Non-geographic elements such as drawing borders, title blocks, north arrows, and detail drawings should be placed on specific layers or levels in AutoCAD (Autodesk). Viewport in paper space is at a "true scale".

GIS Files: The DB Contractor will submit GIS files of the as-constructed system.

GIS Deliverables: All maps detailing the project area must be projected using the Universal Transverse Mercator (UTM) 12N NAD83 (2011) (meters) horizontal datum/coordinate system and, if containing elevation data, in a vertical datum of NAVD88 using the most recent approved Geoid model from the National Geodetic Survey (NGS). Include basic cartographic elements: title, locator map, legend, north arrow, scale bar, projection used, and data source. The DB Contractor is expected to submit all raw data (shapefile or geodatabase and either an ArcMap (mxd) or an ArcPro (aprx) file), derived data products (.pdf), and other supporting materials created

or gathered in the course of work. All GIS products must contain Federal Geographic Data Committee (FGDC)-compliant metadata. Vector data will be supplied as an ESRI Feature Class located within a file geodatabase (.gdb) compatible with ArcGIS or ArcGIS Pro data. Data integrity must be ensured and checkable as follows:

- All layers represented in the geographic extent must be identified and clearly labeled in the legend.
- Symbology in the legend should match that in the geographic extent.
- Where applicable, include a set of reference maps (e.g., overview maps with plot locations, cities, roads).
- Include reference citations for all data layers reproduced in the map.
- Map will contain relative path name location of the document within the project folder.
- Coded and Range domains will be used where applicable to minimize data-entry error.
- Each feature class must have a topology element applied.
- The Check Geometry and Repair Geometry tool must be run on all completed feature classes.
- The XY tolerance of a feature data set will be applied to all the feature classes stored within it.
- Feature classes will have full CSDGM-compliant metadata associated with each file and contain, at a minimum, the source, scale, date, and methods (i.e., process steps).
- Once editing operations are complete, the file geodatabase should be compacted.

Metadata: A metadata record is a file of information, usually presented as an XML document, which captures the basic characteristics of a data or information resource. Geospatial metadata commonly document geographic digital data such as GIS files, geospatial databases, and earth imagery but can also be used to document geospatial resources including data catalogs, mapping applications, data models, and related websites. Metadata records include core library catalog elements such as title, abstract, and publication data; geographic elements such as geographic extent and projection information; and database elements such as attribute label definitions and attribute domain values.

Feature level metadata will be provided as needed when features are derived from various sources/methodology that cannot be fully captured in the feature class metadata. Metadata will be included as a .xml file for all data types including spatial and tabular data, models, and imagery. For any data created by the DB Contractor, Metadata will include detailed descriptions of creation methods, analysis steps, spatial and attribute description and accuracies, complete data dictionaries, as well as use constraints and any other relevant information that could affect interpretation of applicability of these data for any potential purpose.

Posted Operating Instructions: Attach operating instructions to on or post adjacent to equipment. Include procedures for wiring diagrams, control diagrams, control sequence, start-up adjustment, operation, lubrication, shutdown, and safety precautions in case of equipment failure and other items of instruction recommended by manufacturer.

Cleaning: Before scheduling final inspection, remove tools, equipment, surplus materials, and rubbish. For surfaces damaged due to work of this contract, restore or refinish to original condition. Remove grease, dirt, stains, foreign materials, and labels from finished surfaces. Thoroughly clean building interiors. Remove construction debris from site. At time of final inspection, project shall be thoroughly clean and ready for use.

Before submitting request for final inspection, submit:

- Project Record Drawings and As-Constructed Drawings: As specified above.
- Guarantees and Bonds: As specified in Performance Requirements and Specifications.
- Spare Parts and Materials: As specified in Performance Requirements and Specifications

- Operation and Maintenance (O&M) Data: As specified below and in Performance Requirements and Specifications.
- Keys and Keying Schedule: Submit keys, including duplicates. Wire keys for each lock securely together. Tag and plainly mark with lock number, equipment identification, or panel or switch number. Indicate location such as building and room name or number.
- Operating Tools: As specified in individual sections.
- Special Tools: One set of special tools required to operate, adjust, dismantle, or repair equipment. Special tools are those not normally found in possession of mechanics or maintenance personnel.
- System Demonstration and Training: As specified below and in Performance Requirements and Specifications.
- Mechanical and Electrical Systems: Verify following in writing:
    - Systems complete.
    - Systems properly started and operational.
    - Controls complete and operational. Sequences checked and function properly.
    - Testing and Balancing Report: As required in technical specifications.
- Completed NPS Project Sustainability Checklist
- Final NPS Project Requirements
- Final Systems Manual
- Final Verified Test Reports
- Final Training Reports

Operation and Maintenance (O&M) Data: Prior to final inspection, provide one three-ringed binder with O&M data to CO for review. Data shall include manufacturer's standard literature, equipment data sheets, vendor-furnished as-built drawings, custom written data not included in manufacturer’s standard literature, schedules, warranties, parts lists, test results, and Subcontractor list.

After NPS completes review, incorporate comments. Submit three final sets of O&M data to CO.

System Demonstration and Training: Train designated personnel in adjusting, operating (include seasonal and emergency operations, if applicable), maintaining, and safety requirements of equipment and systems. Instructors shall be thoroughly trained in operating theory and practical O&M work for each type of equipment or system. Sequence of training shall follow approved outline of training guide, e.g. O&M Data. Specify training required in individual sections. If no duration listed, provide training of sufficient duration to adequately cover subjects.

Training plan as required by commissioning: For each training session, training plan shall include:

- Dates, start and finish times, and locations.
- Outline of information to be presented.
- Names and qualifications of presenters.
- List of texts and other materials required to support training.

2.3.19 Substantial Completion and Final Inspection

Submit written certification to CO indicating project, or designated portion of project, is substantially complete, and request final inspection. Upon receiving certification, CO will proceed with inspection within 10 days or advise DB Contractor of items preventing project from being designated as substantially complete.

When work is determined substantially complete, CO will prepare a list of deficiencies (Punch List) for corrections before final acceptance and issue a Letter of Substantial Completion. If work is not determined substantially complete, CO will notify DB Contractor in writing. After completing work, DB Contractor shall resubmit certification and request new final inspection.

Following final inspection, if work is determined substantially complete, CO will prepare list of deficiencies for corrections before final acceptance and issue a Letter of Substantial Completion. DB Contractor shall complete work described on list of deficiencies within 30 calendar days, as weather permits. If DB Contractor fails to complete the work within this time frame, CO may either replace or correct the work with an appropriate reduction in contract price or charge for re-inspection costs according to the contract's Inspection of Construction clause.

Acceptance of the work: After deficiencies corrected, CO will issue a Letter of Final Acceptance.

2.4 Forms

- Appendix A - Project Waste Management Plan Worksheet
- Appendix B - Standards Solid Waste Conversions
- Submittal List - See Submittal List and Review Estimate template

2.5 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 (R), Salvage (S), or Reuse (Re)** (Specify R, S, or Re)	**G - H + I = Total Cost (-) or Savings (+) from Diversion**
Asphalt/Concrete										
Scrap Metal Aluminum										
Copper										
Steel										
Unpainted Wood & Pallets										
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 60% diversion goal.

*See Appendix B for Standard Solid Waste Volume to Weight Conversions

Template Date 4-10-20

2.6 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 volume and weight of a number of solid waste and recyclable materials.

1. To convert cubic yards to tons:

A: For un-compacted trash, convert units of cubic yards into tons using 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*

**For compacted trash, use 0.4 in the formula instead of 0.125.*

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 trash can both filled and empty. (Use a full 32 gallon trash can filled with trash roughly level to top.)
2. Subtract empty weight from filled weight to get 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" $\frac{\textit{pounds}}{32\ \textit{gallon can}}$ / 0.15 $\frac{\textit{cubic yards}}{32\ \textit{gallon can}}$ = _____ $\frac{\textit{pounds}}{\textit{cubic yard}}$

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 appropriate ratio times un-compacted trash weight in Formula A to obtain 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 does not know the compacting ratio, typical values for compacted trash are 500 to 1000 pounds per cubic yard, average 700 pounds per cubic yard. **Use 700 pounds per cubic yard if you don't have more accurate records.**

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, 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. Environmental Protection Agency's (EPA) 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-gallon drum	412
GLASS	Bottles[B]		
	Whole Bottles	1 yard^3	500-700
	Semi-crushed Crushed (mechanically)	1 yard^3	1,000-1,800
	Uncrushed to manually broken	1 yard^3	1,800-2,700
	Refillable Whole Bottles[C]	55-gallon drum	300
	Refillable beer bottles	1 case = 24 bottles	10-14
	Refillable soft drink bottles	1 case = 24 bottles	12-22
	8 ounce glass container	1 case = 24 bottles	12
LEAD-ACID BATTERIES	Car[D]	1 battery	39.4 pounds
	Truck[E]	1 battery	53.3 pounds lead and plastic
	Motorcycle[E]	1 battery	9.5 pounds lead and plastic
METALS	Aluminum Cans[F]		
	Whole	1 yardd^3	50-75
	Compacted (manually)	1 yard^3	250-430
	Uncompacted	1 full grocery bag	1.5
		1 case = 24 cans	0.9
	Ferrous (tin coated steel cans)[G]		
	Whole	1 yard^3	150
	Flattened	1 yard^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

Category	Recyclable Materials (u/c = uncompacted / compacted & baled)	Volume	Estimated Waste (in pounds)
PAPER	Newspaper[F]		
	Uncompacted	1 yard^3	360-505
	Compacted/baled	1 yard^3	720-1,000
	12 inch stack	-	35
	Old Corrugated Containers[F]		
	Uncompacted	1 yard^3	50-150 (300)[i]
	Compacted	1 yard^3	300-500
	Baled	1 yard^3	700-1,100
	Computer Paper[F]		
	Uncompacted	1 yard^3	655
	Compacted/baled	1 yard^3	1,310
	1 case	2,800 sheets	42
	White Ledger[F]		
	Stacked (u/c)	1 yard^3	375-465/755-925
	Crumpled (u/c)	1 yard^3	110-205/325
	Ream of 20 pound bond; 8.5 by 11 inches	ream = 500 sheets	5
	Ream of 20 pound bond; 8.5 by 14 inches	1 ream = 500 sheets	6.4
	White ledger pads	1 case = 72 pads	38
	Tab Cards[F]		
	Uncompacted	1 yard^3	605
	Compacted/baled	1 yard^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 yard^3	250
	Mixed Ledger/Office Paper[F]		
	Flat (u/c)	1 yard^3	380/755
	Crumpled (u/c)	1 yard^3	110-205/610
PLASTIC[J]	PET (Soda Bottles)		
	Whole bottles (u/c)	1 yard^3	30-40
	Whole bottles (compacted)	1 yard^3	515
	Whole bottles (u/c)	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 (u/c)	1 yard^3	24
	Whole (compacted)	1 yard^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 yard^3	50
	Compacted/baled	1 yard^3	400-700
	Mixed PET and HDPE (Dairy)		
	Whole	1 yard^3	32
	Film		
	Baled	semiload	50
	Baled	30” x 42” x 48”	400-700
TEXTILES[H]	Mixed Textiles	1 yard^3	175

Category	Recyclable Materials (u/c = uncompacted / compacted & baled)	Volume	Estimated Waste (in pounds)
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 yard^3	725
	Pallets[F]	-	30-100 (40 average)
YARD TRIMMINGS[F]	Grass Clippings		
	Uncompacted	1 yard^3	350-450
	Compacted	1 yd^3	550-1,500
	Leaves		
	Uncompacted	1 yard^3	200-250
	Compacted	1 yard^3	300-450
	Vacuumed	1 yard^3	350
FURNISHINGS[E]	Foam rubber mattress	1 mattress	55
MUNICIPAL SOLID WASTE[M]	Residential waste (uncompacted at curb)	1 yard^3	150-300
	Commercial-industrial waste (uncompacted)	1 yard^3	300-600
	MSW (compacted in truck)	1 yard^3	500-1,000
	MSW (landfill density)	1 yard^3	750-1,250

A. Information obtained from Washington State.
B. Draft National Recycling Coalition Measurement Standards and Reporting Guidelines presented to NRC (National Recycling Coalition) 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 (United States Environmental Protection Agency). 1995. Methodology for Characterization of Municipal Solid Waste in the United States: 1994 Update. EPA530-R-96-001. Washington, DC.
F. U.S. EPA (United States Environmental Protection Agency). 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, Manager of Landfill Operations Training and Certification Course. January 1989.
N. Information obtained from New Jersey and New York States.

3.0 PERFORMANCE REQUIREMENTS

3.1 Design Imperatives

Use in all stages of design and construction processes:

- Appropriate Design Solutions for Park Use and Maintenance Capabilities
  - *see definition on DSC Workflows Definitions A page*
- Compliance Consistency Reviews
  - *see definition on DSC Workflows Definitions C page*
- Constructability Strategies
  - *see definition on DSC Workflows Definitions C page*
- Integration of Facilities into the Park Environment (Management Policies 2006)
- Quality Control
  - *see definition on DSC Workflows Definitions Q page*
- Risk Analysis
  - *see definition on DSC Workflows Definitions R page*
- Scope and Budget Consistency Reviews
  - *see definition on DSC Workflows Definitions S page*
- Sustainable Design Practices
  - *see definition on DSC Workflows Definitions S page*
- Universal Design Principles
  - *see definition on DSC Workflows Definitions U page*
- Value-Based Decision-Making Methodology
  - *see definition on DSC Workflows Definitions V page*
- National Park Service Core Spatial Data Standard- DataStore – Data Standard – (Code: 2237271) (nps.gov)

3.2 Sustainability

Sustainability requirements for NPS projects are included in a variety of documents - Federally legislated requirements, Executive Orders (EOs), and Department of Interior (DOI) and NPS policies. NPS Project Sustainability Checklist template is used to identify project specific sustainability requirements and document continued compliance with those requirements. See DSC Sustainability Standards for laws, regulations, policies, guidance, and background data.

Project shall meet Federal sustainability requirements as presented in NPS Project Sustainability Checklist.

3.3 Integrated Design Principles

Employ integrated design principles using a collaborative, integrated design process that:

- Initiates and maintains an integrated project team in every stage of the project.
- Establishes performance goals for siting, energy, water, materials, and environmental quality along with other comprehensive design goals.

- Ensures incorporation of these goals throughout design of the project.

3.4 Facility Performance

Work performed shall comply with applicable laws, regulations, and NPS policies and guidelines.

3.5 Elements and Products

In addition to requirements specified in other chapters, provide products and elements that comply with:

- No Substitutions:
  - Use only product specified (or one of the products).
- Elements Made Up of More Than One Product:
  - Where an element is specified by performance criteria, project shall use construction either proven-in-use or proven-by-mock-up, unless otherwise indicated.
    - Proven-In-Use: Proven to comply by having actually been built to same or very similar design with same materials as specified and functioning as specified.
    - Proven-by-Mock-Up: Compliance reasonably predictable by having been tested in full-scale mock-up using same materials and design as specified and functioning as specified. Testing need not have been accomplished specifically for this project; when published listings of independent agencies include details of testing and results, citation of test by listing number is sufficient (submittal of test details is not required).
    - DB Contractor may choose to use elements proven-in-use or proven-by-mock-up, unless either option is indicated as specifically required.
    - Where test methods accompany performance requirements, test methods shall be used to test mock-up.
  - Where a type of product is specified, without performance criteria specifically applicable to the element, project shall use the type of product specified.
  - Where more than one type of product is specified, without performance criteria specifically applicable to the element, DB Contractor shall use one of the types of products specified.
  - Where a type of product is specified, with applicable performance criteria, DB Contractor shall use either the type of product specified or another type of product that meets performance criteria as proven-in-use or proven-by-mock-up.
  - Where more than one type of product is specified, with applicable performance criteria, DB Contractor shall use either one of the types of products specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.
  - Where neither type of product nor performance criteria are specified, DB Contractor shall use products that will perform well within specified life span of the building.
- Products:

- Where a product is specified only by a manufacturer name and model number/brand name, DB Contractor shall use only that model/brand product.
- Where the properties of a product are specified by description and/or with performance criteria, DB Contractor shall use products that comply with description and/or performance criteria.
- Where manufacturers are listed for a particular product, DB Contractor shall use a product made by one of those manufacturers that also complies with other requirements.
- Where actual brand name products are not identified by either CO or DB Contractor, DB Contractor shall identify products to be used.
- Proposal:
    - DB Contractor shall identify:
        - One or more product types for each system, assembly, or element.
        - Brief descriptive or performance specifications for each product type.
    - NPS will identify at least one manufacturer that will be used for major manufactured products commonly purchased by brand name and other products so indicated.
- During DB Design Development or DB Construction Documents Submissions, DB Contractor shall:
    - Identify which product type will be used when more than one product type is identified for a particular system, assembly, or element.
    - Identify descriptive or performance specifications for each product type. Provide brief specifications for early submittals and complete specifications before completing construction documents.
    - Identify at least one manufacturer that will be used for each product type.
    - Provide manufacturer's product literature on at least one actual brand name product meeting specifications for major manufactured products commonly purchased by brand name, and other products so indicated, and include performance data and sample warranty.
- During Construction, DB Contractor shall:
    - Identify actual brand name products used for every product, except commodity products specified by performance or description.
    - Provide test reports showing compliance where a product is specified by performance requirements with test methods and if so specified.
    - Provide manufacturer's product literature for each brand name product.
    - Provide manufacturer's certification that product used on project complies with contract documents.
- Before End of Closeout, DB Contractor shall:
    - Provide copies of manufacturer warranties that extend for more than one year after completion.

4.0 TECHNICAL REQUIREMENTS

4.1 Overall Performance Criteria

The DB Contractor will use the Technical Requirements and the SD Documents as the basis for development of the design documents and proposal. The following items must be met or maintained as the design moves forward into development of CDs.

4.2 Description

4.2.1 Philosophy and Intent.

This project will include the design and construction of an access road, parking lot, launch ramp, and water, wastewater, power and telecommunications utility lines. The project is located east of the Bullfrog Marina and can be accessed of US 276. The access road is classified as Park Road Class II - Connector Park Road. The specific purpose of the project is to relocate the existing Bullfrog Launch ramp, build a new access road, build a new parking lot, and extend water, wastewater, power, and telecommunication utilities to the new launch ramp.

Schematic Design has been performed for the site. The initial engineering documents and concepts will be provided as reference documents by the government; however, these reference documents are not considered design-build bridging documents and may be used at the discretion of the DB Contractor.

4.3 Fixed Design Requirements

The DB Contractor will use the Technical Requirements and the SD Documents as the basis for development of the design documents and proposal. The following items have been identified by NPS as design criteria that must be maintained in the design as it moves forward into development of CDs. Any items not identified as Fixed Performance Criteria are flexible items for the DB Contractor to resolve per NPS and federal requirements.

4.3.1 Design Standards.

Use the following design standards. Submit deviations from these standards to CO for review and acceptance. CO will respond within 10 working days of receiving the deviation submittal. The CO must approve any deviations from the standards before incorporation into the design.

(a) National Park Service-Park Road Standards, 1984.

(b) AASHTO--A policy on Geometric Design of Highways and Streets, 2018. (AASHTO Green Book 2018)

(c) AASHTO--Roadside Design Guide, 2011.

(d) AASHTO – Construction Stormwater Field Guide, April 2016.

(e) ABAAS – Architectural Barriers Act Accessibility Standard.

(f) Manual on Uniform Traffic Control Devices (MUTCD), 2009.

(g) State of Utah Department of Transportation, Pavement Design Manual of Instructions, August 2020.

(h) State of Utah Department of Transportation, Drainage Manual of Instructions, June 2018.

(i) Soils and Foundations, Volume I: FHWA-NHI-06-088 and Volume II: FHWA-NHI-06-089, December 2006.

(j) Shallow Foundations, FHWA-SA-02-054, FHWA GEC 6, September 2002.

(k) Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volume I:FHWA-NHI-10-024 and Volume II: FHWA-NHI-10-025, FHWA GEC 11, November 2009.

(l) Rockery Design and Construction Guidelines, FHWA-CFL/TD-06-006, November 2006.

(m) Geosynthetic Design and Construction Guidelines Reference Manual, FHWA NHI-07-092, August 2008.

(n) Geotechnical Site Characterization, FHWA-NHI-16-072, GEC 005, 2017

(o) Evaluation of Soil and Rock Properties, FHWA-IF-02-034, April 2002.

(p) Geotechnical Aspects of Pavements, FHWA-NHI-05-037, May 2006.

(q) Subsurface Investigations-Geotechnical Site Characterization, FHWA NHI-01-031, May 2002.

(r) Ground Modification Methods Reference Manual - Volume I FHWA-NHI-16-028, 2017

(s) Subsurface Investigations, FHWA HI-97-021, November 1997.

(t) LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations, FHWA-NHI-11-032, GEC No. 3, March 2011.

(u) Rock Blasting and Overbreak Control, FHWA-HI-92-001, 2003.

(v) 2018 International Building Code

(w) Building Code Requirements for Structural Concrete

(x) American Institute of Steel Construction Steel Manual AISC-14

(y) California Boat Launching Facilities - Design Handbook

(z) UFC 4-152-07 Design: Small Craft Berthing Facilities

(aa) General Permit for Discharges from Construction Activities (UPDES Permit Number UTRC00000)

(bb) Kane County Standard Specifications and Drawing Details for Design and Construction (2014)

(cc) Utah Division of Drinking Water, Series 500 Rules, Drinking Water Facility Construction Design and Operation (2014)

(dd) American Public Works Association (APWA)

(ee) American Water Works Association (AWWA)

(ff) International Fire Code (2021)

(gg) Uniform Plumbing Code

(hh) National Electrical Safety Code 2023

(ii) National Electrical Code 2020

(jj) TIA/EIA Standards

(kk) Institute of Electrical and Electronics Engineers (IEEE)

(ll) National Fire Protection Association

4.3.2 General Roadway and Design Speed.

Design the roadway in accordance with AASHTO requirements, Park Road Standards, the MUTCD, and Chapter 9 of the Federal Lands Highway Project Development and Design Manual. Design the highway and construction limits to fit within the designated Area of Potential Effect (APE). Comply with the Park Road Standards design criteria for Connector Park Road and AASHTO design criteria for a Rural Collector within the National Highway System (NHS) and using the following design criteria:

(a) Terrain = Rolling to Mountainous

(b) Current and Future Average Daily Traffic (ADT) = assume 1,000-4,000 veh/day

(c) Design Speed = 40 mph for the access road.

(d) Design Vehicle:

a. Access Road, Ramp Access, and Turnaround = Semi with 125 ft trailer unless otherwise described below.

b. Parking lot operations and stalls = MHB

Provide documentation of the proposed design standards and design exceptions to the 10 federal controlling criteria in the Federal Lands Highway, Highway Design Standards form. Document

and submit all other roadway design exceptions to both Park Road Standards and AASHTO requirements.

4.3.3 Typical Section.

Comply with the following typical section requirements:

(a) Access Road. Design and construct a new access road that is 30-ft wide to provide for two 12-ft travel lanes and 3-ft wide shoulders on both sides. Provide for curve widening.

(b) Launch ramp. Design and construct a new 150-foot wide (maximum) boat ramp (Ramp width to be determined at contract award in accordance with the bid schedule).

(c) Parking Lot. Design and construct a new parking area (size to be determined at contract award in accordance with the bid schedule).

4.3.4 Geometric Requirements.

Design the construction limits to fit within the designated area of potential effect (APE). Comply with the following geometric requirements:

(a) Access Road. Ensure roadway subgrade is above elevation 3710 in elevation. Maintain access to wastewater ponds throughout and post construction.

(b) Launch ramp. The ramp must provide lake access between elevations 3445 and elevation 3700. Longitudinal grade cannot exceed 10.5%.

(c) Parking Lot.

a. Ensure the final elevation of the parking lot is at or above 3710 in elevation.

b. Maintain ingress and egress split flow as demonstrated in conceptual parking lot design detail. Lay out operational configuration of parking lot for review and approval by the CO. Replicate the existing GLCA State Line Auxiliary Ramp Parking Area for preferred operational characteristics including but not limited accommodations for boat turnaround, queuing for concurrent launching, staging in/out, inspection in/out, ABAAS compliance, maximize truck/boat combination parking - minimum truck/boat combination parking space per acre = 24.

c. Design boat launch turnaround at the top of ramp to accommodate a semi with a 125-ft trailer. If Option D is included, as described in Section 1.5, design a paved portion of the turnaround for a semi with a 90-ft trailer with the remaining area of the turnaround accommodating the 125-ft trailer to remaining gravel.

4.3.5 Structure Requirements.

Design structures to meet the requirements of Subsection **4.3.2. Design Standards.** Main structural components can be either cast-in-place concrete or pre-cast concrete. All finished

products shall be of new material and new construction. The following project requirements apply to the structures:

(a) Ramp must provide a maximum width of 150-ft.

(b) All structures must provide, at a minimum, hydraulic openings that meet the project hydrologic drainage requirements.

(c) Low water crossings are prohibited.

(d) Provide a concrete launch ramp surface. Asphalt overlays are prohibited.

a. Utilize cast in-place concrete to the maximum extent possible for all dry construction.

b. Ramp surface texture/finish to slip resistant matching other concrete ramp texture/finishes within the Park. Obtain Park approval on texture/finish prior to placement/fabrication.

(e) If box culverts are used for drainage structures, provide concrete cutoff walls, headwalls and wingwalls.

(f) Timber structures and components are prohibited.

(g) Minor structural steel items shall be hot-dipped galvanized.

(h) Provide concrete wingwalls or retaining walls extending off the end of the box culvert to contain roadway fill. Provide wingwall lengths that accommodate the recommended fill slope plus two feet.

(i) Design Requirements:

a. Codes and References

i. See subsection 4.3.2. Design Standards.

b. Environmental Conditions

i. High Water Level = 3700 ft

ii. Low Water Level = 3450 ft

iii. Basic Wind Speed = 108 mph, Wind is applied to the side of the houseboat which creates an overturning moment.

iv. Risk Category = III

c. Launch ramp Design

i. Ramp Width = 150 ft maximum, to accommodate 5- 30ft wide lanes.

ii. Ramp Slope = 10.5%

iii. Bottom of Ramp Elevation = 3445 ft, 5ft below design low water elevation. End of ramp detailing shall prevent vehicles from advancing past the bottom of ramp.

iv. Gangways = Ramp must accommodate CSA 46 Boarding Floats and Gangways. Loading floats 114ft long Gangway 40ft long (by others).

v. Gangways/Floats = ramp must accommodate UDOT Ferry Gangway/Floats. Wedges are 22 ft wide (by others).

d. Design Vessels

i. UDOT Ferry = 155ft long, 50ft wide, 8 ft draft

ii. Large Houseboats = 125 ft long, 22 ft wide, 5 ft draft. Registered 250 Tons of displacement and 100 Tons of actual displacement as determined through engineering judgement.

iii. Small Recreational Craft

4.3.6 Geotechnical Requirements.

Ensure all geotechnical work is in accordance with the Design Standards specified in the AASHTO and FHWA publications listed in Section 4.3.2 of this document. A geotechnical investigation has been performed and findings will be provided. DB Contractor is responsible for any additional geotechnical exploration to verify design, or a variation of the design as shown on the drawings. Develop permanent erosion control management elements based on the DB Contractors field investigation and specified standards. Design must consider surficial erosion and global slope stability. Conserve topsoil to the maximum extent possible to be placed on all exposed slopes.

4.3.7 Pavement Requirements.

Perform pavement design, following guidance and criteria from the UDOT Pavement Design Manual. Alternative pavement structural sections and materials must meet the UDOT Pavement Design Manual requirements and be approved by the CO. Provide a pavement structure section with a 20-year life expectancy accommodating a loading based on traffic numbers provided in the BDR and the design vehicle referenced in Section 4.3.2 (d). Take into consideration that the 2019 data for September was faulty due to a failed counter, and traffic numbers were impacted from 2020 and beyond due to COVID.

(a) Access Road. For the mainline roadway and shoulders, construct the same pavement structural section. Pavement structural section to be determined from UDOT Pavement Design Manual.

(b) Launch Ramp Construct a pavement structural section of concrete slab or precast plank to facilitate the design vehicle referenced in Section 4.3.5 (i). Design a transition detail to bridge between the ramp and asphalt access approach that accommodates pavement stresses due to the location climate.

(c) Parking Lot. For the parking lot and truck turnaround, construct a pavement structural section that will facilitate all turning movement forces required for the design vehicle in Section 4.3.2 (d) and 4.3.5 (i), including houseboat drop off and pick up.

(d) Aggregate Surfacing Requirements. Provide a uniformly graded surface course that is dust-free, and resists erosion from wind or water using crushed aggregate material normally used locally in the construction and maintenance of highways by Federal or State agencies.

4.3.8 Survey and Mapping Requirements for Design.

The Government has provided arial survey and survey control points for the vertical and horizontal control of the project for information only. It is the DB Contractor's responsibility to confirm the adequacy of the provided survey information for use on the project. Supplement survey and control, as necessary, to comply with the requirements of this contract.

Perform all survey activities using appropriate equipment and materials to satisfy the requirements of this contract. Stamp all survey related project deliverables by a Professional Land Surveyor registered in the State of Utah.

4.3.9 Right of Way.

Right of way plans will not be needed.

4.3.10 Drainage Requirements.

Perform hydrologic and hydraulic analyses in accordance with the Utah DOT *Drainage Manual of Instructions*. Where permit submittals require design standards and criteria that differ from the UDOT Drainage Manual, use the permit requirements as a design check. Where there are no UDOT standards. Provide justification on deviations from the hydraulic design standards or criteria in the Hydraulics Report and approval by the CO.

Comply with provisions of all permits obtained. All disturbed stream areas shall be restored in accordance with the required US Army Corps of Engineers' (USACE) permits.

The following highlights particular design standards, criteria, and procedures to be used for the project crossings:

(a) Hydraulic Analysis

a. Use only the latest editions of any FHWA Hydraulic Engineering Circular (HEC) and Hydraulic Design Series (HDS) manuals as referenced below.

b. Perform hydraulic analysis for channels with major bridges and culverts using US Army Corps of Engineers HEC-RAS v 6.3.1 software or latest version of SRH-2 Dimensional software.

c. Perform hydraulic analysis for roadside ditches and minor culverts using FHWA's Hydraulic Toolbox and HY-8.

(b) Flood Frequency – Roadway

a. Design = 50-year, UDOT

b. Review/Check = 100-year, UDOT

(c) Proposed Culverts

a. Design gage of pipe thickness to achieve the required minimum service life instead of using bituminous coated pipe. Do not use plastic pipes. Minor culverts must comply with UDOT Drainage Manual.

(d) Roadside Ditches

a. Design roadside ditches in accordance with FHWA's HEC 15.

(e) New Material

a. New material is required for all permanent drainage structures and culverts.

(f) Culvert outlets

a. Design culvert outlets with energy dissipaters as required to restore velocities to its natural downstream flow conditions.

b. Comply with the analysis methods found in FHWA's HDS 6, HEC 14, HEC 15, HEC 18, HEC 20, and HEC 23 for drainage.

4.3.11 Signing and Pavement Markings Requirements.

Use Thermoplastic paint at each site for new or replaced pavement markings. Replace all regulatory and warning signs within the project construction limits. Ensure all sign posts within the construction limits have crashworthy supports.

4.3.12 Maintenance of Traffic Requirements.

Accommodate traffic according to the MUTCD. Develop traffic control plan to be submitted for approval by the CO. Submit traffic control plans at least 30 days before intended use.

Perform work in a manner that ensures the safety and convenience of the public and protects the residents and property adjacent to the project. Accommodate public traffic on roads adjacent to and within the project until the project is accepted.

4.3.13 Water System Pipeline Requirements.

Design and construct the permanent Water Supply line underground. Conform to the current requirements of Subsection **4.3.1. Design Standards.** The Kane County Standard Specifications and Drawing Details for Design and Construction (2014). Install pressure reducers as required due to elevation of gravity flow. The following project requirements apply to the water system:

(a) Existing Water Usage

a. Monthly Peak Usage = 2,500,200 gal

b. Average Usage = 57.85 gpm

c. Physical Indicators - Supply Piping Size & Quantity = 90-150 gpm

(b) Proposed Water Usage

a. Minimum Fluid Velocity = 3-6 ft/s

b. Flow Rate = 90-150 gpm, This peaking factor takes peak hour demand into consideration.

c. Pipeline Size – 4 inches in diameter, Based on Design Flow Rate, Design Fluid Velocity is 2.5 to 4 feet per second.

d. Flow Pressure = 20 psi

e. Fire Flow = Not applicable.

4.3.14 Wastewater System Pipeline Requirements.

Design and construct the permanent Wastewater Supply line underground. Conform to the current requirements of Subsection **4.3.1. Design Standards.** The Kane County Standard Specifications and Drawing Details for Design and Construction (2014). The following project requirements apply to the water system:

(a) Existing Wastewater Flow

a. Physical Indicators - Supply Piping Size & Quantity = 90-150 gpm

(b) Proposed Wastewater Usage

a. Flow Rate = 90-150 gpm, This peaking factor takes peak hour demand into consideration.

b. Pipeline Size – 4 inches in diameter, pressure force main.

c. Lift Stations = 2, based on flow rate, sewer length, losses and elevation gain. Duplex systems (each with one operating pump; one standby)

d. Pump Flow Rate = 150 gpm, Maximum anticipated flow; serves about 2,000 people at an average daily flow rate of 100 gallons per day per capita (Kane County Design Specs.)

4.3.15 Power and Communications System Requirements.

Design and construct the permanent Power and Communication line underground. Conform to the current requirements of Subsection **4.3.1. Design Standards.** The following project requirements apply to the system:

(a) Existing Electrical System Information

a. Medium Voltage (MV) System Voltage = System voltage of existing system needs to be confirmed.

b. Insulation Rating = 15-kV, insulation rating to be confirmed with system voltage

(b) Proposed Electrical System Criteria

a. MV System Voltage = 'System voltage to be confirmed.

b. Insulation Rating = 15-kV

c. MV circuit ampacity = Ampacity rating to be confirmed with system voltage.

d. Pump stations, parking lot, and marina system voltages = 480V and 208/120V as required.

(c) Proposed Communication System Criteria

a. Communications system cabling = 36-strand single mode outside plant fiber optic cable

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G Site (ESRs)
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