



Geotechnical  
Environmental and  
Water Resources  
Engineering

Technical Specifications

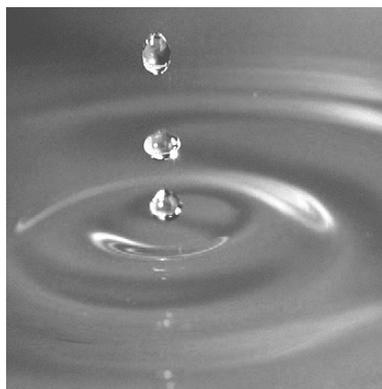
## **BMI Beta/Northwest Ditch Excavation Project**

Titanium Metals Corporation, Henderson Nevada  
Facility

Prepared for:  
**Titanium Metals Corporation**  
181 North Water Street  
Henderson, Nevada 89015

Submitted by:  
**GEI Consultants, Inc.**  
400 Unicorn Park Drive  
Woburn, Massachusetts 01801

Date: May 17, 2013



**SECTION 00002**

**PROJECT DIRECTORY**

PROJECT: BMI Beta/Northwest Ditch Excavation Project

PROJECT LOCATION: Titanium Metals Corporation  
181 North Water Street – Gate 3  
Henderson, Nevada 89015

OWNER: Titanium Metals Corporation  
PO Box 2128  
Henderson, Nevada 89009  
Phone: (702) 564-2544  
Attn: Mr. David Hadzinsky

ENGINEER: GEI Consultants, Inc.  
400 Unicorn Park Drive  
Woburn, Massachusetts 01801  
Phone: (813) 404-6688  
Attn: Mr. George Onorato, P.E.

END OF SECTION

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SECTION 00400

REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES

BMI Beta/Northwest Ditch Excavation



# TITANIUM METALS CORPORATION HENDERSON, NEVADA

## REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES 4T

Rev Number: 4T Date: 5/17/2013

### BMI Beta/Northwest Ditch Excavation PROJECT NUMBER: 8T

RFQ ISSUE DATE:	5/17/2013
PRE-BID MEETING DATE:	5/8/2013, 10:00 am (Required)
BIDS DUE DATE:	5/24/2013, 12:00 pm
POST-BID INTERVIEWS	6/4/13 and 6/5/13
AWARD CONTRACT DATE:	6/7/2013
PROJECT START DATE:	6/17/2013
TARGET COMPLETION:	8/26/2013

#### OWNER CONTACTS

##### Project Manager

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##### Engineer

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## 1 Definitions

- 1.1 **Owner:** Titanium Metals Corporation (TIMET) owns the property where the project will be constructed. The owner's physical address is 181 North Water Street - Gate 3, Henderson, Nevada 89015 and the mailing address is P.O. Box 2128 Henderson, Nevada 89009. Telephone: (702) 564-2544.
- 1.2 **Representative:** The Owner employee or engineer assigned to this particular project, acting either directly or through his authorized assistants, such assistants acting within the scope of the particular duties assigned to them. Owner may designate a "**field**" Representative and also a "**project**" Representative (each of whom shall be considered Owner's "Representative") to represent it in the various phases of the work to be done hereunder.
- 1.3 **Bid:** A complete and properly signed proposal to do the project for the sums stipulated therein and submitted in accordance with the Construction Documents. For OWNER's tax purposes, bid prices shall be subdivided into three categories: Material, Equipment and Labor. Taxes should be calculated as a separate line item shown on bid item breakdown.
- 1.4 **Qualified Bidder (Prime Contractor):** A person or entity that has completed a NDA – Non-Disclosure Agreement and meets all Insurance, licensing and bonding requirements that submit a bid for the entire project. Each Bid shall list all State and County Contractor's licenses showing the number of the license, the classification of trade and any condition or restriction, which has been placed upon the license by the Regulatory Board.
- 1.5 **Qualified Sub-Bidder (Sub-Contractor):** A person or entity that submits a bid to the bidder for materials, equipment or labor for a portion of the project. Sub-contractor must meet all the same insurance and licensing requirements defined as a Qualified Bidder.
- 1.6 **Construction Documents:** Construction documents include drawings listed in Section 16, specifications, and supplemental information as provided by owner.
- 1.7 **Project:** Work defined in the construction documents.
- 1.8 **Work:** All labor, supervision, tools, equipment, consumables, technical and professional services, materials, supplies, and articles, as well as the performance of all operations and incidentals necessary to complete the project as described in construction documents.

## 2 Pre-bid Meeting

- 2.1 All qualified bidders and Sub-bidders must attend a pre-bid meeting at the day and time designated on the cover page of this RFQ document.
- 2.2 During the pre-bid meeting, the bidder will be able to ask questions about the project and visit the project site. Bidder must bring personal protection equipment to gain access to project site which includes safety glasses with side shields, hard hat and steel toe boots with metatarsal protection. OWNER will provide an escape respirator and fire resistant jacket.



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- 2.3 To eliminate multiple site visit walks of the project, bidder must have all sub-bidders attend the pre-bid meeting. Additional walks of the project site will be granted only if deemed necessary by OWNER's representative.
- 2.4 The bidder may request additional site inspections from 7:30 AM to 2:30 PM Monday thru Thursday and must request entry onto the Henderson facility not less than one (1) working day prior to the date of the visit. The Bidder shall not inspect the site without prior permission from the Owner's representative.

### **3 Construction Documents**

- 3.1 All Qualified Bidders will receive one set of Construction documents. Sub-bidders will not be issued construction documents unless specifically offered by the Owner.
- 3.2 Bidders shall use complete sets of construction documents in preparing bids. Neither the Owner nor the Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of construction documents.
- 3.3 Bidders may obtain additional sets of construction documents from OWNER'S ENGINEER. In making additional copies of the construction documents available on the above terms, the Owner and the Engineer do so only for the purpose of obtaining bids on the work and do not confer a license or grant permission for any other use, reproduction or sale of the documents.
- 3.4 Bidders and Sub-Bidders requiring clarification or interpretation of the construction documents shall submit to the Owner at least three (3) working days prior to the bid due date in writing as an RFI. The RFI will be answered within two (2) working days and shall be part of the construction documents. Only documented clarifications or interpretation to the construction documents will be accepted to alter the price or schedule.
- 3.5 The materials, products and equipment described in the construction documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

### **4 Revision and Substitutions to Construction Documents**

- 4.1 Any changes of the construction documents shall be made by revision.
- 4.2 All revisions to the construction documents will be mailed or delivered to all Qualified Bidders. Based on complexity of revision, owner may extend bid date as needed.
- 4.3 No substitution will be considered prior to receipt of Bids unless the Owner receives a written request for approval from the Owner at least three (3) days prior to the Bid date. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for performance evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Owner's decision to approve or disapprove the proposed substitution shall be final.
- 4.4 If the Owner approves a proposed substitution prior to receipt of Bids, such approval will be set forth in a revision to the construction documents.

### **5 Bidder's Representation for Price and Schedule**



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- 5.1 The bidder has read and understands the construction documents. Any questions or concerns have been submitted in writing by means of an RFI (Request for Information) and have been addressed by OWNER in writing.
- 5.2 The bidder has visited the site, become familiar with existing conditions under which the work is to be performed and has correlated the bidder's personal observations with the requirements of the proposed construction documents.
- 5.3 Contractor has read and understands the **Safety Requirements** detailed in section 6 of this RFQ document that may impact the price and schedule of the bid.
- 5.4 Contractor has read and understands the **Housekeeping and Quality** requirements detailed in section 7 of this RFQ document that may impact the price and schedule of the bid.
- 5.5 Contractor has read and understands the **Scope of Work** detailed in section 8 of this RFQ document that may impact the price and schedule of the bid.
- 5.6 Bidder shall acknowledge all revisions that have been incorporated within the bid price and schedule.

## **6 Safety Requirements**

- 6.1 OWNER is a manufacturing plant that operates 24 hours a day 7 days a week. Safety is always our number one concern not only for our employees but for all personnel that visit and perform work on site.
- 6.2 The following safety Training shall be incorporated into bid price and project schedule:
  - A. All employees and representatives (including sub-contractors, vendor reps, suppliers, etc.) are expected to attend a **3 hour** safety-training course held at OWNER every Monday at 8:00am. Please check schedules as safety-training courses may be cancelled without notice.
  - B. Training request must be requested 7 days in advance and include the number of employees attending the session, legible list of names and the individual designated as the onsite contact representative. Request shall be submitted in writing to the Project Engineer by Wednesday the week before training.
  - C. Once the request has been received, the Owner's representative will schedule the training and inform the contractor of the date and time that the training will take place. Should the contractor require additional individuals be trained at a later date, the same scheduling requirements shall apply.
  - D. All costs incurred by the contractor related to Owner's safety training that was not included in the original bid shall be the responsibility of the contractor.
  - E. All Contractor employees that attend and pass a written test after the training will receive a "Yellow Card" that must be carried with them at all times when on Owner's property. Any worker that is asked to present this card and cannot, will be escorted off Owner's property until card can be produced.
    - The following safety Personal Protection Equipment (PPE) shall be provided by the Qualified Bidder and incorporated into bid price and project schedule:
    - All employees and representatives (including sub-Qualified Bidders, vendor reps, suppliers, etc.) are expected to have and wear personal protection equipment to gain



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access and work on OWNER's property which includes safety glasses with side shields, hard hat, steel toe boots with metatarsal guard, and escape respirator. Additional PPE shall be used as required by the contractor's health and safety plan. All contractor employees are restricted to the designated project work area

- In addition to the above PPE for specific areas, employees are required to have special PPE for specific job duties. Bidder will be notified if these are required for this project.
- Proof of OSHA 10 regulation training must be available for review by Owner's Safety Engineer, Glenn Closson, at (702) 564-2544 x407 upon request.

6.3 Qualified Bidder must obtain a **Hot Works** permit from OWNER and provide their own fire watch continuously when one of the following work is performed during the project including but not limited to:

Welding      Soldering      Burning      Grinding      Sparking Tools      Open Flame

6.4 Qualified Bidder shall obtain an **Excavation Permit** from Owner before any excavation of any kind, including driving stakes, etc., is to be performed during the project.

6.5 Qualified Bidder shall provide **constant** onsite supervision of employees and be responsible for all safety requirements and reporting of incidences.

6.6 Qualified Bidder shall adhere to all Lock Out, Tag Out procedures set forth by OSHA regulations and TIMET. Qualified Bidder is responsible to provide tags and locks and shall not use/borrow locks or tags from TIMET or their employees.

NOTE: Violation of Owner's safety policies or OSHA regulations may be cause for immediate removal of Qualified Bidder, sub-Qualified Bidder or their employee(s) from Owner's property.

**7 Housekeeping and Quality Requirements**

7.1 Work site shall be kept clean at all times to prevent any tripping hazards, interference with production, any potential process material contamination or blockage of either wheeled, overhead or foot traffic.

7.2 Owner has strict regulations concerning possession and use of any tooling, parts or equipment containing high density materials such as tungsten, tantalum, molybdenum, niobium or any metal carbide or nitride. The following precautions shall be adhered to at all times while on Owner's property:

7.3.1 It is recommended that any tooling, parts or equipment containing such materials not be used unless absolutely necessary.

7.3.2 TIG welding may be done when specifically authorized in writing by Owner's Quality Department.

7.3.3 TIG welding is prohibited at any time in the following areas:

Unit 10 – VDP Sponge Crushing  
Unit 12 – Blending

Unit 11 – Melt Shop  
Unit 13 – Raw Material Storage

7.3.4 No ballpoint pens are allowed on site except ones authorized and provided by OWNER.



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- 7.3 Housekeeping and Quality requirement training is incorporated in the 3 hour safety training required per section 6.
- 7.4 Contractor is required to fill out a Dense Metal Declaration prior to bringing any dense metals on site and shall have a dense metal control plan to monitor and accounting of dense mentals.
- 7.5 Qualified Bidder shall provide **constant** onsite supervision of employees and be responsible for all housekeeping and quality requirements and the reporting of all incidences.

NOTE: Any violation of Owner's Housekeeping and Quality policies may be cause for immediate removal of Qualified Bidder, sub-Qualified Bidder or their employee(s) from Owner's property.

## 8 Scope of Work

### A. Project Overview

The BMI Beta Ditch and the former Northwestern Ditch soil remediation project consist primarily of shoring, excavation, hauling, and backfilling of estimated 75,000 to 115,000 cubic yards non-hazardous contaminated soil. The area of the remediation work is roughly 5.3 acres of land located entirely on TIMET property. The site is bounded on the north by two surface impoundments (SW-1 and HP-6), and open land on other sides bordered by property line fencing.

The general intent of the remediation work is to limit the removal of impacted soils to only within the extents of the defined Beta and Northwestern Ditch area (to the extents practical). The limits of the ditches are shown on the attached figures. At this point we are still evaluating options of cut back engineered side slopes versus temporary shoring (to reduce excavation and disposal volumes), as well as accommodating other site controls raised by the NDEP regarding cross contamination of the remediated area, since surface soils outside the limits of the ditched may also be impacted. At a minimum, excavations performed on the south side of the site adjacent to SW1 will require excavation support.

Soil impacts within the ditches include primarily of arsenic, perchlorate, volatiles, and semi volatiles, along with lower concentrations of polychlorinated biphenyl (PCB's), radionuclides, dioxin/furans, and other metals. In addition, it should be noted that there is a likely potential for asbestos containing materials to be present in the soils, and therefore removal may require special handling and containment. As such, it is anticipated that a licensed certified asbestos inspector and removal contractor may be required to remove such materials when encountered. At this point we are assuming that soils within the Beta and Northwest Ditches are to be handled as a non-hazardous material that will be disposed of at the APEX Republic landfill located at 13550 N Highway 93, Las Vegas, NV 89124. Material profiling and disposal fees will be handled by TIMET; however, the selected contractor will be responsible for handling the transportation of the material to the landfill.

Some key elements of the project include but are not limited to:

- Developing a project Health and Safety Plan and associated work plan,



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- Set up of site controls and temporary facilities to support the remediation project, which would include erosion and dust control measures, water spraying facilities, de-con pads, and a 'clean' working platform, construction surveying, etc..
- Demolition and disposal of existing concrete stormwater structures,
- Excavation support for up to 20 foot deep excavation adjacent to impoundment SW-1. The length of the excavation support will be about 250 feet.
- Temporary excavation support for beta ditch excavation limits,
- Abandonment of existing drainage structures and interfering wells.
- Excavation and transport for disposal an estimated 75,000 to 115,000 cubic yards of potentially contaminated soil (final volume pending regulatory approval),
- Supply and transport of backfill material, compaction, and finish grading of excavations,
- Construction of final stormwater retention pond as part of backfill grading (design still pending).
- Site work requires workers with proper OSHA HAZWOPPER training.

#### **B. General**

1. The construction documents have been prepared using standards of professional care and completeness normally exercised under similar circumstances by reputable engineering firms. They were produced assuming that the work depicted will be performed by an experienced Qualified Bidder and/or workmen who have a working knowledge of the applicable code standard and requirements and of industry accepted standard good practice. As not every condition or element is (or can be) explicitly shown on the drawings, the Qualified Bidder shall use industry accepted standard of good practice for miscellaneous work not explicitly shown.
2. The construction documents represent the finished product. They do not indicate the method of construction. The Qualified Bidder shall be solely responsible for construction means, methods, techniques, sequences, procedures, lagging, shoring, bracing, form work, etc. as required to ensure the quality of all work and the protection of life and property during construction.
3. The Qualified Bidder shall verify all dimensions, conditions and elevations with general arrangement drawings and existing conditions and resolve any discrepancies with the Owner's project engineer prior to start of construction.
4. Typical details and notes shall apply, though not necessarily indicated at a specific location on the drawings. Where no details are shown, construction shall conform to similar work on the project. Details may show only one view or may omit information for clarity.
5. Specifications, notes and details on drawings shall take precedence over general notes and typical details. In the case of a conflict, the most stringent shall apply.
6. Standard and code references noted in the construction documents refer to the editions adopted by the building code specified in the construction documents.



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7. The specifications and standards set forth in this package are minimum requirements. Qualified Bidder supplied materials and all work shall be performed in strict compliance with all applicable codes and local, state and federal rules and regulations covering activities described in the construction documents.
8. All inspections required by these construction documents shall be performed prior to covering up work to be inspected or final acceptance of work.

#### **C. Quality of All Work**

1. Observations and testing to verify job specifications and scope compliance may be conducted by Owner or owner's representative at anytime during the project.
2. Qualified Bidder expressly assumes responsibility for ensuring that all work is performed in a thorough manner and in accordance with the highest professional and trade standards, and for producing and delivering the work product with the degree of care, skill and diligence exercised by professionals performing similar services.

#### **D. Mechanical**

1. Qualified Bidder shall provide and install all mechanical equipment necessary for the full operations of the complete mechanical system commissioning including equipment for material handling and dust collection shown on construction documents. Qualified Bidder is to notify owner of any discrepancies that would prevent full operation of mechanical system prior to submitting bid.
2. Qualified Bidder will be responsible for the financial and schedule impacts of any discrepancies on construction documents once bids have been submitted and approved. Exceptions would be engineering design errors or equipment that is not indicated correctly in the construction documents.
3. Commissioning of individual pieces of equipment and components as well as overall systems shall be the responsibility of the Qualified Bidder. A fully commissioned piece of equipment or system component shall be deemed as such when the following items have been addressed.
  - All required utilities have been connected to the equipment and it has been verified that the utilities being supplied are of specified and adequate quantity and quality to ensure proper equipment function.
  - All connections, mechanical/electrical/controls, have been inspected and verified to be sound and installed as per manufactures and project specifications, industry standards, and to the satisfaction of the owner.
  - The equipment has been secured to adequate foundations or structures as per manufactures specifications and contract documents.
  - All installation instructions and QA/QC requirements set forth in OEM documentation and contract documents have been followed and verified by qualified personnel other than the actual installer (i.e. QA/QC staff).
  - The equipment shall function as intended by the OEM and the owner as defined in OEM documentation and contract documents.



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- The equipment or system component works within the defined system as required or envisioned by the owner and defined in the contract documents.
- All installed equipment and system components shall be cleaned by the Qualified Bidder to achieve near new condition prior to releasing to TIMET.

Systems can be defined as groups of equipment and components assembled together to support or achieve an overall process goal. Examples of systems are electrical feed systems, controls systems, fluid piping systems, chute-work systems, air handling systems, process systems, etc. A fully commissioned system shall consist of fully commissioned pieces of equipment, components, utilities, etc. that function together as envisioned by the owner and defined in the contract documents. Unless otherwise specified in the contract documents, products and their quality produced by a commissioned process are not a responsibility that falls under the commissioning scope of work.

#### **E. Electrical**

1. Qualified Bidder shall provide and install all electrical conduit, wire, pull boxes, terminal boxes and anchorage necessary to connect electrical power and provide electrical power to all equipment shown on construction documents. In addition to electrical power, Qualified Bidder shall provide and install all necessary controls conduit, wire, pull boxes, terminal boxes and anchorage necessary for the communication of control system. Qualified Bidder is to notify owner of any discrepancies that would prevent full operation of electrical and control system prior to submitting bid.
2. Qualified Bidder will be responsible for the financial and schedule impacts of any discrepancies on construction documents once bids have been submitted and approved. Exceptions would be engineering design errors or equipment that is not indicated correctly in the construction documents.
3. All work shall be done in accordance with the latest adopted code for the NEC – National Electrical Code, NFPA 70 – National Fire Protection Association, ANSI - American National Standards Institute and any additional specifications listed in Section 16. In the case of a conflict, the most stringent code/specification shall apply.

#### **F. Piping and Ducting**

1. Qualified Bidder shall provide and install all piping including valves, flanges, fittings, gaskets, supports and anchorage to provide transfer of liquid, gas and slurry materials from origin to distribution and destination.
2. Piping supports shall be rigid and installed to resist vertical and lateral movement. Supports shall be spaced to carry pipe and material weight but not more than 10 feet apart.
3. All work shall be done in accordance with B31.3 and Specifications listed in Section 16. In the case of a conflict, the most stringent code/specification shall apply.

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4. Qualified Bidder is to notify owner of any discrepancies that would prevent full operation of piping system prior to submitting bid. Qualified Bidder will be responsible for the financial and schedule impacts of any discrepancies on construction documents once bids have been submitted and approved. Exceptions to Qualified Bidder's responsibilities would be engineering design errors depicting the incorrect size, type and usage.

**G. Structural**

1. Qualified Bidder shall provide and install all structural elements necessary to erect structural steel. Elements may include reinforcing and concrete for footings, piers and concrete decking; steel columns, beams, bracing and steel decking; bolts and any necessary welding. Qualified Bidder is to notify owner of any discrepancies that would prevent full erection of structural system prior to submitting bid.
2. Qualified Bidder will be responsible for the financial and schedule impacts of any discrepancies on construction documents once bids have been submitted and approved. Exceptions would be engineering design errors or structural members that are not indicated correctly in the construction documents.
3. All work shall be done in accordance with AISC – American Institute of Steel Construction, ACI – American Concrete Institute, IBC – International Building Code, ICC – International Code Council, and specifications listed in Section 16. In the case of a conflict, the most stringent code/specification shall apply.

**H. Painting**

1. Painting shall be done by the fabricator or equipment manufacturer per drawing requirements or specifications listed in Section 16. Exception: Painting of existing equipment and piping can be painted on site provided that appropriate and TIMET approved environmental precautions are followed.
2. Field or site painting will only be allowed for touch up or as deemed necessary and agreed upon by the Owner. All authorized field and touch up painting must be done with the same color, specification and quality as the original paint.
3. Qualified Bidder shall adhere to the requirements of this section with the following exceptions.
  - a. Touchup painting will be the responsibility of TIMET; however, Qualified Bidder shall make every effort to minimize the amount of touchup paint required. Qualified Bidder shall remove all weld splatter and burn marks with sanding and/or wire brush.
  - b. Qualified Bidder will be held responsible, and may be back charged for, excessive damage to painted components or unnecessary removal of weld spatter and burn areas.

**I. Work and Project Schedule**



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1. Qualified Bidder shall provide construction equipment, tool, materials and work force to the project site sufficient to commence and sustain construction activity necessary to perform all tasks relating to the project work and to meet required schedule and completion date.
2. Qualified Bidder shall perform all tasks relating to the work as expressed or reasonably implied by the construction documents.
3. Close coordination between construction personnel and Owner's production personnel is required while work is in progress. Work to be scheduled as specified below. Any work outside of this work window must be approved by the Owner's point of contact.
4. The Qualified Bidder is to provide a detailed Gantt chart project schedule, showing how they intend to complete the various phases of the project, with their bid submission.
5. The Qualified Bidder must perform the work with full consideration to the Owner's production schedule and production activity.
6. During each phase, Qualified Bidder shall have a dedicated, non-working superintendent on site at all times. Time frames for the phases of work are as follows:

4T

**Note:** TIMET will make every attempt to allow construction to be done sequentially without time lapses; however, the Qualified Bidder shall plan for the potential of interruptions to continuous work after the completion of each phase without additional charges to TIMET.

**This Project is to be performed as if Time is of the Essence**

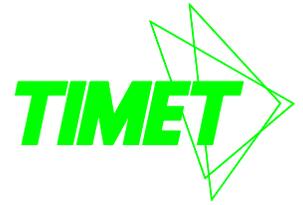
**Additional Notes to the Scope of Work:**

- 1) This scope of work has been provided as a convenience to the Qualified Bidder and may not be complete. Omission of items from the scope of work that are represented on the construction documents does not relieve the Qualified Bidder of responsibility of those omitted items.
- 2) Qualified Bidder shall adhere to the requirements of section 7 of this document, with the following additions and requirements.
  - a. Qualified Bidder shall provide for a dedicated cleanup crew at the end of each work day, for a minimum of 30 minutes, to thoroughly clean all work areas to a level consistent with the cleanliness of the building and area where work is performed. Consumable items such as welding rods, trash, etc. shall be removed from the work area.
  - b. Qualified Bidder shall tarp and shield as necessary or directed by TIMET representatives to insure that no construction debris or consumables leave the work area in an uncontrolled manner. Debris or consumables have the potential to contaminate the active process' taking place in the building and area where work is performed.
- 3) The Qualified Bidder is responsible for the removal and relocation of demolished material to a designated site on TIMET property. The Qualified Bidder shall obtain written permission from TIMET prior to any removal of demolition material from TIMET's property including but not limited to copper wire, scrap metal, piping, etc.



## SECTION 00400

### REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES



#### BMI Beta/Northwest Ditch Excavation

- 4) Only major equipment has been included in the equipment lists. All other items necessary to complete the project as described in the bid documents shall be the responsibility of the Qualified Bidder unless noted otherwise on plans.

## **9 Submitting of Bids**

- 9.1 Bids shall be submitted on the Bidder's letterhead or Bidder's form, and shall include a completed version of the RFQ cover document and the Bid Item Breakdown Form in Section 17. Each Bid shall consist of three figures, one for material, one for equipment and one for labor.
- 9.2 Each copy of the Bid shall include the legal name of the Bidder and statement that the Bidder is a sole proprietor, partnership, corporation or other legal entity. Each copy shall be signed by the person or persons legally authorized to submit for the Bidder.
- 9.3 The submission of the Bids shall be made prior to the date and time that is noted on the cover page of this RFQ. The Bids shall be submitted electronically to the ENGINEER at email address: [gonorato@geiconsultants.com](mailto:gonorato@geiconsultants.com) and TIMET at email address [Ken.Pugh@Timet.com](mailto:Ken.Pugh@Timet.com). Bids can be mailed to the TIMET address: Attn: George Onorato, GEI Consultants, Inc., 181 North Water Street, Henderson, Nevada 89015. The electronic transmission of the bids must be submitted by the bid due date and time. A follow-up hard copy version shall be received by no later than close of business on May 28, 2013. If mailed the postmark date shall be considered as date of submission. The Bidder shall assume full responsibility for timely delivery. Bids that are submitted after the date and time may still be considered for acceptance; however the Owner may reject any bid for late delivery.
- 9.4 All must be in writing by approved method defined in section 9.2. Verbal bids will not be accepted.
- 9.5 A Bid may not be modified, withdrawn or canceled by the Bidder after submitting of Bid unless the Owner decides that the Bidder has made a mistake and that by reason of the mistake, the Bidder may be damaged. The mistake cannot be of moral base or a failure to consider construction documents.
- 9.6 All submitted Bids shall become the property of the Owner.

## **10 Consideration of Bids**

- 10.1 The Owner shall maintain strict confidentiality to protect the content of the Bids from disclosure to other Bidders or parties related or unrelated to the Project. Owner reserves the right to question individual bidders on information provided in the bid.
- 10.2 The Owner shall have the right to reject any Bid not accompanied by the proper documentation as noted in section 9.1.
- 10.3 The owner has the right to reject all bids that do not meet the budget or the intent of the Project.
- 10.4 As noted above, the Owner reserves the right to reject all Bids and may request a re-bid from those Bidders who have already submitted Bids or from Bidders who have not yet Bid the Project.

## **11 Awarding of Bid**



SECTION 00400

REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES



BMI Beta/Northwest Ditch Excavation

- 11.1 The Owner shall notify the successful Bidder as soon as the Owner has reviewed all Bids and is satisfied that the Bidding process has met the needs and interests of the Owner.
- 11.2 The bidder shall provide to the owner within five days from the date of notification the following for the successful Qualified Bidder and all sub-Qualified Bidders:
  - A. Current year State of Nevada DEPARTMENT OF TAXATION business license.
  - B. Current year Clark County Business License.
  - C. Proof of Nevada State Contractor's License consistent with the work scope requirements.
  - D. Certificate of Insurance that meets the contractor's insurance requirements per the attached document section 13.
  - E. EMR/OHSA Form.
  - F. Labor, material, and equipment charge rates for any time and material work.
  - G. Completed and signed "Safety and Health Screening Questionnaire" form in section 14.
  - H. List of work to be performed with the Bidder's own forces and a list of work and sub-Qualified Bidders that will be done by others.
  - I. Names of the manufacturers, products and the suppliers of principal items or systems of materials and equipment proposed for the project.

The information noted in sub-sections 11.2 – A, B, D & G is required for any company entering Owner's property.

The Owner may reject any person or entity that the bidder proposed. If the Owner cites the objection to the Bidder, the Bidder may withdraw the Bid or submit an acceptable substitution.

Persons and entities proposed by the Bidder and to whom the Owner and Engineer have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner.

Note: Should the required information not be supplied or be insufficient, the award may be withdrawn and re-awarded to the next bidder.



**12 Extra Work Request**

Project No: \_\_\_\_\_ Date Requested: \_\_\_\_\_

Purchase Order No: \_\_\_\_\_

Change Order Number: \_\_\_\_\_

Prepared By: \_\_\_\_\_

Contractor Name/Address: \_\_\_\_\_

Brief Description of Work: (Extra Details on Separate Sheet): \_\_\_\_\_

\_\_\_\_\_

Reason for Extra Work: \_\_\_\_\_

\_\_\_\_\_

**Contractors Estimate:**

Contractors estimate, to the best of their ability and in good faith, is as follows:

Fixed Cost Amount of \$ \_\_\_\_\_

Time and Materials – Estimated Man Hours: \_\_\_\_\_ Estimated Material Cost: \$ \_\_\_\_\_

Time and Material rates, if not lump sum, must be those referenced in the original project quotation. All time must be itemized by person performing the work, Work Duties, Work Hours and Total Time. Time sheets must be presented daily and approved by TIMET’s Engineering Project Manager. TIMET will not be responsible for payment if billing does not include a detail list of the above items and daily approvals.

**Adjustment in Price:**

The payment (in an amount not to exceed the estimate stated above for increases in the Work) by TIMET to Contractor on account of such change in the Work shall be adjusted as determined by and strictly limited to the Schedule of Charges attached to the Agreement.

**Completion Date:**

**Note: There will be no change to completion date unless prior approval has been authorized by TIMET.**

**Received and Authorized By:**

OWNER Representative: \_\_\_\_\_  
Name (Signature)

Title: \_\_\_\_\_

### 13 Service Provider Insurance Requirements

Service Provider	Workers Compensation *	General Liability	Auto	Errors and Omissions	Other **
Engineering and General Services (no construction)	Statutory (state specified) Employer's Liability - \$1,000,000 per occurrence	\$3,000,000 per occurrence \$5,000,000 aggregate limit  Titanium Metals Corporation listed as additional insured	\$3,000,000 per occurrence  Titanium Metals Corporation listed as additional insured	\$1,000,000 per claim \$2,000,000 annual aggregate  Titanium Metals Corporation listed as additional insured	Property floater (to cover all Contractor equipment)
Engineering and Construction	Statutory Employer's Liability - \$1,000,000 per occurrence	\$3,000,000 per occurrence \$5,000,000 aggregate limit  <b>Titanium Metals Corporation listed as additional insured</b>	\$3,000,000 per occurrence  <b>Titanium Metals Corporation listed as additional insured</b>	\$1,000,000 per claim \$2,000,000 annual aggregate  <b>Titanium Metals Corporation listed as additional insured</b>	Property floater (to cover all Contractor equipment)
Vendor – Supply Only	Statutory Employer's Liability - \$1,000,000 per occurrence		State required commercial coverage is minimum – prefer \$3,000,000 (scope of service and risk to be considered)		
Shipping and Delivery Only	Statutory Employer's Liability - \$1,000,000 per occurrence		State required commercial coverage is minimum – prefer \$3,000,000 (scope of service and risk to be considered)		
<b>Contractors</b>	<b>Statutory Employer's Liability - \$1,000,000 per occurrence</b>	<b>\$3,000,000 per occurrence \$5,000,000 aggregate limit  Titanium Metals Corporation listed as additional insured</b>	<b>\$3,000,000 per occurrence  Titanium Metals Corporation listed as additional insured</b>	<b>\$1,000,000 per claim \$2,000,000 annual aggregate  Titanium Metals Corporation listed as additional insured</b>	<b>Property floater (to cover all Contractor equipment)</b>
Temporary Labor and Manpower	Statutory Employer's Liability - \$1,000,000 per occurrence	Not required for clerical or professional services	\$3,000,000 per occurrence Titanium Metals Corporation listed as additional insured (if required to operate vehicle for Titanium Metals Corporation or on Titanium Metals Corporation's property.		

\* If contractor is a qualified self-insurer, sufficient evidence must be produced to waive requirements and proof of employer's liability insurance.

\*\* Property floater only required if the service includes construction activities.

**Titanium Metals Corporation must also be listed as "Certificate Holder".**

All insurance policies shall provide a waiver of subrogation in favor of TIMET.

All subcontractors shall comply with the same insurance requirements of the general contractor (even if the work is done off-site)

Contractor(s) shall provide certificates of insurance not later than 10 days after signing the contract, if possible, but always prior to work being done under the agreement.

Contractor will provide renewal certificates as long as the contract is in force.

Large construction projects may require Builder's Risk Insurance and excess liability insurance. Contact the risk management department to discuss.

Scope of work may require environmental liability coverage. Contact the risk management department to discuss.

**Scope of work may require environmental liability coverage. Contact the risk management department to discuss.**

SECTION 00400



REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES

BMI Beta/Northwest Ditch Excavation

Henderson, Nevada

**14 Safety and Health Screening Questionnaire**

**Please complete this form and return it to the undersigned at your earliest convenience. This information will be kept on file and used to evaluate Contractors for our various projects**

Obtain from your insurance agent (or state fund, if applicable your workers compensation insurance experience modification rate (EMR) for the three rating periods and complete the following:

	<u>POLICY YEAR</u>	<u>EMR</u>
Most Recent Policy Year	_____	_____
1 Year Prior	_____	_____
2 Years Prior	_____	_____

If your EMR is exactly 1.0 for any policy year, is it because your firm is (or was) too small to have an EMR calculated?     Yes     No

**We require verification for the above information. Any of the following methods will be acceptable:**

- a. **Furnish a letter from your insurance agent insurance carrier or state fund (on their letterhead) verifying the EMR data listed above.**
- b. **Provide a copy of the last three years 'Experience Rating Calculation Sheets' which your insurance carrier should forward to you annually.**
- c. **Provide a copy of the page of your last three years' insurance policies that show the experience modification rate and the coverage period.**

**If you were required to complete OSHA 300-S reports for the last three years please attach copies. If you were not required to complete OSHA 300-S reports, please provide the following information:**

Three Previous Calendar Years	20	20	20
Number of Employees			
Number of Medical Treatment Cases*			
Number of Lost Workday Cases**			
Number of Fatalities			
Exposure Hours***			
Number of Lost Workdays****			

**\* Medical Treatment Cases:** Any treatment resulting from a work accident illness that does not result in lost-time or restricted work where the contractor employee receives medical treatment administered by a physician or by registered personnel under the standing orders of a physician, Medical treatment does not include first-aid cases, even though first aid is administered by a physician or registered professional personnel, but does include loss of consciousness or Incidents that require more than one dose of prescription medicine.

**\*\* Lost Workday Cases:** Any injury or illness that results in the employee being unable to work the next scheduled shift and any injury or illness where the employee, following medical treatment, is: Assigned to a temporary job, working at a permanent job less than full time, or working at a permanently assigned job but unable to perform all duties normally required.

**\*\*\* Exposure Hours:** Actual hours worked by employees during the calendar year.

SECTION 00400

REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES

BMI Beta/Northwest Ditch Excavation



Henderson, Nevada

**15 Drawing Reference**

See Construction Drawings Titled:

**BMI Beta/Northwest Ditch Excavation Project**

Titanium Metals Corporation, Henderson, Nevada Facility

Prepared for:

**Titanium Metals Corporation**  
181 North Water Street  
Henderson, Nevada 89015

Prepared by:

**GEI Consultants, Inc.**  
400 Unicorn Park Drive  
Woburn, Massachusetts 01801

Dated: May 17, 2013

**CONSTRUCTION DRAWINGS**

Drawing C-1	Title Sheet
Drawing C-2	Existing Site / Beta Ditch Conditions
Drawing C-3	ACM Excavation Areas
Drawing C-4	Excavation Grades
Drawing C-5	Final Grades
Drawing C-6	Cross-Section / Profile Index
Drawing C-7	Cross-Sections A-A', B-B', C-C'
Drawing C-8	Cross-Sections D-D', E-E', F-F'
Drawing C-9	Cross-Sections G-G', H-H', I-I', J-J'
Drawing C-10	Ditch Centerline Profile P-1
Drawing C-11	Ditch Centerline Profile P-2
Drawing C-12	Ditch Centerline Profile P-3
Drawing C-13	Ditch Centerline Profile P-4
Drawing C-14	Details
Drawing C-15	Site Access and Water Source

SECTION 00400

REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES

BMI Beta/Northwest Ditch Excavation



Henderson, Nevada

## 16 Specification Reference

See Specifications Titled:

### **BMI Beta/Northwest Ditch Excavation Project**

Titanium Metals Corporation, Henderson, Nevada Facility

Prepared for:

**Titanium Metals Corporation**  
181 North Water Street  
Henderson, Nevada 89015

Prepared by:

**GEI Consultants, Inc.**  
400 Unicorn Park Drive  
Woburn, Massachusetts 01801

Dated: May 17, 2013

SECTION 00400

REQUEST FOR QUOTATION FOR CONSTRUCTION SERVICES

BMI Beta/Northwest Ditch Excavation



Henderson, Nevada

## 17 Bid Item Breakdowns

See Appended BID SCHEDULE

**CONFIDENTIAL – this document contains PCC proprietary information**

BMI Beta Ditch/Northwestern Ditch Excavation Project  
 Titanium Metals Corporation  
 Henderson Nevada

**BID SCHEDULE**

Item No.	Description	Approx. Quantity	Units	Written Unit Price	Unit Price	Amount
<b>01 General Requirements</b>						
1.01	Mobilization	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
1.02	Temporary Facilities and Controls	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
1.03	Project Submittals	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
<b>02 Site Preparation</b>						
2.01	Clearing and Grubbing	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
2.02	Transport and Dispose of Vegetation	100	Ton	at _____ dollars and _____ cents per Ton		
2.03	Abandon Pipelines and Culverts	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
2.04	Demolish, Existing Drainage and Other Site Structures	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
2.05	Transport and Dispose of Demolition Debris	500	Ton	at _____ dollars and _____ cents per Ton		
2.06	Abandon Extraction Wells	5	Each	at _____ dollars and _____ cents per EACH		
2.07	Excavate, Stockpile, and Load Asbestos Containing Materials	300	Ton	at _____ dollars and _____ cents per EACH		

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BMI Beta Ditch/Northwestern Ditch Excavation Project  
 Titanium Metals Corporation  
 Henderson Nevada

**BID SCHEDULE**

Item No.	Description	Approx. Quantity	Units	Written Unit Price	Unit Price	Amount
2.08	Transport Asbestos Containing Materials	300	Ton	at _____ dollars and _____ cents per EACH		
<b>03 Earthwork</b>						
3.01	Excavate, Stockpile, and Load Contaminated Soils	120,000	Ton	at _____ dollars and _____ cents per Ton		
3.02	Transport Contaminated Soils Apex Regional Landfill	100,000	Ton	at _____ dollars and _____ cents per Ton		
3.03	Transport Hazardous Soils US Ecology Landfill, Beatty NV	20,000	Ton	at _____ dollars and _____ cents per Ton		
3.04	Excavation Backfill	130,000	Ton	at _____ dollars and _____ cents per FILL CUBIC YARD		
3.05	Type I Excavation Support (A-A)	240	Linear Foot	at _____ dollars and _____ cents per LINEAR FOOT		
3.06	Type II Excavation Support (H-H)	460	Linear Foot	at _____ dollars and _____ cents per LINEAR FOOT		
3.07	Type III Excavation Support (No Tie Backs)	2,500	Linear Foot	at _____ dollars and _____ cents per LINEAR FOOT		
3.08	Construct Storm Water Infiltration Basin and Associated Components	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
<b>04 Site Restoration</b>						

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BMI Beta Ditch/Northwestern Ditch Excavation Project  
 Titanium Metals Corporation  
 Henderson Nevada

**BID SCHEDULE**

Item No.	Description	Approx. Quantity	Units	Written Unit Price	Unit Price	Amount
4.01	Final Grading and Site Restoration	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
4.02	Survey Documentation and As-Built Survey	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		
4.03	Demobilization "	1	Lump Sum	at _____ dollars and _____ cents per LUMP SUM		

Project Total :

**SECTION 00440**  
**GENERAL CONTRACTOR**

General Contractor:

Address:

Telephone:

% Contract Amount:

**Proposed Superintendent Name:**

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**References: 1)**

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2)

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3)

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**(Please Append Resume)**

**SECTION 00441**  
**SUBCONTRACTORS**

Proposed Subcontractor: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
% Contract Amount: \_\_\_\_\_

Proposed Subcontractor: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
% Contract Amount: \_\_\_\_\_

Proposed Subcontractor: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
% Contract Amount: \_\_\_\_\_

Proposed Subcontractor: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
% Contract Amount: \_\_\_\_\_

## **SECTION 00460**

### **DESCRIPTION OF PROJECT APPROACH**

The Bidder shall provide a detailed description of the proposed construction approach. Including but not limited to dust control, storm water pollution prevention, and transportation plans; sequencing of work; summary of equipment and labor; proposed work hours, schedule, and shifts; material stockpiling, handling, loading, and transportation of clearing and grubbing material, asbestos containing materials, demolition and debris, and contaminated soils; installation and removal of excavation support systems, soil backfill sourcing, hauling, stockpiling, handling, and backfilling; final site grading; and demobilization. Also, please provide a conceptual site drawing showing proposed site layout, staging, site controls, access points, traffic routes, etc.

**(Please Append Written Plan)**

## SECTION 01010

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Work by CONTRACTOR.
- B. Work by others.

##### 1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work to be done under this Contract Document includes, but is not necessarily limited to, furnishing all labor, tools, equipment, materials, supplies, supervision, and administration for performing the following work:
  - 1. Mobilization – Work includes, but is not limited to the obtaining all required permits and approvals; mobilization of all personnel, equipment, and materials; completion of surveys
  - 2. Temporary Facilities and Controls – Work includes, but is not limited to installation and removal of all temporary facilities; temporary utility connections, parking, sanitary facilities and establishing staging/lay down areas, equipment servicing and maintenance facilities, access roads, health and safety, compliance with Storm Water Pollution Prevention Plan and Dust Control Plan.
  - 3. Project Submittals – Work Includes preparation of a Health and Safety Plan and all other preconstruction submittals such as the Traffic Control and Transportation Plan and Project Work Plan.
  - 4. Clearing and Grubbing – Work includes, but is not limited to providing all labor, materials, layout, and equipment required to remove vegetation from work areas. Shake soil from roots and temporarily stockpile.
  - 5. Transport and Dispose of Vegetation – Work includes, but is not limited to providing all labor, materials, and equipment required to load and transport vegetation to an off-site disposal facility. Work includes handling and transportation. Tipping fee at landfill will be paid directly by OWNER.
  - 6. Abandon Pipelines and Culverts– Work includes but is not limited to, providing all materials, equipment, layout, labor to locate and abandon pipelines and culverts that cross, enter, or exit the Beta/Northwest Ditch excavation limits in accordance with the Specifications, Drawings, or as directed by the Owner/Engineer. It is our understanding that some, possibly all, of these pipes contains asbestos cement. The work includes, but not limited to, all excavation, cutting, cleaning, grouting, and capping of the pipes. Also included is backfilling and restoring the surface to its existing condition or as directed on the drawings.

7. Demolish Existing Drainage Structures – Work includes, but is not limited to providing all labor, materials, layout and equipment required to demolish and stockpile existing drainage structures.
8. Transport and Dispose of Demolition Debris – Work includes, but is not limited to providing all labor, materials, and equipment required to load and haul demolition debris to an off-site disposal facility. Work includes handling and transportation. Tipping fee at the landfill will be paid directly by OWNER.
9. Abandon Extraction Wells – Work includes, but is not limited to providing all labor, materials, layout, equipment, and documentation required to properly abandon designated wells in accordance with Nevada Division of Water Resources Requirements.
10. Protect Wells Excavation – Work includes, but is not limited to providing all labor, materials, layout, and equipment required to protect well not designated for abandonment during the Work., loading, and hauling of contaminated soils to the Apex Regional Landfill Facility for Disposal.
11. Asbestos Abatement– Work includes, but is not limited to providing all labor, materials, layout, and equipment required to control dust, excavate, load and transport Asbestos Containing Materials in accordance with approved plans to an approved disposal facility in accordance with the requirements of the disposal authority. Work includes excavation, grade documentation, stockpiling, proper handling, PPE, health and safety, and transportation. Tipping fee at the landfill will be paid directly by OWNER
10. Contaminated Soils – Work includes, but is not limited to providing all labor, materials, layout, and equipment required to control dust, excavate, load, and transport contaminated soils to an approved disposal facility in accordance with the requirements of the disposal authority and approved plans. Work includes excavation, grade documentation, stockpiling, handling, and transportation. Tipping fee at the landfill will be paid directly by OWNER
11. Excavation Backfill – Work includes, but is not limited to providing all labor, materials, and equipment required for furnishing, weighing, controlling dust, transporting, stockpiling, placing, compacting, and testing imported backfill, as approved by the Engineer.
12. Type I Excavation Support – Work includes, but is not limited to providing all labor, materials, layout and equipment required for furnishing, installing, and removing Type I temporary excavation support.
13. Type II Excavation Support – Work includes, but is not limited to providing all labor, materials, layout and equipment required for furnishing, installing, and removing Type II temporary excavation support.
14. Type III Excavation Support – Work includes, but is not limited to providing all labor, materials, layout and equipment required for furnishing, installing, and removing Type III temporary excavation support.
15. Storm Water Infiltration Basin and Associated Components – Work includes, but is not limited to providing all labor, materials, layout and equipment required to

perform final grading and install drainage components for storm water infiltration basin. Including but not limited to erosion control fabric, riprap, check dams.

16. Final Grading and Site Restoration – Work includes, but is not limited to providing all labor, materials, layout and equipment required to perform final grading, site restoration, and application of palliative dust control.
  17. Survey Documentation and As-Built Drawings - Work includes, but is not limited to providing all labor, materials, survey and equipment required to complete documentation surveys of the excavation, backfill and develop As-Built drawings.
  13. Demobilization – Work includes, but is not limited to providing all labor, materials, and equipment to remove temporary facilities, any materials brought to site by contractor that OWNER desires removed, and demobilize from the site.
- B. The summary of work described above is an overall summary of the work to be performed and the responsibilities of the CONTRACTOR. It does not supersede the specific requirements of the other Contract Documents.
- C. These specifications are in many instances written in imperative and streamlined form. This imperative language is directed to the CONTRACTOR, unless specifically noted otherwise.

#### 1.03 WORK BY OTHERS

- A. The work to be performed by OWNER or OWNER's designated representatives is as follows:
1. General observation of work for conformance to specifications.
  2. Construction documentation and construction quality assurance testing including testing of soil backfill.
  3. Perform Storm Water Regulatory Compliance Inspections.
  4. Perform dust control inspections.
  5. Perform perimeter air monitoring.
  6. Collection of confirmation soil samples for chemical analysis.

#### 1.04 SEQUENCE OF WORK

- A. The work is to be coordinated with general site operations at the TIMET facility so as not to interfere with these activities.
- B. The excavation and removal of asbestos containing materials are to be completed prior to beginning other excavation work.
- C. Excavation, backfill, and site restoration activities to be completed within section of Beta Ditch located to the east of Pond HP6.

- D. Excavation, backfill, and site restoration activities of the remaining section of Beta/Northwest Ditch.

**PART 2 - PRODUCTS**

- A. Not Used.

**PART 3 - EXECUTION**

- A. Not Used.

END OF SECTION

**SECTION 01015**  
**GENERAL REQUIREMENTS**

**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Definitions and Technical Specification Explanations.
- B. Responsibilities.
- C. Permits and Fees.
- D. Purchase Order Releases/Changes in Work Scope.

1.02 DEFINITIONS AND TECHNICAL SPECIFICATION EXPLANATIONS

- A. ADDENDUM - Written or graphic instrument issued prior to the bid due date, which clarifies, corrects or changes the bidding documents of the CONTRACT DOCUMENT.
- B. PROJECT MANAGER - The authorized representative of the OWNER, named in the Specification Data Sheet, who shall perform OWNER's administrative and management responsibilities so as to complete the project to the satisfaction of the OWNER.
- C. ENGINEER - The retained and authorized representative of the OWNER, named in the Specification Data Sheet or a designated alternate, who shall perform engineering support responsibilities so as to complete the project to the satisfaction of the OWNER.
- D. CONSTRUCTION QUALITY ASSURANCE TECHNICIAN (CQA TECHNICIAN) - The retained and authorized representative of the OWNER, who shall perform inspection and testing responsibilities, so as to complete the project to the satisfaction of the OWNER.
- E. ASBESTOS SUPERVISOR - The retained and authorized representative of the OWNER, who shall perform excavation inspection to identify asbestos containing material and provide guidance to the contractor on maintaining proper asbestos removal procedures, so as to complete the project to the satisfaction of the OWNER.
- F. TIMET LIAISON - The authorized representative of the OWNER, named in the Specification Data Sheet, who shall perform coordination responsibilities related to site operations and construction interfaces, so as to complete the project to the satisfaction of the OWNER.
- G. CONTRACTOR - General Contractor awarded contract to perform WORK described by CONTRACT DOCUMENT.
- H. OWNER – Titanium Metals Corporation.
- I. WORK - Complete construction services including labor, materials, equipment, supervision and administration provided by the CONTRACTOR, or any portion thereof as implied by the context of the specification section in which the term is used.

- J. CONTRACT DOCUMENT - Document which includes the following: Agreement, General Conditions, Supplementary Conditions, Bid, Construction Technical Specifications, DRAWINGS, and Addenda.
- K. ACM - asbestos containing material
- L. OTHERS - Not Used.
- M. In the Technical Specifications where the word "CONTRACTOR" occurs, it shall imply contractor, subcontractor, erector, fabricator or material supplier for that particular section of the specifications.
- N. In the Technical Specifications, omitted phrases or words, such as "The CONTRACTOR shall", "in conformity with", "as noted on DRAWINGS", "according to the plans", "the", "all", are intentional and shall be supplied by inference.
- O. Reference to standard specifications or MANUFACTURER's directions shall mean the latest edition thereof at date of the Technical Specifications, unless otherwise noted.
- P. Project Commencement - Defined as prior to CONTRACTOR mobilizing to site.
- Q. Field Directive - Clarifications and changes to Technical Specifications and Project DRAWINGS will be made by ENGINEER or PROJECT MANAGER in a Field Directive.
- R. Substantial Completion - Point in time when all contaminated soils have been excavated and disposed of off-site and the excavation has been backfilled and compete.
- S. Project Completion - Point in time when all WORK is completed in accordance with Technical Specifications and proper submittals completed and verified.

### 1.03 RESPONSIBILITIES

- A. CONTRACTOR, subcontractor or material supplier shall become familiar with all conditions relating to execution of the WORK. Neglect of this requirement will not be accepted as course for additional compensation or time.
- B. CONTRACTOR shall be responsible for scheduling operations to coordinate WORK of his forces, subcontractors and suppliers so as to meet the project schedule and completion date.
- C. CONTRACTOR shall obtain complete data at the site and inspect areas scheduled to receive WORK before proceeding with such WORK; shall be solely responsible for obtaining and verifying the accuracy of all measurements and layout of WORK; and shall make good, errors or defects due to faulty measurements taken, information obtained, layout or due to failure to report discrepancies.
- D. CONTRACTOR shall notify ENGINEER and PROJECT MANAGER, in writing, in case of discrepancies between existing WORK and DRAWINGS or defects in such surfaces that are to receive WORK. Starting of WORK or failure to notify ENGINEER and PROJECT MANAGER of such discrepancies and/or defects shall constitute CONTRACTOR's acceptance of same. Removal and replacement of WORK applied to defective surfaces, in order to correct defects, shall be done at expense of CONTRACTOR who applied WORK to defective surfaces.

- E. PROJECT MANAGER shall be responsible for scheduling performance of WORK by OWNER or others.
- F. ENGINEER shall respond in writing to any written notifications made by the CONTRACTOR regarding discrepancies between existing WORK and DRAWINGS or defects in surfaces or areas that are to receive WORK.
- G. CQA TECHNICIAN shall be responsible to maintain daily contact with CONTRACTOR during progress of WORK and to facilitate communication between CONTRACTOR, PROJECT MANAGER, and ENGINEER.
- H. DUST CONTROL MONITOR shall work for the owner and have full authority to ensure that dust control measures are implemented, including deployment of resources and shut down of construction activities as necessary. The Dust Control Monitor shall be present at all times during which on- site construction activities have the potential to generate dust and shall devote the majority of his or her time specifically to the management of dust prevention and control. In addition, the Dust Control Monitor will conduct inspections and maintain records as required by the plan. This individual will have successfully completed the air quality classes required to maintain certification as a Dust Control Monitor.

#### 1.04 WORK PLANS, PERMITS, AND FEES

- A. Removal Action Work Plan: OWNER has approval of the Removal Action Work Plan by the Nevada Division of Environmental Protection. A copy of the permit is available for review by the CONTRACTOR at their request.
- B. Dust Control Permit: CONTRACTOR shall prepare a Dust Control Plan and obtain a Dust Control Permit from the Clark County Department of Air Quality. A copy of the plan and permit shall be submitted to the ENGINEER and OWNER. The DUST CONTROL MONITOR shall ensure CONTRACTOR implementation of the dust control plan and compliance with the Dust Control Permit.
- C. Storm Water Pollution Prevention Plan: CONTRACTOR shall prepare a Storm Water Pollution Prevention Plan and obtain approval from the Nevada Division of Environmental Protection. The ENGINEER shall ensure CONTRACTOR implementation and compliance with the Storm Water Pollution Prevention Plan.
- D. NESHAP Asbestos Abatement Notification: CONTRACTOR shall make notification of Asbestos Abatement Work with the Clark County Department of Air Quality. A copy of the asbestos abatement work plan and notification shall be submitted to the ENGINEER and OWNER. An ASBESTOS SUPERVISOR ensures CONTRACTOR implementation of the asbestos control plan and compliance with the Permit.
- E. Traffic Control and Transportation Plan: CONTRACTOR shall prepare a Traffic Control and Transportation Plan and obtain a Traffic Control/Encroachment Permit from the Clark County Public Works Department and/or from the City of Henderson. The plan shall also detail the haul route and contingency planning for accident and spills. A copy of the plan and permit shall be submitted to the ENGINEER and OWNER.
- F. Grading Permit: CONTRACTOR shall obtain a Grading Permit from the Clark County Building Department and comply with such permit requirements. A copy of the permit shall be submitted to the ENGINEER and OWNER.

**PART 2 - PRODUCTS**

- A. Not Used.

**PART 3 - EXECUTION**

- A. Not Used.

END OF SECTION

## SECTION 01019

### PHYSICAL CONDITIONS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Explanation of information available and procedures for dealing with unforeseen physical conditions.

##### 1.02 INFORMATION AVAILABLE

- A. The location of existing underground and aboveground utilities, and structures and obstructions shown on the DRAWINGS are taken from existing information and are approximate only. Additional underground structures and obstructions may also exist. Neither the OWNER nor the ENGINEER make any warranty, expressed or implied, as to the accuracy or completeness of utilities or facilities shown on the DRAWINGS. CONTRACTOR shall determine in his own way the obstructions and difficulties to be encountered in the execution of the work under this Contract. CONTRACTOR shall take all measures necessary to protect the underground and aboveground utilities and structures that are to remain from damage during the performance of WORK. Any damage to underground and aboveground utilities that are to remain as a result of the CONTRACTOR's work shall be repaired at no cost to the OWNER or ENGINEER.
- B. OWNER may have had surveys, reports, or subsurface investigations performed by ENGINEER or other consultants, the results of which are contained in the DRAWINGS or in subsurface investigation and other reports. (Available upon written request to PROJECT MANAGER.)

##### 1.03 UNFORESEEN PHYSICAL CONDITIONS

- A. Promptly notify OWNER and ENGINEER in writing of any subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Document.
- B. ENGINEER will promptly investigate those conditions and if ENGINEER finds that there are subsurface or latent physical conditions which differ materially from those intended in the CONTRACT DOCUMENT, and which could not reasonably have been anticipated by CONTRACTOR, and if the OWNER concurs with the ENGINEER's finding, a Change Order shall be issued incorporating the necessary revisions.

#### PART 2 - PRODUCTS

- A. Not Used.

#### PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

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**SECTION 01040**  
**PROJECT ADMINISTRATION**

**PART I - GENERAL**

1.01 WORK INCLUDED

- A. CONTRACTOR Supervision and Labor Force.
- B. CONTRACTOR's Subcontract WORK.
- C. Project Meetings.
- D. Construction Schedule.
- E. Working Hours and Coordination.
- F. Reports.

1.02 RELATED SECTIONS

- A. Section 01050 - Field Engineering and Surveying.
- B. Section 01300 - Submittals.
- C. Section 01400 - Quality Assurance, Inspection, and Testing.

1.03 CONTRACTOR SUPERVISION AND LABOR FORCE

- A. The CONTRACTOR shall assign one superintendent for the project and at least one foreman during each shift, acceptable to the PROJECT MANAGER to be on site continuously during Working hours from the start to finish of the project. CONTRACTOR shall keep the PROJECT MANAGER informed of the individuals assigned to the site and the means for contacting these individuals, should the CONTRACTOR's assigned individual be off site.
- B. CONTRACTOR shall use an adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for performance of the WORK.
- C. CONTRACTOR shall use experienced professional personnel for that WORK which requires the judgment, knowledge and expertise of qualified professionals and who are familiar with all aspects of the WORK.

1.04 CONTRACTOR SUBCONTRACT WORK

- A. SUBCONTRACTORS shall cooperate with the PROJECT MANAGER, ENGINEER, and CQA TECHNICIAN.

- B. CONTRACTOR's Superintendent/Foreman shall maintain communication between subcontracted personnel and shall be on site when SUBCONTRACTORS are on site performing WORK.
- C. CONTRACTOR shall direct SUBCONTRACTORS.

#### 1.05 PROJECT MEETINGS

- A. A pre-construction meeting will be conducted by either the PROJECT MANAGER or ENGINEER for the purpose of reviewing the WORK scope, discussing the CONTRACTOR's schedule and discussing project administration prior to the start of WORK. The CONTRACTOR shall contact the PROJECT MANAGER in writing at least five working days prior to the scheduled start of the WORK, to schedule the meeting. The meeting shall be held at the job site unless otherwise announced.
- B. Weekly scheduled progress meetings will be conducted by CQA TECHNICIAN for the purpose of coordinating and expediting the WORK. The date and hour will be announced by the CQA TECHNICIAN at least 48 hours before the scheduled assembly time or on regular basis if agreed to by CONTRACTOR. The meetings shall be held at the job site unless announced otherwise.
- C. Monthly scheduled project review meetings will be conducted by the PROJECT MANAGER for the purpose of monitoring the progress of the WORK. The meeting will be scheduled to coincide with the scheduled weekly progress reviews once per month. The ENGINEER will be in attendance at the monthly project review meetings.
- D. It is mandatory that the CONTRACTOR be represented at each meeting by a principal member of his staff, authorized to make decisions on his behalf. From time to time, the PROJECT MANAGER may direct certain SUBCONTRACTORS to attend the meetings. Failure to attend a meeting does not relieve the CONTRACTOR from acting on the contents of the meetings.
- E. The essence of the discussions of each meeting shall be entered into the minutes as a matter of record. The CQA TECHNICIAN will take the minutes of the job meetings and, on or before the next meeting, distribute copies of the minutes to all interested parties; namely:
  - 1. The PROJECT MANAGER.
  - 2. The ENGINEER.
  - 3. The CONTRACTOR.
  - 4. SUBCONTRACTORS present at the specific meeting.
- F. Special meetings may be called at the discretion of the PROJECT MANAGER or the ENGINEER for the purpose of resolving problems or for the purpose of discussing specific activities concerning the WORK. Attendance at the special meetings is mandatory upon the CONTRACTOR, SUBCONTRACTORS, or other parties notified by the OWNER or the ENGINEER to attend.

#### 1.06 CONSTRUCTION SCHEDULE

- A. Submit with Bid one copy of the Overall Construction Schedule. The schedule shall be time-scaled and shall show the WORK activities, including sequences of performance and interdependency. Each activity shall be labeled and include an estimated duration in days. The Overall Construction Schedule shall comply with the required contract completion date stated in the CONTRACT DOCUMENT and any WORK restrictions, including restrictions on days or hours of WORK, stated in the Specifications. The Overall Construction Schedule shall be discussed at the pre-construction meeting.
- B. On the first Working day of each month submit to the PROJECT MANAGER and ENGINEER for review one copy of the Overall Construction Schedule updated to indicate actual progress in percent completion for each activity. The updated schedule is termed the Progress Schedule. In addition to indicating actual progress, the Progress Schedule shall also indicate any changes in completion times or dates for any of the activities shown on the Schedule.
- C. Each Progress Schedule shall be submitted with a written narrative describing the revisions, if any, from the previously-submitted schedule, impacts upon the WORK and corrective actions taken or proposed by the CONTRACTOR.
- D. The OWNER's right to review or reject the CONTRACTOR's initial Overall Construction Schedule and subsequently-submitted Progress Schedules is for the benefit and protection of the OWNER and ENGINEER and not a benefit or service for the CONTRACTOR. Comments made by the OWNER's representatives on the Schedule, or lack of such comments, or rejection or non-rejection of the CONTRACTOR's Schedule does not relieve the CONTRACTOR from compliance with the CONTRACT DOCUMENT, nor do they create any responsibility or duty for scheduling owed from the OWNER or the ENGINEER to the CONTRACTOR. This review, whether accompanied by comments, rejection or neither, is only for general conformance with the schedule concept of the project and general compliance with the information given in the Contract Document.

#### 1.07 WORK HOURS AND COORDINATION

- A. CONTRACTOR shall perform WORK during a work schedule agreed to by the PROJECT MANAGER and TIMET Liaison at the pre-construction meeting. Starting time will be set by the PROJECT MANAGER.
- B. CONTRACTOR shall keep the PROJECT MANAGER informed, at a reasonable time in advance or as required by specific sections of these Specifications, of the times and places at which he wishes to do WORK, so that any checking or oversight deemed necessary may be done with minimum inconvenience to the PROJECT MANAGER.

#### 1.08 REPORTS

- A. The CONTRACTOR shall be required, if requested by the PROJECT MANAGER or ENGINEER, to submit special reports, including but not limited to:
  - 1. Accident Reports
  - 2. Work Stoppage/Dispute Records
  - 3. Systems-Operable Reports
  - 4. CONTRACTOR's Invoices

5. Schedule of Values
6. Weekly Employee Safety Meeting Reports

**PART 2 - PRODUCTS**

- A. Not Used.

**PART 3 - EXECUTION**

- B. Not Used.

END OF SECTION

## SECTION 01050

### FIELD ENGINEERING AND SURVEYING

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. CONTRACTOR Responsibilities and Submittals
- B. Layout, Verification and Submittal Requirements
- C. As-built Construction Documentation DRAWINGS

##### 1.02 RELATED SECTIONS

- A. Section 01300 - Submittals

##### 1.03 GENERAL CONTRACTOR RESPONSIBILITIES AND SUBMITTALS

- A. CONTRACTOR is responsible for all survey work and layout required to perform the WORK.
- B. CONTRACTOR is responsible for establishing three permanent horizontal control monuments and three permanent benchmarks use by OWNER at the site. Submit proposed location to OWNER prior to establishing control monuments and benchmarks and documentation on each of the monuments after establishment.
- C. The CONTRACTOR shall immediately, upon entering the site for purpose of beginning work, locate general reference points and take such action as is necessary to prevent their destruction. He shall lay out his own WORK and be responsible for all surveys, lines, elevations, and measurements of the Structures and other WORK executed by him under the Contract. He must exercise proper preparation to verify figures on the DRAWINGS before laying out WORK and will be held responsible for any error resulting from his failure to exercise such precaution.
- D. CONTRACTOR shall verify grades, lines, levels, locations, and dimensions as shown on DRAWINGS and report any errors or inconsistencies to the PROJECT MANAGER and ENGINEER before commencing WORK. Starting of WORK by CONTRACTOR shall constitute acceptance of all existing conditions.
- E. Any work done without being properly located may be ordered removed and replaced at the CONTRACTOR's expense.
- F. CONTRACTOR is responsible for collecting as-built data, preparing and submitting as-built construction DRAWINGS as specified herein.
- G. Survey work to be performed by CONTRACTOR shall be certified by a Registered Land Surveyor (RLS) or Professional ENGINEER (PE), registered in the State of Nevada.
- H. CONTRACTOR and his employed Land Surveyor shall carefully preserve all monuments, bench marks, monitoring wells, extraction wells, reference points and other facilities.

CONTRACTOR will be charged with the expense of replacement of any such items destroyed, and shall be responsible for any mistakes or loss of time that may be caused. Permanent monuments or bench marks that must be removed or disturbed shall be protected until they can be properly referenced for relocation. CONTRACTOR shall furnish materials and assistance for the proper replacement of such monuments or bench marks at no cost to the OWNER.

#### 1.04 LAYOUT, VERIFICATION AND SUBMITTAL REQUIREMENTS

- A. Provide field Engineering services as required herein. Utilize recognized Engineering survey practices.
- B. Establish elevations, lines and levels as required. Periodically verify layouts.
- C. For verification of grades, slopes and material thickness constructed by the CONTRACTOR, the CONTRACTOR's land surveyor shall obtain and document a matrix of survey points as described herein:
  - 1. Existing site conditions - 50-foot grid and all break points and surface features within the construction limits.
  - 2. Excavation grades - 50-foot grid and all break points within the construction limits.
  - 3. Final grades - 50-foot grid and all break points within the construction limits.
  - 4. Final site conditions - ground surface inside and outside of cell and soil stockpiles, and all break points and surface features within construction limits shown on the DRAWINGS - 50-foot grid. Location and extent of all paving and concrete pads.
- D. CONTRACTOR shall submit survey data for each of the surfaces or layers as described above in an electronic copy of the grade table supplied by the ENGINEER. The tabulated data shall include the coordinate, elevation, difference from previous elevation (for material thickness checks) and the design elevations. CONTRACTOR shall obtain written approval from ENGINEER prior to the placement of any overlying materials.

#### 1.05 AS-BUILT CONSTRUCTION DRAWINGS

- A. Within 10 days or as specified below after ENGINEER's and PROJECT MANAGER's approval of a surface or layer, the CONTRACTOR's Land Surveyor shall prepare and submit as-built DRAWINGS based on the matrix of survey points obtained for the particular surface or layer. The following DRAWINGS shall be submitted:
  - 1. Existing site conditions.
  - 2. Excavation grade documentation.
  - 3. Base grade documentation.
  - 9. Final site conditions.
- B. Each drawing shall contain as a minimum the following items:
  - 1. 2-foot contour interval.

2. Title block with name of project.
  3. Plan drawing at 1 inch=50 feet on 24-inch by 36-inch sheets.
  4. Identification of surface features such as wells, cleanouts, roads, etc.
- C. DRAWINGS are to be submitted in hard copy format and three-dimensional AutoCAD Version 2010 or newer contour file on CD-Rom. In addition, the point data set for each survey performed on which the DRAWINGS are based, shall be submitted in digital form (i.e., .DAT files.)

#### 1.06 OWNER SURVEY RESPONSIBILITIES

- A. If necessary, the OWNER may employ registered land surveyor licensed in the State of Nevada for verification of CONTRACTOR SURVEYS.
- B. All OWNER survey data and related calculations will be available for review by the CONTRACTOR.

#### PART 2 - PRODUCTS

- A. Not Used.

#### PART 3 - EXECUTION

- A. The CONTRACTOR upon mobilizing to the site shall establish three permanent horizontal control monuments and three benchmarks in accordance with the Nevada Department of Transportation Location Division, Survey Standards. The monuments and benchmarks shall meet the Minimum Control and Land Survey Standards for Basic Control.
- B. The CONTRACTOR upon mobilizing to the site shall perform an initial site survey for confirmation of the existing site conditions, prior to beginning site disturbance activities.

END OF SECTION

**SECTION 01275  
MEASUREMENT AND PAYMENT**

**PART 1 GENERAL**

**1.01 WORK INCLUDES**

- A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.
- B. Measurement and payment criteria applicable to portions of the Work performed under a lump sum payment method.

**1.02 SUBMITTALS**

- A. Administrative Submittals
  - 1. Schedule of Values, 14 days prior to first progress payment.
  - 2. Monthly Payment Application.
  - 3. Final Payment Application.

**1.03 UNIT QUANTITIES SPECIFIED**

- A. Quantities indicated in the Bid Schedule are approximate and are given only for bidding and contract purposes only. OWNER does not either expressly or by implication warrant that the actual quantities will correspond to the estimated quantities. OWNER reserves the right to increase or decrease the amount of work performed under unit price items, or to omit work altogether. No adjustments in contract unit prices will be made except as provided in the General Conditions. Quantities and measurements supplied or placed in the Work and verified by the OWNER determine payment.

**1.04 MEASUREMENT OF QUANTITIES**

- A. Measurement Devices:
  - 1. Weigh Scales: Inspected, tested and certified by the applicable State Weights and Measures department within the past year.
  - 2. Platform Scales: Of sufficient size and capacity to accommodate the conveying vehicle.
- B. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
- C. Measurement by Volume – Measured by cubic dimension using mean length, width, and height or thickness. Unless specified otherwise, volumes shall be computed using the average-end-area method with cross sections surveyed at maximum 100-foot spacing. On curved alignments, volume computations shall utilize the length between the centroid of each area at adjacent cross sections rather than the nominal cross section spacing along the alignment.
  - 1. Measurement will be made from the limit of the neat lines shown on the Drawings or to the approved limits of excavation.
- D. Measurement by Area – Measured by square dimensions using mean length and depth, width, or radius as applicable.
- E. Linear Measurements:
  - 1. Measured by linear dimension at the item centerline or mean chord.
  - 2. Based on a horizontal projection of the actual length except where specified as a vertical measurement.

- F. Perform surveys, field measurement and calculations to measure installed quantities for all Unit Price pay items in conformance with the attached Listing of Pay Items.
- G. Notify Owner in advance, and obtain Owner witness of daily field measurement for work performed under Unit Price Pay Items.
- H. Include backup data and calculations with application for payment.
- I. Measurement by the Contractor is subject to review, verification, and approval by the Owner.
- J. Round to the nearest whole unit for pay quantities.

1.05 PAY ITEMS

- A. Payment For Unit Price Items
  - 1. Unit Price Work:
    - a. Reflect unit price quantity and price breakdown from the Schedule of Contract Items and Prices in the Bid Proposal.
    - b. Estimated quantities shown on the Bid Proposal are approximate and are given only for a comparison of bids. OWNER does not either expressly or by implication warrant that the actual quantities will correspond to the estimated quantities. OWNER reserves the right to increase or decrease the amount of work performed under unit price items, or to omit work altogether. No adjustments in contract unit prices will be made except as provided in the General Conditions.
  - 2. Final payment for Work governed by unit prices will be made based on the actual measurements and quantities accepted by the OWNER, multiplied by the unit price for Work that is incorporated in or made necessary by the Work.
- B. Payment For Lump Sum Items
  - 1. Payment for lump sum Work shall be made in accordance with the accepted schedule of values.
  - 2. An unbalanced or front-end loaded schedule will not be acceptable.
  - 3. Payment for lump sum Work covers all Work required to complete the work as shown or specified that is not covered under the unit price items, and shall be based on the breakdown included in the approved Schedule of Values.
  - 4. Summation of the complete Schedule of Values shall equal the Contract Price for the lump sum item.
- C. Base Bid Pay Item Breakdown

ITEM NO.	ITEM	UNIT	DESCRIPTION	MEASUREMENT AND PAYMENT TERMS
<b>01 General Requirements</b>				
1.01	Mobilization	Lump Sum	Work includes, but is not limited to the obtaining all required permits and approvals; mobilization of all personnel, equipment, and materials; completion of surveys.	Payments will be made in two, 50% payments made in each of the first two contractor invoices.
1.02	Temporary Facilities and Controls	Lump Sum	Work includes, but is not limited to installation and removal of all temporary facilities; temporary utility connections, parking, sanitary facilities and establishing staging/lay down areas, equipment servicing and maintenance facilities, access roads, safety items, compliance with Stormwater Pollution Prevention Plan and Dust Control Plan.	Payment based on 100% completion of the work, or a mutually agreed percentage for progress payment.
1.03	Project Submittals	Lump Sum	Work Includes preparation of Dust Control Plan, Stormwater Pollution Prevention Plan, Health and Safety Plan and all other preconstruction submittals	Payment based on 100% completion of the work, or a mutually agreed percentage for progress payment.
<b>02 Site Preparation</b>				
2.01	Clearing and Grubbing	Lump Sum	Work includes, but is not limited to providing all labor, materials, layout, and equipment required to remove vegetation from work areas. Shake soil from roots. Temporarily stockpile, load, and transport for disposal.	Payment based on 100% completion of the work.
2.02	Transport and Dispose of Vegetation	Ton	Transport and Dispose of Vegetation – Work includes, but is not limited to providing all labor, materials, and equipment required to load and transport vegetation to an off-site disposal facility. Work includes handling and transportation. Tipping fee at landfill will be paid directly by OWNER.	Ton as measured by actual weight slips from certified weight scale.  Payment based on 100% completion of the work.

ITEM NO.	ITEM	UNIT	DESCRIPTION	MEASUREMENT AND PAYMENT TERMS
2.03	Abandon Pipelines and Culverts	Lump Sum	Work includes but is not limited to, providing all materials, equipment, layout, labor to locate and abandon buried pipelines and culverts that cross, enter, or exit the Beta/Northwest Ditch excavation limits in accordance with the Specifications, Drawings, or as directed by the Owner/Engineer. The work includes, but not limited to, all excavation, cutting, cleaning, removal, grouting, and capping of the pipes. This scope does not include pipes identified as containing ACM.	Payment based on 100% completion of the work.
2.04	Demolish Existing Drainage Structures and other Site Structures	Lump Sum	Work includes, but is not limited to providing all labor, materials, layout and equipment required to demolish and stockpile existing drainage structures.	Payment based on 100% completion of the work.
2.05	Transport and Dispose of Demolition Debris	Ton	Work includes, but is not limited to providing all labor, materials, and equipment required to load and haul demolition debris to an off-site disposal facility. Work includes handling and transportation. Tipping fee at the landfill will be paid directly by OWNER.	Ton as measured by actual weight slips from certified weight scale. Payment based on 100% completion of the work.
2.06	Abandon Extraction Well	Each	Work includes, but is not limited to providing all labor, materials, layout, equipment, and documentation required to properly abandon designated wells in accordance with Nevada Division of Water Resources Requirements.	Measured as EACH completed and accepted Extraction Well Abandonment. Payment based on 100% completion of the work.
2.07	Protect Extraction Wells	Each	Work includes, but is not limited to providing all labor, materials, layout, and equipment required to protect wells not designated for abandonment during the Work.	Measured as EACH completed and accepted Protection of Extraction Well.

ITEM NO.	ITEM	UNIT	DESCRIPTION	MEASUREMENT AND PAYMENT TERMS
2.08	Excavate, Stockpile, and Load Asbestos Containing Materials	Ton	Excavation, stockpile, and loading, Asbestos Containing Materials in accordance with approved plan. ACM can consist of asbestos materials in soils and/or asbestos cement piping.	Ton as measured by actual weight slips from certified weight scale and survey verification of excavation grades.  Payment based on 100% completion of the work.
2.09	Transport Asbestos Containing Materials	Ton	Transport asbestos containing materials to an approved disposal facility in accordance with the requirements of the disposal authority. Tipping fee at the landfill will be paid directly by OWNER	Ton as measured by actual weight slips from certified weight scale  Payment based on 100% completion of the work.
<b>03 Earthwork</b>				
3.01	Excavate, Stockpile, and Load Contaminated Soils	Ton	Work includes, but is not limited to providing all labor, materials, layout, and equipment required to excavate, load and haul contaminated soils to an off-site disposal facility. Work includes handling and transportation. Tipping fee at the landfill will be paid directly by OWNER	Ton as measured by actual weight slips from certified weight scale and survey verification of excavation grades.  Payment based on 100% completion of the work.
3.02	Transport Contaminated Soils	Ton	Transport asbestos containing materials to an approved disposal facility in accordance with the requirements of the disposal authority. Tipping fee at the landfill will be paid directly by OWNER	Ton as measured by actual weight slips from certified weight scale.  Payment based on 100% completion of the work.
3.03	Transport Hazardous Soils	Ton	Transport asbestos containing materials to an approved disposal facility in accordance with the requirements of the disposal authority. Tipping fee at the landfill will be paid directly by OWNER	Ton as measured by actual weight slips from certified weight scale.  Payment based on 100% completion of the work.
3.04	Excavation Backfill	Ton	Work includes, but is not limited to providing all labor, materials, and equipment required for furnishing, transporting, stockpiling, placing, compacting, and testing imported backfill, as approved by the Engineer.	Ton as measured by actual weight slips from certified weight scale and survey verification of backfill grades.  Payment based on 100% completion of the work.

ITEM NO.	ITEM	UNIT	DESCRIPTION	MEASUREMENT AND PAYMENT TERMS
3.05	Type I Temporary Excavation Support (A-A)	Linear Foot	Work includes, but is not limited to providing all labor, materials, layout and equipment required for designing, furnishing, installing, and removing Type I temporary excavation support.	<p>Type I temporary excavation support will be measured by the linear foot along the top of the excavation support, in a straight line with no additions for projections, bracing, tiebacks, and supports.</p> <p>Payment for Type I temporary support of excavation will be at the Contract unit price per linear foot, which shall be full compensation for excavation support wall, bracing, tiebacks, and all related Work as specified. Payment based on 100% completion of work.</p>
3.06	Type II Excavation Support (H-H)	Linear Foot	Work includes, but is not limited to providing all labor, materials, layout and equipment required for designing, furnishing, installing, and removing Type II temporary excavation support.	<p>Type II temporary excavation support will be measured by the linear foot along the top of the excavation support, in a straight line plane with no additions for projections, bracing, tiebacks, and supports.</p> <p>Payment for Type II temporary support of excavation will be at the Contract unit price per linear foot, which shall be full compensation for excavation support wall, bracing, tiebacks, and all related Work as specified. Payment based on 100% completion of work.</p>
3.07	Type III Excavation Support (No Tie Backs)	Linear Foot	Work includes, but is not limited to providing all labor, materials, layout and equipment required for designing, furnishing, installing, and removing Type III temporary excavation support.	<p>Type III temporary excavation support will be measured by the linear foot along the top of the excavation support, in a straight line plane with no additions for projections, bracing, and supports.</p> <p>Payment for Type III temporary support of excavation will be at the Contract unit price per linear foot, which shall be full compensation for excavation support wall, bracing, tiebacks, and all related Work as specified. Payment based on 100% completion of work.</p>

ITEM NO.	ITEM	UNIT	DESCRIPTION	MEASUREMENT AND PAYMENT TERMS
3.08	Storm Water Infiltration Basin and Associated Components	Lump Sum	Work includes, but is not limited to providing all labor, materials, layout and equipment required to perform final grading and install drainage components for stormwater infiltration basin	Payment based on 100% completion and acceptance of the work.
<b>04 Site Restoration</b>				
4.01	Final Grading and Site Restoration	Square Yard	Work includes, but is not limited to providing all labor, materials, layout and equipment required to perform final grading, site restoration, and application of palliative dust control.	Square Foot as measured to the lines shown on the Drawings unless otherwise directed by the Engineer
4.02	Survey Documentation and As-Built Drawings	Lump Sum	Work includes, but is not limited to providing all labor, materials, survey and equipment required to complete Documentation Surveys of the Excavation, Backfill, and developing As-Built drawings.	Payment based on 100% completion and acceptance of the work.
4.03	Demobilization"	Lump Sum	Work includes, but is not limited to providing all labor, materials, and equipment to remove temporary facilities, any materials brought to site by contractor that OWNER desires removed, and demobilize from the site.	Payment based on 100% completion and acceptance of the work.

1.06 SCHEDULE OF VALUES

- A. Provide breakdown of lump sum pay items to facilitate review of progress payments. Breakdown by work items as requested by Owner/Engineer.
- B. Submit on CONTRACTOR's standard form.

1.07 PROGRESS PAYMENTS

- A. Submit progress payments monthly, in accordance with requirements of the Special Conditions.
- B. Include accepted schedule of values for each portion of Work and the unit price breakdown for Work to be paid on unit price basis, and allowances.
- C. Preparation:
  - 1. Round values to the nearest dollar.
  - 2. List each Change Order and Written Amendment executed prior to date of payment request as separate line items.

1.08 NONPAYMENT FOR REJECTED OR UNUSED

- A. Payment will not be made for the following:
  - 1. Materials excavated and/or placed beyond the Design Lines shown on the Drawings, except as specifically required by the ENGINEER.
  - 2. Loading, hauling, and disposing of rejected material.
  - 3. Quantities of material wasted or disposed of in a manner not called for under Contract Documents.
  - 4. Rejected loads of material, including material rejected after it has been placed by reason of failure of CONTRACTOR to conform to provisions of Contract Documents.
  - 5. Material not unloaded from transporting vehicle.
  - 6. Defective work not accepted by OWNER.
  - 7. Material remaining on hand after completion of Work.

**PART 2 PRODUCTS**

Not Used.

**PART 3 EXECUTION**

Not Used.

**END OF SECTION**

**SECTION 01300**  
**SUBMITTALS**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. General.
- B. Submittal schedule.
- C. Submittal procedures.
- D. Construction progress schedules.
- E. Proposed products list.
- F. Shop drawings.
- G. Product data.
- H. Samples.

1.02 RELATED SECTIONS

- A. Section 01700 - Contract Closeout

1.03 GENERAL

- A. Submittals: On copies of attached Submittal Form.
- B. The Engineer will review all submittals solely for the purpose of determining whether the information contained in the submittal conforms to the design concept of the contract documents. The Engineer will return the submittals with the following classifications:
  - 1. Work May Proceed. Reviewed for general consistency with contract documents, no corrections, or marks.
  - 2N. Work May Proceed Subject to the Changes Indicated. Re-submittal not required: Minor corrections. Proceed with Work subject to comments and revisions; no re-submittal is required.
  - 2R. Work May Not Proceed Indicated Part(s). Re-submittal Required. Work may proceed on other items: Minor corrections. Proceed with work subject to comments and revisions; a re-submittal is required.
  - 3. Work May Not Proceed. Revise and Resubmit. All major corrections or not in conformance with contract documents, correct and resubmit.
  - 4. For Information Only. Items not reviewed or items for which no submittal is required.

- C. Engineer's review of submittals for conformance with contract documents does not relieve the Contractor from responsibility with regard to fulfillment of the terms of the Contract and proper and complete performance of the Work in accordance with the requirements of the Drawings, Specification, applicable permits, as well as the general requirements of the Contract Documents.
- D. Engineer's review of submittals does not relieve the Contractor from responsibility for errors or omissions in it's designs, details, calculations, analyses, test methods, materials, and it's sole responsibility for Means and Methods of Construction, and safe and successful construction of the Work.

#### 1.04 SUBMITTAL SCHEDULE

- A. See Table 01300-1 - List of Submittals attached at the end of this Section. Submittals are required on the items as described individually in each Section of the Technical Specification. The description of the submittal data is defined in the Technical Specification. The summary of the required submittals contained in Table 01300-1 may not include all required submittals. Provide all submittals required by the Specification even if not listed in Table 01300-1.

#### 1.05 SUBMITTAL PROCEDURES

- A. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix. Start sequential numbering with the related Specification number. For example submittal numbered 01111-11-B is the second revision (B) of the eleventh submittal (11) for Section 01111.
- B. Identify Project, Contractor, Subcontractor, or supplier; pertinent drawing and detail numbers, and specification section number, as appropriate.
- C. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, are in accordance with the requirements of the Work and Contract Documents.
- D. Schedule submittals to expedite the Project, and deliver to Construction Manager, BMI Beta/Northwest Ditch Excavation, Titanium Metals Corporation, Henderson, Nevada. Coordinate submission of related items. Provide five copies to the Engineer of each submittal unless specified otherwise. The Engineer will provide the Owner with one copy of each approved submittal.
- E. For each submittal, allow a minimum of 15 workdays, excluding delivery time to and from the Contractor, unless specified otherwise.
- F. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- G. Provide space for Contractor and Engineer review stamps.

- H. Revise, update, and resubmit, identifying all changes made since previous submission. For each re-submittal (in response to Codes 2R or 3), allow the same number of workdays required for the original submittal.
- I. The Engineer shall distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with provisions.
- J. Submittals not requested will not be recognized or processed.

#### 1.06 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate as set forth in Schedule I of the Agreement.
- B. Revise and resubmit as required.
- C. Indicate submittal dates required for shop drawings, Product data, samples, and Product delivery dates including those furnished by Owner and required by Allowances.

#### 1.07 PROPOSED PRODUCTS LIST

- A. Within 15 calendar days after date of Notice to Proceed, submit list of major Products proposed for use, with the name of manufacturer, trade name, and model number of each Product.
- B. For Products specified only by reference standards, submit Manufacturer trade name, model, or catalog designation, and reference standards.

#### 1.08 SHOP DRAWINGS

- A. Submit the number of opaque reproductions that Contractor requires, and required copies, which will be retained by the Owner and Engineer respectively.
- B. Shop Drawings: Submit for review. After review, produce copies, and distribute in accordance with the SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700.

#### 1.09 PRODUCT DATA

- A. Submit the number of copies that the Contractor requires, and copies required by the Engineer and Owner.
- B. Mark each copy to identify applicable Products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700.

#### 1.10 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product with integral parts and attachment devices. Coordinate sample submittals for interfacing Work.
- B. Include identification on each sample with full Project information.
- C. Submit the number of samples specified in individual specification sections, one of which will be retained by Engineer.
- D. Reviewed samples that may be used in the Work are indicated in individual specification sections.

**TABLE 01300-1 - LIST OF SUBMITTALS**

<b>Item</b>	<b>Reference Section</b>	<b>Submittals Required</b>	<b>Due Date or Delivery Time</b>
General Requirements	01015	Dust Control Plan	
		Storm Water Pollution Prevention Plan	
		Transportation Plan	
Project Administration	01040	Overall Construction Schedule	With the bid.
	01040	Progress Schedule	First working day of each month
Field Engineering and Surveying	01050	Horizontal Control and Benchmarks	Within 10 days or as specified by the Engineer
		Existing Site Conditions	Within 10 days or as specified by the Engineer
		Excavation Grade Documentation	Within 10 days or as specified by the Engineer
		Base Grade Documentation	Within 10 days or as specified by the Engineer
		Final Site Conditions	Within 10 days or as specified by the Engineer
Site Health and Safety	01900	Site Safety and Health Plan	Prior to start of site activities
	01900	Material Safety Data Sheets	Prior to start of site activity
	01900	OSHA 29 CFR 1910.120 Certification	Prior to start of site activity
	01900	First Aid and CPR Certification	Prior to start of site activity
Material Management	02080	Excavated Materials Management Plan	10 work days prior to excavation.
	02080	Daily tracking information	Daily
	02080	Records of water disposal	Daily
	02080	Off-site transportation records, including receiving facilities weight slips	Daily

**TABLE 01300-1 - LIST OF SUBMITTALS**

<b>Item</b>	<b>Reference Section</b>	<b>Submittals Required</b>	<b>Due Date or Delivery Time</b>
Earthwork	02200	75-lb. sample of granular fill.	Three weeks prior to use.
Support of Excavation	02320	SOE System Design	15 work days prior to commencement of work.
	02320	Installation Equipment and Procedures	15 work days prior to commencement of work.
	02320	Installation Records	Daily
	02320	Tieback Anchor Tests	Daily
Abandonment of Wells	02520	Name and License of Well Driller	15 work days prior to commencement of work.
	02520	Well Abandonment Plan	15 work days prior to commencement of work.
Abandonment of Existing Pipes	02521	Pipe Abandonment Plan	15 work days prior to commencement of work.

**PART 2 - PRODUCTS**

A. Not Used.

**PART 3 - EXECUTION**

A. Not Used.

END OF SECTION

## SECTION 01400

### QUALITY ASSURANCE AND QUALITY CONTROL

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. OWNER's Construction Quality Assurance (CQA) Plan Related to Inspection and Testing
- B. CONTRACTOR's Responsibilities
- C. ENGINEER's Responsibilities
- D. CONSTRUCTION INSPECTOR'S Responsibilities
- E. CQA TECHNICIAN
- D. ASBESTOS SUPERVISOR

##### 1.02 OWNER'S CONSTRUCTION QUALITY ASSURANCE

- A. OWNER shall arrange for construction oversight in the form of inspection and testing activities, to confirm that the construction activities and the completed project comply with the approved Plans Technical Specifications and contract Drawings
- B. OWNER shall retain the services of an Engineer to provide construction observation and CQA services
- C. OWNER's inspection and testing activities shall consist of the following activities:
  - 1. Daily observation and recording of contractor activities by the CQA TECHNICIAN.
  - 2. ASBESTOS SUPERVISOR to identify ACM materials in soil that would need to be excavated, handled, wrapped, transported, and disposed of at APEX; and directs the CONTRACTOR's is performing appropriate dust control and ACM handling procedures.
  - 3. Documenting and observing material excavation, dust control, stockpiling, loading, hauling, and disposal activities.
  - 3. Obtaining of material samples for laboratory testing.
  - 4. Obtaining confirmation samples from bottom of excavation.
  - 3. On-site visual material inspection and testing by the CQA TECHNICIAN.

##### 1.04 CONTRACTOR'S RESPONSIBILITIES

- A. The CONTRACTOR is ultimately responsible for the WORK to be performed in strict accordance with the Technical Specifications and DRAWINGS, using the necessary construction procedures and techniques. The CONTRACTOR is also responsible for

coordinating, supervising and overseeing subcontractors as needed and employed by the CONTRACTOR to perform construction related activities.

- B. The CONTRACTOR shall perform testing he deems necessary to satisfy requirements of the Technical Specifications related to off-site materials prior to delivery of said materials to the site. Materials that do not meet the requirements shall be removed from the site at the expense of the CONTRACTOR.
- C. The CONTRACTOR shall cooperate with the PROJECT MANAGER, ENGINEER, and the CQA TECHNICIAN in furnishing material samples, and in providing assistance in their performance of the on-site inspection and testing activities.
- D. The CONTRACTOR shall assure that all submittals required by the CONTRACT DOCUMENT for the CONTRACTOR or his subcontractors are completed within the times specified. Failure to do so will result in withholding of payment.
- E. The CONTRACTOR shall perform or arrange for all survey and layout work to be performed, and for documentation to be obtained in accordance with the applicable section of these Technical Specification.

#### 1.05 ENGINEER'S RESPONSIBILITIES

- A. ENGINEER is responsible for making any necessary design changes, approving CONTRACTOR's submittals, reviewing the CQA TECHNICIAN's written reports, reviewing material test reports, and preparing the Construction Documentation Report and DRAWINGS.
- B. The ENGINEER is responsible for assisting the PROJECT MANAGER in modifying construction site activities and specifying specific corrective measures in cases where there is deviation from the specified design or failure to meet design criteria of Technical Specifications and DRAWINGS. In cases where design changes require approval of regulatory agency, ENGINEER will assist PROJECT MANAGER in obtaining said approval.

#### 1.06 PROJECT MANAGER'S RESPONSIBILITIES

- A. The PROJECT MANAGER is responsible for confirming construction compliance with the Technical Specifications and Project DRAWINGS by performing observations, inspections, verifications, and documentation activities.

#### 1.07 CQA TECHNICIAN

- A. The CQA TECHNICIAN is responsible for observing and performing testing during the construction activities. The CQA TECHNICIAN will assist the PROJECT MANAGER and ENGINEER in their responsibilities.

#### 1.08 ASBESTOS SUPERVISOR

- A. The ASBESTOS SUPERVISOR is responsible for identifying asbestos containing materials and directing the removal and proper handling of the abatement work during the construction activities. The ASBESTOS SUPERVISOR will assist the PROJECT MANAGER and ENGINEER in their responsibilities.

**PART 2 - PRODUCTS**

- A. Not Used.

**PART 3 - EXECUTION**

- A. Not Used.

END OF SECTION

## SECTION 01500

### SITE REQUIREMENTS, CONSTRUCTION FACILITIES, AND TEMPORARY CONTROLS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. General Site Requirements including use of site facilities, protection of personnel and equipment.
- B. Site Specific Requirements including security, access roads, parking, fire protection and emergencies, archaeological or historic relics.
- C. Construction Facilities including field offices and structures, laydown and equipment storage locations, temporary utilities, sanitary facilities.
- D. Temporary Controls including dust, water and erosion controls, barriers, enclosures, fencing, protection of the WORK, cleaning.

##### 1.02 RELATED SECTIONS

- A. Not Used.

##### 1.03 USE OF SITE FACILITIES

- A. CONTRACTOR shall assume that all existing facilities are and will remain in service during the performance of the WORK, unless specifically identified in the CONTRACT DOCUMENT or as coordinated by the PROJECT MANAGER or TIMET LIAISON.
- B. CONTRACTOR shall avoid traffic conflict with operations and vehicles of the OWNER's or the OWNER's agents at the site, by limiting access to the routes as directed by the TIMET LIAISON or PROJECT MANAGER.

##### 1.04 SECURITY

- A. Admittance of CONTRACTOR's employees and equipment to be coordinated with TIMET LIAISON at least five working days prior to the date when work is to begin.
- B. Security is not provided by the OWNER for CONTRACTOR's property.
- C. TIMET maintains a comprehensive security program to provide protection for OWNER, personnel and property, to prevent risk to public health and safety, and to assure reliable service to its customers. All security procedures apply to the CONTRACTOR and their employees who perform work at TIMET facilities and sites and are intended to support the stated objectives of the TIMET security program.

##### 1.05 ACCESS ROADS AND PARKING

- A. CONTRACTOR shall construct and maintain temporary roads necessary to perform the work within the construction area or as shown on the DRAWINGS or as directed by the TIMET LIAISON.
- B. Existing on-site roads used within designated construction limits for construction traffic, as approved by the TIMET LIAISON, shall be restored to their original condition upon completion of the construction activities.
- C. Existing on-site roads outside of construction limits which share construction and operations traffic shall be restored by OWNER at completion of the work.
- D. Parking areas at the site shall be designated by the TIMET LIAISON.

#### 1.06 FIRE PROTECTION AND EMERGENCIES

- A. CONTRACTOR shall furnish and maintain a suitable type and amount of portable fire extinguishers or carts.
- B. CONTRACTOR shall abide by the OWNER's emergency notification and operating practices for emergency situations. These practices will be discussed at the pre-construction meeting.

#### 1.07 FIELD OFFICES AND STRUCTURES

- A. CONTRACTOR shall provide a temporary field office sufficient to conduct construction meetings with a minimum of eight people.
- B. CONTRACTOR shall provide necessary temporary sheds or other storage facilities to accommodate CONTRACTOR's supply and storage needs.
- C. TIMET LIAISON shall direct the location for CONTRACTOR's placement of field offices and structures.

#### 1.08 TELEPHONE SERVICE

- A. CONTRACTOR shall provide, maintain and pay for telephone service to the site from project start to completion. Possession by the CONTRACTOR's designated on-site superintendent or foreman of a cellular phone is acceptable to meet this requirement.

#### 1.09 TEMPORARY UTILITIES

- A. ELECTRICITY
  - 1. CONTRACTOR shall arrange for temporary electrical service as needed.
- B. WATER
  - 1. CONTRACTOR shall furnish drinking water as required.
  - 2. Non-potable water required for the WORK, will be available free of charge at presently available outlets and pressures as shown on the drawings.

#### 1.10 SANITARY FACILITIES

- A. Provide temporary sanitary toilet facilities conforming to state and local health and sanitation regulations in sufficient number for use by CONTRACTOR's and SUBCONTRACTOR's employees.
- B. Maintain in sanitary conditions and properly supply with toilet paper.

#### 1.11 LAYDOWN AND EQUIPMENT STORAGE LOCATIONS

- A. CONTRACTOR shall park equipment and store materials only in those areas designated on the DRAWINGS, specified in the CONTRACT DOCUMENT, or as directed by the TIMET LIAISON.
- B. Areas disturbed by the CONTRACTOR shall be restored to their original condition upon project completion.

#### 1.12 DUST AND MUD CONTROLS

- A. CONTRACTOR shall conduct operations and maintain the site to minimize the creation and dispersion of dust and mud.
- B. CONTRACTOR shall provide on-site, the equipment necessary to control dust generation resulting from wind effects on open stockpiles and excavations, and from CONTRACTOR's vehicle and equipment traffic while both on and accessing the site. The means to control such dust is by the application of water to affected areas, such that the surfaces are moistened to prevent dust from becoming a nuisance to the public, neighbors and concurrent performance of other WORK at the site.
- C. Dust control watering shall be conducted by the CONTRACTOR seven (7) days a week until completion of construction activities.
- D. CONTRACTOR shall control mud and tracking of mud both on and off the site by providing stone and grade and fill areas to prevent tracking.
- E. TIMET LIAISON shall monitor site conditions related to dust and mud generation on a daily basis and direct the CONTRACTOR to take actions as necessary to address observed deficient practices or conditions.

#### 1.13 WATER AND EROSION CONTROLS

- A. CONTRACTOR shall grade the site to drain in accordance with the final grading plans shown on the DRAWINGS.
- B. CONTRACTOR shall provide, maintain and erosion control to prevent water from leaving property.

#### 1.14 BARRIERS AND PROTECTION OF INSTALLED WORK

- A. CONTRACTOR shall protect installed WORK and provide special protection where specifically in the Technical Specifications.
- B. CONTRACTOR shall provide barriers to prevent unauthorized entry to construction and staging areas as necessary and shall protect existing facilities and adjacent properties from damage from construction operations.

1.15 PROGRESS CLEANING

- A. CONTRACTOR shall maintain areas free of waste materials, debris and rubbish. The site shall be maintained in a clean and orderly condition.
- B. CONTRACTOR shall remove waste materials, debris and rubbish from the site weekly and dispose off-site.

**PART 2 - PRODUCTS**

- A. Not Used.

**PART 3 - EXECUTION**

- A. Not Used.

END OF SECTION

## SECTION 01560

### PROTECTION OF ENVIRONMENT

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. CONTRACTOR, in executing Work, shall maintain WORK areas on- and off-site free from environmental pollution that would be in violation of federal, state, or local regulations.

##### 1.02 PROTECTION OF STORM SEWERS

- A. Prevent construction material, pavement, concrete, earth, or other debris from entering existing storm sewer or sewer structures.

##### 1.03 PROTECTION OF WATERWAYS

- A. Storm Water Pollution Prevention Plan: CONTRACTOR shall prepare a Storm Water Pollution Prevention Plan and obtain approval from the Nevada Division of Environmental Protection. The ENGINEER shall ensure CONTRACTOR implementation and compliance with the Storm Water Pollution Prevention Plan.
- B. Observe rules and regulations of State of Nevada and agencies of US government prohibiting pollution of lakes, streams, rivers, or wetlands by dumping of refuse, rubbish, dredge material, or debris.
- C. Comply with procedures outlined in US EPA manuals entitled, "Guidelines for Erosion and Sedimentation Control Planning and Implementation," Manual EPA-72-015 and "Processes, Procedures, and Methods to Control Pollution Resulting from All Construction Activity," Manual EPA 43019-73-007.

##### 1.04 PROTECTION OF AIR QUALITY AND DUST CONTROL

- A. Dust Control Permit: CONTRACTOR shall prepare a Dust Control Plan and obtain a Dust Control Permit from the Clark County Department of Air Quality. A copy of the plan and permit shall be submitted to the ENGINEER and OWNER. The DUST CONTROL MONITOR shall ensure CONTRACTOR implementation of the dust control plan and compliance with the Dust Control Permit.
- B. Minimize air pollution by requiring use of properly operating combustion emission control devices on construction vehicles and equipment and encourage shutdown of motorized equipment not in use.
- B. Do not burn trash on construction site.
- C. Dust control is the responsibility of the CONTRACTOR.

##### 1.05 USE OF CHEMICALS

- A. Submit MSDS for all chemicals prior to bringing it on site.

- B. Chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, shall be approved by US EPA or US Department of Agriculture or any other applicable regulatory agency.
- C. Use and disposal of chemicals and residues shall comply with manufacturer's instructions.

#### 1.06 NOISE CONTROL

- A. Conduct operations to cause least annoyance to residents in vicinity of WORK, and comply with applicable local ordinances.
- B. Equip compressors, hoists, and other apparatus with mechanical devices necessary to minimize noise and dust. Equip compressors with silencers on intake lines.
- C. Equip gasoline or oil-operated equipment with silencers or mufflers on intake and exhaust lines.
- D. Conduct hauling operations so as equipment causes a minimum of noise and dust.

#### 1.07 FUELS AND LUBRICANTS

- A. CONTRACTOR to comply with all local, state, and federal regulations concerning the transportation and storage of fuels and lubricants.
- B. A fuel storage and equipment refueling area shall be designated by OWNER. The CONTRACTOR shall be and remain liable for compliance by its employees, agents, and subcontractors that all refueling take place in the designated area. Containment requirements shall be submitted by CONTRACTOR for approval in writing by OWNER.
- C. All spills or leakage shall be reported to OWNER and CONTRACTOR shall be responsible for cleanup and proper disposal, as required.
- D. OWNER reserves the right to order damaged or leaking equipment off-site.

### **PART 2 - PRODUCTS**

- A. Not used.

### **PART 3 - EXECUTION**

- A. Not used.

END OF SECTION

**SECTION 01900**  
**SITE HEALTH AND SAFETY**

**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Disclosure - Chemical Characteristics.
- B. Health and Safety Plan.
- C. Public Safety.
- D. Excavations.

1.02 REFERENCES

- A. Code of Federal Regulations
  - 1. 29 CFR 1910 Occupational Safety and Health Standards
  - 2. 29 CFR 1926 Safety and Health Regulations for Construction
  - 3. 40 CFR Parts 61 and 63 National Emissions Standards for Hazardous Air Pollutants (NESHAPs)

1.03 SUBMITTALS

- A. Quality Control Submittals
  - 1. General
    - a. Submit prior to the start of site activities.
  - 2. Health and Safety Submittals
    - a. Submit Site Safety and Health Plan, not for approval, but as evidence of compliance with State and Federal requirements.
    - b. Submit material safety data sheets (MSDS) for all hazardous substances used at the site.
  - 3. Certification Submittals
    - a. Documentation that site personnel and supervisors have been trained as required by OSHA 29 CFR 1910.120.
    - b. Documentation that at least two site personnel per work shift have current training in first aid and CPR.

1.04 HEALTH AND SAFETY PLANS

- A. Develop and implement a site safety and health plan meeting the requirements of 29 CFR 1910.120, 29 CFR 1926 and other applicable federal, state and local regulations.

- B. Prepare the plan specifically for the site and the anticipated activities based on available information on site conditions and hazards including as minimum:
  - 1. Organizational structure
  - 2. Comprehensive work plan
  - 3. Hazard analysis for each site task
  - 4. Employee training
  - 5. Personnel protective equipment to be used for each task.
  - 6. Medical surveillance
  - 7. Site control measures and action level response requirements.
  - 8. Decontamination procedures.
  - 9. Emergency response plan.
  - 10. Confined space entry procedures (if part of scope of work).
  - 11. Spill containment program.
- C. The plan shall be considered a living document, updated as conditions change during Project execution.
- D. On-Site work shall not begin until the plan has been prepared and implemented.
- E. Include the following in the implementation portion of the plan;
  - 1. Monitoring for flammable atmospheres in the work area including excavations.
  - 2. Monitoring of atmosphere for toxic vapors.
  - 3. Monitoring for other hazards commonly associated with construction activities.
- F. Prepare and comply with a project specific Health and Safety Plan. Approve the Health and Safety Plan by signature of a designated CONTRACTOR representative and provide to ENGINEER upon request prior commencing site work activities. CONTRACTOR shall be and remain liable for compliance by its employees, agents and subcontractors with the CONTRACTOR's Health and Safety Plan and procedures for the site and shall hold ENGINEER and OWNER harmless from all claims, damages, suits, losses and expenses in any way arising from non-compliance with the Health and Safety Plan.
- G. Notify ENGINEER of any chemical products to be used by CONTRACTOR while on the Project site premises and furnish Material Safety Data Sheets (MSDS) for the chemical products, to ENGINEER, before any such chemicals are brought on the premises throughout the duration of this Agreement. Comply with standards set in Title 29 CFR 1910.1200 in providing such notifications and MSDS.

- H. Provide all necessary safety equipment needed to perform the required work. Provide and properly utilize adequate ventilation and personal protection equipment, including respirators as required according to OSHA regulations.
- I. Follow confined space entry procedures for personnel entering any excavations, sewers, manholes, vaults, pipes, or tanks on site.
- J. Provide a combustible gas/oxygen deficiency indicator to monitor the breathing zones of the work areas.
- K. Train personnel in the use, limitations, and proper fit of all necessary safety equipment.
- L. Follow appropriate measures to guard against cold- and heat-related hazards, including frost-bite, hypothermia, heat stroke, heat exhaustion, and heat cramps. Be prepared to treat these hazards if encountered.

#### 1.05 PUBLIC SAFETY

- A. Protect finished and unfinished work against any damage, loss, or injury during the performance of and up to the completion day of the work.
- B. Provide adequate protection around all openings wherever required to safeguard the work or the public.
- C. Protect all openings and surface obstructions with barricades, signs, and warning devices in accordance with local, state, and federal requirements.
- D. Place barricades at a reasonable distance from the location of the obstruction when a street is closed or there is an impedence to traffic. Signs and barricades: clearly visible at all times and conforming to federal, state, and local Standards.

#### 1.06 PERSONNEL ORGANIZATION, QUALIFICATIONS AND RESPONSIBILITIES

- A. Designate the Safety Representative per the General Conditions, a Site Safety and Health Officer and at least one alternate.
- B. The Site Safety and Health Officer shall:
  - 1. Implement and enforce the site health and safety plan.
  - 2. Provide hazard communication information.
  - 3. Be responsible for any safety environmental monitoring.
  - 4. Have the authority to stop work activities if unacceptable health or safety conditions exist.
  - 5. Coordinate and recommend corrective actions for identified health and safety deficiencies and oversee the corrective actions.
  - 6. Be on-site during sediment dewatering activities.
- C. Training

1. As a minimum, personnel performing duties with potential for exposure to on-site contaminants shall meet and maintain the following 29 CFR 1910.120 and 29 CFR 1926 training requirements:
  - a. 40 hours of off site health and safety training for hazardous waste.
  - b. 3 days actual field experience under the direct supervision of a trained, experienced supervisor.
  - c. 8 hours refresher training annually.
2. The Site Safety and Health Officer shall have an additional 8 hours management and supervisor training in accordance with 29 CFR 1910.120 and 29 CFR 1926.

#### 1.07 EXCAVATIONS

- A. Form sidewalls of excavations to provide a stable and safe working environment in the base of the excavation.
- B. Provide sheeting and bracing or properly sloped excavations as required by all applicable federal, state and OSHA codes, and as may be necessary to protect life or property.
- C. Eliminate activity around the top of the excavation, particularly the use of heavy equipment and machinery, while personnel are within the excavation.
- D. Erect and maintain a 4-foot high fence around unattended excavations with slopes steeper than 3:1 (horizontal:vertical).
- E. Current regulations promulgated by the Occupational Safety and Health Administration (OSHA) require that employers whose employees enter excavations have a "competent person" conduct inspection of these excavations and review supporting system. See 29 CFR Part 1926 (Subpart P). In the event that the Work defined by this agreement includes an excavation into which workers may enter, CONTRACTOR shall furnish a properly qualified "competent person" and shall be responsible for the duties of inspection and/or monitoring of excavations required of the "competent person" under 29 CFR Part 1926 (Subpart P).

#### PART 2 - PRODUCTS

- A. Not Used.

#### PART 3 - EXECUTION

- A. Not Used.

END OF SECTION

## SECTION 02080

### MATERIALS MANAGEMENT

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Excavation, handling, stockpiling, and off-site transportation and disposal, and tracking and documenting of excavated material.
- B. Submit an Excavated Materials Management (EMM) Plan before beginning any excavation.
- C. Provide minimum and contingency equipment decontamination.
- D. Comply with all applicable regulations and recognized standards and regulatory practices.

##### 1.02 RELATED SECTIONS

- A. 01610 – Health and Safety
- B. 02200 – Earthwork

##### 1.03 RESPONSIBILITIES

- A. Contractor's Responsibilities:
  - 1. Establish and maintain site controls to prevent cross contamination to and from the remediation area.
  - 2. Excavate, stockpile, load, transport and dispose of excess soil, rubble, and debris.
  - 3. Load excavated soil directly onto trucks for transport, or temporarily place materials into stockpiles within a materials management area, which should be within the footprint of the Beta/Northwest Ditch remediation area. Maintain stockpiles and the materials management area.
  - 4. Prepare all documentation and/or permits required for off-site disposal of excess soil, rubble, and debris based on information provided by the Owner.
  - 5. Decontaminate tools and equipment.
  - 6. Provide all local, state, and federal permits required for work described in this Section.
- B. Engineer's Responsibilities:
  - 1. Review and approve Excavated Materials Management Plan.
  - 2. Review proposed disposal facilities and disposal documentation.

3. Perform all field, mechanical, and analytical testing required to characterize the excavated material for reuse and/or off-site disposal.
- C. Owner's Responsibilities:
1. Review and approve off-site reuse, recycling, or disposal facilities. The Owner reserves the right to reject any proposed disposal location, at no additional expense to the Owner.
  2. Sign shipping documents as the designated generator for all material reused, recycled, or disposed of off-site.

#### 1.04 APPLICABLE REGULATIONS

- A. Conduct the Work in accordance with relevant regulations and policies, including, but not limited to:
1. Asbestos Waste Transportation, Nevada Administrative Code [\(NAC\) 444.972](#).
  2. Safety and Health Regulations for Construction subtitle "Excavations" 29 CFR 1926.651
  3. Hazardous Waste Operations and Emergency Response, Federal Occupational Safety and Health Act (OSHA), 29 CFR 1910.120.
  4. The Toxic Substances Control Act (TSCA), 40 CFR 760 and 761.
- B. Store, handle, transport, and dispose of excavated materials in accordance with laws, codes, ordinances, and regulations of federal, state, and municipal authorities having jurisdiction. The Owner and the Engineer will not be responsible at any time for the Contractor's violation of any applicable regulations, or endangerment of laborers or others.

#### 1.05 SUBMITTALS

- A. Submit to the Engineer for approval an Excavated Materials Management (EMM) Plan. Allow ten (10) business days for Engineer's review of EMM Plan. Do not begin excavation activity until the Engineer approves the EMM Plan. Include in the EMM Plan:
1. A Staging area(s) and contamination control plan.
  2. Work Sequencing Plan
  3. Location(s), design, and operating plan for managing the excavation, loading, and equipment operation in order to prevent cross-contamination to and from the remediation area and transportation routes. Include proposed stockpile locations and secondary cover/containment provisions.
  4. Procedures for stockpiling, and transporting excavated material.
  5. Material tracking sheets for documenting the excavation, stockpiling, and final disposition of all excavated material.

6. Design an operating plan for contingency decontamination station. Include method of recording volume of discharge or disposal of decontamination water.
  7. Monitoring and control measures for dust and storm water runoff.
  8. Name, location, and classification of the proposed disposal, reuse, or recycling facilities for all classes of material described in Paragraph 3.3. Include a copy of each facility's permit (if applicable), acceptance criteria, and required sampling frequency and parameters for characterization for acceptance. Submittal shall include written confirmation from the disposal facility that they will accept the material if it meets their requirements.
  9. Name, address, and license number of hauler who will transport material.
  10. Brief description of the truck liners and covers that will be used to contain ACM and prevent leakage and dust blow off during transport of excavated materials.
- B. Submit to the Engineer at the end of each day, excavated material and stockpile tracking information for each day, as specified in Paragraph 3.4A of this Section.
- C. If the Contingency Decontamination station is built, submit records of decontamination water discharge and/or disposal.
- D. Within 3 business days after transport off-site, submit completed shipping records signed by the transporter and receiving location for all excavated materials. Include copies of the receiving facility's weight slips.

## **PART 2 - PRODUCTS**

### **2.01 STORAGE OF EXCAVATED MATERIALS**

- A. Provide a minimum 10-mil-thick polyethylene sheeting to completely cover the stockpiles. If required by the Engineer, provide a minimum 10-mil-thick polyethylene sheeting beneath soil stockpiles. Stockpile sheeting shall be UV resistant, cold crack resistant to minus 40 degrees Fahrenheit, and free of holes and foreign matter.
- B. Provide secondary containment such as berms or hay bales to prevent sediment in runoff from leaving the Materials Management Area(s).

### **2.02 DECONTAMINATION**

- A. Provide materials and equipment for Minimum Decontamination, and, if required by the Engineer, Contingency Decontamination:
1. Minimum Decontamination: Provide a temporary, low pressure water system for decontamination of tools and equipment including clean water supply tank, water, hoses, and brushes, which the Contractor shall use to decontaminate tools and equipment at the end of every day of excavation of impacted materials, and before tools and equipment leave the Site. Connection to potable water supply is acceptable with written permission of the connection's owner/operator. Decontamination water from low-pressure system shall be collected and transported for treatment at the on-site water treatment facility.

2. Contingency Decontamination: If required in the opinion of the Engineer, construct and operate a decontamination pad of a minimum length to fit one 18-wheel dump trailer, and a minimum area to accommodate the largest piece of equipment to be used during excavation. Include a 6-inch containment berm, two layers of a minimum 20-mil plastic liner covered with crushed stone, and provisions for drainage, storage, and decontamination water disposal at the on-site water treatment facility.

### **PART 3 - EXECUTION**

#### **3.01 GENERAL**

- A. Immediately notify the Engineer of visible stains or unnatural odor of any excavated material, or if oil or potentially hazardous material is encountered.
- B. Transport all excavated material to the Materials Management Area, except those identified by the Engineer as appropriate for direct loading, transporting, and off-site disposal.
- C. Provide dust and storm water control measures. Prevent discharge of stockpiled material to storm drains and sewers. Control measures may include, but are not limited to, temporary berms, hay bales, and temporary covers. Remove control measures upon completion of the work.

#### **3.02 STOCKPILING**

- A. Provide the Engineer access to perform headspace analyses, field testing, or other testing if desired. Results of the testing analyses shall be exchanged between the Contractor and the Engineer.
- B. Disposal of material that is contaminated as a result of careless handling or use of unauthorized procedures shall be at the Contractor's expense. Delays of work resulting from temporary storage of excavated material, regardless of field classification by the Engineer, shall be at no additional cost to the Owner.
- C. Stockpile excavated material separately based on the anticipated disposal location. At a minimum, separate excavated material with visible ACM soil impacts and asbestos debris from material that does not exhibit these characteristics. For all soil, follow the guidelines below:
  1. If requested by the Engineer, place the first lift of material on a 10-mil-thick, polyethylene sheeting placed over the existing ground surface. Place the stockpile within the footprint of the Beta/Northwest Ditch excavation areas and divert storm water runoff from the stockpile(s) to prevent cross-contamination.
  2. Cover the stockpile(s) at all times with 10-mil-thick polyethylene sheeting. Secure the sheeting in place with sand bags or equivalent to prevent dust blow-off and to withstand wind and rain.

#### **3.03 OFF-SITE TRANSPORT AND DISPOSAL**

- A. Load and transport all identified impacted materials to the appropriate off-site disposal facilities as approved by the Owner.

- B. Person(s) transporting the excavated materials shall be licensed and permitted to transport such material in state(s) having jurisdiction.
- C. Trailers used for transport shall have covers to prevent dust fly off.
- D. If necessary, dewater excavated materials prior to transport to prevent free water from developing during transport.
- E. Do not transport excavated materials to any location that is not pre-approved by the Owner and Engineer.
- F. Submit completed shipping paperwork, including facility weight slips, to the Owner within 3 business days of the transport.
- G. Approved Disposal Facilities include:
  - 1. Republic Services, Inc., Apex Regional Landfill, 13550 North Highway 93, PO Box 751600, Las Vegas, Nevada 89736, (702) 644-4210 for non-hazardous and asbestos containing material.
  - 2. US Ecology, Inc., Beatty, Nevada Facility, PO Box 578, Beatty, Nevada 89003 (775) 553-2742 for hazardous, non-hazardous, and asbestos containing material.

### 3.04 DECONTAMINATION

- A. Minimum Decontamination: Decontaminate tools and equipment prior to tools and equipment leaving the Site, including a truck wheel wash if required by the opinion of the Engineer. Decontaminate all tools, heavy machinery, and excavating and hauling equipment used during excavation, stockpiling, and re-handling of excavated material. Decontaminate by hosing down tools, equipment, and machinery using the low-pressure water system.
- B. Contingency Decontamination: If Contingency Decontamination is necessary in the opinion of the Engineer, construct, operate, and maintain a decontamination pad for equipment and vehicles entering and exiting the work area.
  - 1. Construct the decontamination pads as specified in Paragraph 2.2 of this Section, and in accordance with the following:
    - a. Include wash down equipment including brushes and a supply of high-pressure (90 psi minimum) water and pressurized steam.
    - b. Provide a splashguard, 6-inch containment berm, and drainage system to collect and contain all decontamination pad wash water.
    - c. The use of drums or fractionation tanks for the storage of decontamination water is acceptable.
    - d. Decontamination water collection and storage units shall not leak.
    - e. Providing an area to store clean and spent decontamination water, and any resulting delays in the work shall be at no additional cost to the Owner.

2. Place the decontamination pad in the areas of excavation and loading of impacted materials. Operate and maintain the decontamination station.
3. Decontaminate excavation equipment, vehicles, and tools used in the excavating and stockpiling areas using high-pressure water and steam prior to leaving the excavation area. Remove all visible material and dust during decontamination. Decontamination is not acceptable if any amount of oil/hazardous material is present on the tools, equipment, or machinery after decontamination. The Engineer may conduct visual inspections and field testing to determine the acceptability of decontamination.
4. All decontamination water must be collected and disposed of at the on-site water treatment facility.
5. At the completion of the excavation work, dismantle and legally dispose of decontamination station. Steam clean the decontamination pads prior to dismantling, and transport decontamination liquids to the on-site water treatment facility.

END OF SECTION

## SECTION 02200

### EARTHWORK

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Excavating contaminated soils.
- B. Providing, placing, and compacting of backfill materials.

##### 1.02 RELATED SECTIONS

- A. Excavated Material Management, Section 02180.
- B. Excavation Support, Section 02320

##### 1.03 SUBMITTALS

- A. Soil Materials: Submit 75-lb samples and results of recent (within previous month) testing laboratory grain size analyses for imported soils, material must conform to the specified gradations or characteristics as specified herein.
- B. Chemical analysis confirming the proposed granular fill is not contaminated.
- C. A report from a testing laboratory verifying that imported material is asbestos-free.

##### 1.04 EXISTING CONDITIONS

- A. Site Information:
  - 1. Subsurface explorations have been performed at the project site. Electronic files of the boring logs are available from GEI Consultants, Inc. (contact George Onorato, (813) 404-6688.
  - 2. The Contractor may perform additional test borings and other explorations at no cost to Owner.
- B. Existing Utilities:
  - 1. Locate existing underground utilities in areas of work. Provide adequate means of support and protection during earthwork operations.
  - 2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
  - 3. Do not interrupt existing utilities serving facilities occupied and used by Owner or others during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided.
  - 4. Provide minimum of 48-hour notice to Owner, and receive written notice to proceed before interrupting any utility.

- C. Existing Extraction Wells: Identify, mark, and protect 12 existing ground water extraction wells located within the work zone.

1.05 LAYOUT AND GRADES

- A. Lay out all needed lines and grades not presently established at the site in accordance with the Contract Documents. Establish permanent benchmarks by employment of a registered land surveyor or professional civil engineer. Maintain all established bounds and benchmarks and replace any that are destroyed or disturbed. Bring any deviations from the locations and elevations indicated on the Drawings to the attention of the Engineer immediately.
- B. Verify all existing ground surface elevations within the contract limits.

**PART 2 - PRODUCTS**

2.01 SOIL MATERIALS

- A. Granular Fill: Granular soil classified in accordance with the Unified Soil Classification System as a SP, SW, SM, or SC with a maximum of 25 percent passing the number 200 sieve and shall contain no stones larger than 6 inches in maximum dimension.
- B. Required Analytical: provide at least one representative composite sample for every 25,000 cubic yards of imported clean material brought to the site: Required analytical parameters list is as follows:

Parameters	Analytical Methods
Ions (bromide, bromine, chloride, chlorine (soluble), chlorite, fluoride, nitrate, nitrite, orthophosphate, and sulfate)	EPA 300.0/300.1
Perchlorate	EPA 314.0
RCRA 8 Metals	EPA 6020/6010B
Organochlorine Pesticides	EPA 8081A
Semi-volatile Organic Compounds	EPA 8270C
Asbestos Analyses by PLM	EPA Method 600/R-93/116 Section 2.3

2.02 USE OF SOIL MATERIALS

- A. Use Granular Fill to backfill all excavations, as indicated on the Drawings or specified herein.

**PART 3 - EXECUTION**

3.01 GENERAL

- A. Perform excavations in accordance with the design DRAWINGS.
- B. Protect existing structures, utilities, sidewalks, pavements, and other facilities not designated for removal from damage by equipment, settlement, undermining, washout, and other hazards created by earthwork operations.
- C. Perform excavation work in compliance with OSHA guidelines and regulations.

### 3.02 EXCAVATION

- A. Excavation is "Unclassified" and includes excavation to subgrade elevations indicated regardless of character of materials and obstructions encountered and shall be understood to include rock, earth, fill, foundations, pavements, curbs, piping and debris.
- B. Excavation Subgrade: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet.

### 3.03 DEWATERING

- A. Dewatering is prohibited.

### 3.05 TESTING FOR COMPACTION

- A. Compact soil to not less than the following percentages of maximum dry density determined in accordance with ASTM D1557, Method C. Compact soil using the lift thicknesses indicated.
  - 1. Granular Fill: compact each lift to 92% of the modified Proctor maximum dry density with a nominal lift thickness of 12 inches.
  - 2. Determine the density of soil in place by the sand cone method, ASTM D 1556, or by nuclear methods, ASTM D 2922 and D 3017, a compaction test shall be performed on an approximate 100-foot grid (1 test per 10,000 square foot of backfill area).
  - 3. Determine laboratory moisture-density relationship of a representative soils sample in accordance with ASTM D 1557, Method C every 25,000 cubic yards.

### 3.06 BACKFILL

- A. Place acceptable soil material in layers to required grade elevations for each area classification listed below using granular fill
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
  - 1. Quality control and quality assurance testing, and approval.
  - 2. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
- C. Placement of Fill:
  - 1. Do not place fill on surfaces that are saturated, soft or muddy.
  - 2. Place fill in level, uniform layers.

### 3.07 GRADING

- A. Uniformly grade areas within limits of grading under this section including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

### 3.08 FIELD QUALITY CONTROL

- A. CONTRACTOR shall correct deficiencies to meet Contract Documents. If specification criteria cannot be met, or unusual weather conditions hinder work, CONTRACTOR shall develop and suggest solutions to ENGINEER for approval.
- B. CONTRACTOR shall schedule appropriate retests when defect has been corrected. Retests by ENGINEER shall verify that defect has been corrected before any additional WORK is performed by CONTRACTOR in area of deficiency.

### 3.09 FIELD QUALITY ASSURANCE

- A. Quality assurance testing during construction: Allow Engineer to test and observe subgrades and backfill layers before further construction work is performed.
- B. If, in opinion of Engineer based on testing and observation, fills have been placed below specified percent compaction, provide additional compaction at no additional expense.

### 3.10 QUALITY ASSURANCE TESTING

- A. Quality assurance testing of granular materials shall be performed to document material used on site. The following tests shall be conducted:
  - 1. Particle size analysis (ASTM D 1140, D 422) at a rate of one per 25,000 cubic yards of in-place material
  - 2. Moisture density relationship ASTM D 1557 Method C at a rate of 1 test per 25,000 cubic yards of in-place material.
- B. Granular materials not in conformance shall be removed and replaced at no cost to the OWNER.

### 3.09 PROTECTION AND REPAIR

- A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required percent compaction prior to further construction.

END OF SECTION

**SECTION 02320**  
**SUPPORT OF EXCAVATION**

**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Designing, furnishing, installing and removing temporary support of excavation (SOE) systems at the locations shown on the Drawings, and at any other locations where the contractor elects to use SOE. SLOPED EXCAVATIONS WILL NOT BE ALLOWED.
- B. Installation and monitoring of survey points to monitor SOE system movement during excavation and backfilling.

1.02 RELATED SECTIONS

- A. Excavated Material Management, Section 02180.
- B. Earthwork, Section 02200

1.03 DESIGN REQUIREMENTS

- A. The Contractor is responsible for selection of appropriate design methods, loadings and soil parameters for design of the SOE systems in accordance with current industry standards and the reference standards in Paragraph 1.05.
- B. For the SOE systems adjacent to Ponds SW-1 and HP-6, include the effect of surcharge loading from the soil slopes behind the SOE system.
- C. Include surcharge loadings from construction equipment where appropriate.
- D. Locate the bond zones of tieback anchors at least 5 feet beyond a 45 degree line extending upwards from the bottom of the excavation. Provide a bond-breaker sheath to prevent load transfer in the unbounded length.
- E. Design the excavation support system to allow excavation to a depth three feet deeper than the target elevation indicated on the Drawings without any change in the support system as installed.

1.04 EXISTING CONDITIONS

- A. Site Information:
  - 1. Subsurface explorations have been performed at the project site. Logs of soil borings performed were provided during the pre-bid meeting. The Contractor may perform additional test borings and other explorations at no cost to Owner.
  - 2. Construction information of basin SW-1 is shown on the construction drawings.
  - 3. The Contractor is advised of the potential for subsurface obstructions or very dense soils at the site, and that the contractor's means and methods must include provisions for avoiding, penetrating or removing any obstructions that impact installation of the SOE systems.

#### 1.05 REFERENCE STANDARDS

- A. American Institute of Steel Construction (AISC) - Steel Construction Manual & Specification for Structural Steel Buildings, 13<sup>th</sup> Edition.
- B. American Concrete Institute (ACI) – Building Code Requirements for Reinforced Concrete, ACI-318.
- C. American Welding Society (AWS) D1.1 - Structural Welding Code - Steel.
- D. Post-tensioning Institute (PTI) - Recommendations for Prestressed Rock and Soil Anchors, Fourth Edition (2004).

#### 1.04 SUBMITTALS

- A. SOE System Design: Submit complete design calculations and design drawings prepared and stamped by a Nevada Registered Professional Engineer experienced in the design of SOE systems. Drawings should show layout, materials and sizes of members, and connection details.
- B. Installation Equipment and Procedures: Submit information on proposed equipment and procedures for installation of the SOE system components including sheet piles, soldier piles and tieback anchors.
- C. Installation Records: As installation progresses, submit as-built information showing any deviations from the original design and layout.
- D. Tieback Anchor Tests: Submit results of the load tests performed on the tieback anchors, including all pertinent installation data for each anchor.

### **PART 2 - PRODUCTS**

#### 2.01 MATERIALS AND PRODUCTS FOR SOE SYSTEMS

- A. Materials and products used for the SOE systems shall conform to the requirements specified in the Contractor's SOE system design submittals.

### **PART 3 - EXECUTION**

#### 3.01 SHEET PILES AND/OR SOLDIER PILES

- A. Use vibratory or impact hammers with sufficient energy to install the piles to the design elevations.
- B. If refusal is encountered at a higher elevation than the design elevation, stop driving the pile, and notify the SOE design engineer and the project Engineer. Submit a design directive prepared by the SOE design engineer indicating how to proceed with modifying the SOE system to address the refusal of the pile.
- C. Mark each pile with an identification number that is visible in the field.

- D. Maintain accurate records of each pile installation, including pile identification number, length, driving record, final tip elevation, cut-offs, deviations from design location and alignment, and any other pertinent information.

### 3.02 TIMBER LAGGING

- A. Install timber lagging using the minimum amount of excavation necessary to install the lagging boards. Leave gaps of approximately 1-inch between the lagging boards to permit backfilling of voids behind the lagging. Pack the gaps with a suitable filter material as necessary to prevent soil loss through the gaps.
- B. Do not excavate more than 3 feet below the lowest lagging board already in place.

### 3.03 TIEBACK ANCHORS

- A. Install the anchors inside a drill casing extending the full drilled length. Advance the casing using a duplex rotary or rotary-percussion drilling system in which the drill fluid and drill cuttings return through the inside of the casing. Take all necessary precautions to prevent ground loss (i.e., removal of a volume of soil greater than the volume of the drill hole) during drilling.
- B. After completion of drilling, flush the drill hole with clean water injected at the bottom of the drill hole through the drill rods or through a flush tube until clean water returns at the top of the casing.
- C. Carefully lower the anchor tendon inside the drill casing to the required embedment depth without dropping or forcing. If the anchor tendon cannot be inserted to the required depth without forcing, remove the tendon and clean or redrill the hole to permit proper installation.
- D. Inject the grout from the lowest point of the anchor through a tremie tube. Pump grout until good quality grout (no dilution from groundwater or contamination from soil) is returned at the top of the drill hole. If the grout level in the drill hole drops after initial filling, add additional grout until the grout level stabilizes at the top of the drill hole. Record the quantity of the grout and the grout pressures.
- E. Withdraw the drill casing after grouting. Add grout as required to maintain the grout level within 2 feet of the top of the drill hole during casing removal.
- F. Maintain complete and accurate records of each tieback anchor installation including:
  - 1. Anchor number and location.
  - 2. Type and size of tendon.
  - 3. Total installed length, unbonded tendon length, bonded tendon length, and stressing length (unbonded tendon length plus additional tendon length from the wall to the point of load application at the jack).
  - 4. Grout pressure and volume of grout injected.
  - 5. Dates of grouting, testing, and tensioning.
  - 6. Complete test records including load-deflection plots.
  - 7. Description of any deviations from normal installation and testing procedures.

### 3.04 TIEBACK ANCHOR TESTING

- A. Test every anchor as specified herein. Perform all testing in the presence of the Engineer's field representative. Test results will not be accepted unless the test setup and procedures have been approved by the Engineer.
- B. Stressing equipment: Use electrically powered hydraulic stressing equipment (jack, pump, and pressure gauge) having a load capacity between 1.25 and 2.0 times the maximum test load and sufficient travel to accommodate the full anchor extension at the maximum test load. The jack must be capable of applying each test load increment in less than 60 seconds.
- C. Load measurement: Use load cells or a calibrated pressure gauge with an accuracy of  $\pm 2$  kips to measure the load on the anchor. A recent certified calibration curve must be provided for each load cell or pressure gauge. If a pressure gauge is used, then the jack and pump must be calibrated together as a unit.
- D. Displacement measurement: Measure the displacement of the end of the anchor tendon with a dial indicator reading to 0.001 inch and having a minimum of 3 inches of travel. Mount the dial indicator on a fixed datum that is independent of the stressing system and wall, such as a surveyor's tripod. Displacement measurements that are not made from an independent fixed datum, such as measurement of ram extension or measurement of tendon displacement relative to the wall, are not acceptable.
- E. Performance Tests - Test the first two anchors and 2% of the remaining anchors (at locations designated by the Engineer) as follows:
  - 1. After obtaining initial displacement readings under a nominal seating load, apply the test load in increments approximately equal to 25%, 50%, 75%, 100%, 120% and 133% of the design load.
  - 2. Following application of each load increment, reduce the load to the nominal seating load and measure the residual displacement before proceeding to the next higher load increment. Take intermediate readings at the previous load increments as the load is increased to the next higher load increment. Intermediate readings are not required during unloading.
  - 3. Record the load and total tendon displacement at each load increment and the residual displacement that remains after each load increment is reduced to the nominal seating load.
  - 4. At the maximum test load increment, hold the load for at least 15 minutes and record the displacement versus time at 1-minute intervals. If the rate of movement exceeds 0.02 inch between 5 minutes and 15 minutes, continue to hold the load for an additional 45 minutes and take displacement readings at 5-minute intervals.
  - 5. At the maximum test load increment, hold the load for at least 15 minutes and record the displacement versus time at 1-minute intervals. Begin the observation period when the jack starts to apply the load increment to the anchor. Increase the load from the previous load increment in less than 60 seconds. Take the 1-minute reading 1 minute after the start of loading. Adjust the jack pressure as required to maintain a constant load. If the rate of movement exceeds 0.02 inch between 5 minutes and 15 minutes, continue to hold the load for an additional 45 minutes and take displacement readings at 5-minute intervals.

6. Plot the total displacement versus test load for each load increment. On this plot show a reference line corresponding to the theoretical elastic elongation of the unbonded stressing length. Also show the apparent elastic elongation at the maximum load increment, which is equal to the total displacement at the maximum load increment minus the residual displacement remaining after the load is reduced from the maximum load to the nominal seating load.
  7. Plot the residual displacement after unloading to the nominal seating versus the maximum test load prior to each unloading.
  8. Plot the displacement versus the logarithm of time for the maximum test load increment.
- F. Proof Tests - Proof test all anchors that are not tested by the Performance Test procedure of the preceding section.
1. The proof test procedure is the same as the performance test procedure, except that unloading to the nominal seating load is performed only after the maximum test load increment and there is no residual displacement plot.
- G. Acceptance Criteria - In general, a tested anchor will be considered acceptable if, in the opinion of the Engineer, it meets the following criteria:
1. The load-displacement curve exhibits no sharp break toward large displacement.
  2. The creep movement during the load hold period at the maximum test load is less than 0.08 inch per log cycle of time.
  3. The anchor capacity is developed within the design anchorage zone without significant contribution from friction in the unbonded length, as indicated by comparison of the theoretical and apparent elastic elongation of the unbonded length of the tendon.
- H. Rejected Anchors - If, in the opinion of the Engineer, a tested anchor does not meet the acceptance criteria, then replacement or supplemental anchors shall be installed and tested, at no additional cost to the Owner.
- I. Lock-off the specified prestress load in successfully tested anchors as follows:
1. Load the anchor to the maximum test load applied during testing.
  2. Reduce the load to the required lock-off load, and lock off the load in the anchor.
  3. Perform a lift-off test to measure the actual lock-off load.
  4. If the actual lock-off load is not within 5% of the required lock-off load, repeat and adjust the load lock-off and recheck the lock-off load.
- J. Do not cut off tendon protrusions until permission is obtained from the Engineer.

### 3.07 MONITORING

- A. Install temporary survey points at the top of the sheet piles and/or soldier piles at approximately 24-ft intervals along the SOE system to monitor lateral and vertical movement during construction.
- B. Perform a SOE system movement survey weekly, or as directed by the Engineer, beginning one week prior to start of excavation along the SOE system and continuing until backfilling has exceeded more than half of the excavation depth.

### 3.08 SOE SYSTEM REMOVAL

- A. Sheet piles shall be removed after completion of backfilling, and timber lagging shall be removed during backfilling.
- B. Soldier piles and tieback anchors can be left in place.

END OF SECTION

**SECTION 02520**  
**ABANDONMENT OF WELLS**

**PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. All required notifications and documentation for abandoning wells.
- B. Submittals.
- C. Removal and retention of protective well housings and protective concrete collars.
- D. Removal and disposal of well guard pipes.
- E. Locating existing extraction wells to be abandoned.
- F. Abandoning wells in accordance with the State of Nevada Administrative Code (NAC) 534.420.
- G. Collection and transportation of well water to the on-site Water Treatment Facility.
- H. Project record documents.

1.02 SUBMITTALS

- A. Name and license of Nevada licensed well driller performing the well abandonment.
- B. Submit a well abandonment plan indicating procedures for abandoning the wells in accordance with State of Nevada regulations. The plan shall include at a minimum:
  - 1. Proposed grout mix.
  - 2. Equipment and procedures for mixing and pumping grout.

1.03 EXISTING CONDITIONS

- A. The Extraction wells to be abandoned are wells EWQal-03, EWxMCF-03, EWxMCF-09, and EWQal-05.
- B. The locations of the extraction wells are shown on Drawing C-2.
- C. The extraction wells consist of the following general construction:
  - 1. Surface housing with concrete collar.
  - 2. 10-inch diameter borehole.
  - 3. 4.5-inch SDR Solid PVC riser section.
  - 4. 4.5-inch SDR Slotted PVC screened section.

5. Attached ¾-inch diameter PVC Piezometer.
  6. The sand pack around the screened section is 8/16 silica sand.
  7. Backfill around the solid riser is bentonite grout.
- D. Well installation logs are provided as an Attachment to this specification section.
- E. Cross-sections providing well construction details are provided as an Attachment to this specification section.
- F. The Contractor shall familiarize themselves with the site conditions including but not limited to access to the well locations, types of materials used to construct the wells, depth of the wells, well filter and backfill materials, and protective surface casings/enclosures.
- G. The Contractor is advised that all water return from the extraction well during grouting will need to be collected and transported to the on-site Water Treatment Facility

## **PART 2 - PRODUCTS**

### **2.01 GROUT MATERIALS**

- A. Use only materials approved by the State of Nevada for abandonment of wells.
- B. Cement shall conform to "Standard Specification for Portland cement (ASTM C150), Type II.
- C. Bentonite shall be pulverized (powder or granular) premium grade sodium cation montmorillonite and shall meet the most current API Standard 13A "API Specifications for Oil-Well Drilling-Fluid Materials.
- D. Mixing water shall be clean and potable.
- E. Storage: Materials shall be stored in accordance with the recommendations of "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete," ACI 304.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Before abandoning the wells, make all notifications as required in State of Nevada Administrative Code - NAC 534.520.
- B. Locate wells EWQal-03, EWxMCF-03, EWxMCF-09, and EWQal-05. Approximate locations of the wells are shown on Drawing C-2.
- C. Details of the Extraction Well Construction are provided as an attachment to this specification section.

- D. Well installation logs for EWQal-03, EWxMCF-03, EWxMCF-09, and EWQal-05 are provided as an attachment to this specification. Dimensions contained in the logs are approximate. Volumes of materials required to seal each well may vary with the subsurface conditions.
- E. Remove protective housings and concrete collars and store at a location designated by TIMET.
- F. Provide a suitable grout mixer of the mechanical or venturi type to obtain a thoroughly mixed, highly plastic grout mixture. Provide a holdover tank to keep the grout in uniform suspension and prevent clogging of the pump and hoses during pumping.
- G. Verify equipment is operable prior to grouting. Mix grout to the required consistency.
- H. The grout pump shall be a positive displacement type pump.
- I. Grout equipment shall prevent the introduction of oil, air, or other foreign substances into the grout.
- J. The grouting equipment shall have a screen to sieve the grout before being pumped

### 3.02 WELL ABANDONMENT

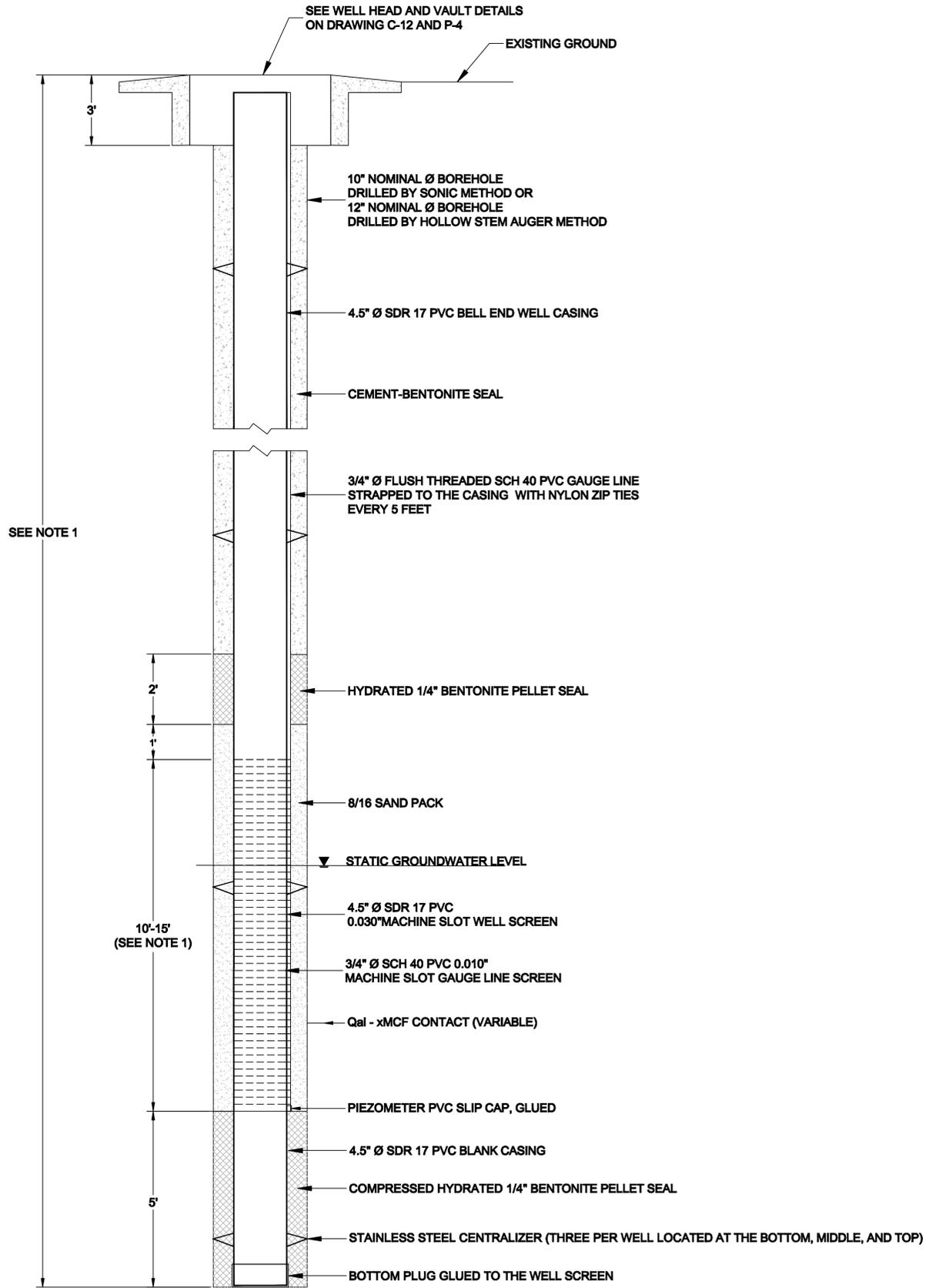
- A. Abandon extraction wells in accordance with NAC 534.520.
- B. Immediately prior to grouting, flush the well with clean water to remove all contaminated water and debris. Flush with high velocity water with a tremie pipe lowered to the bottom of the well. Pump water until the return wash water at the top of the well pipe is clean.
- C. After flushing, the depth of the well shall be checked with a weighted measuring tape to confirm that the hole is cleaned out to the base of the well.
- D. Grout the well immediately after flushing clean. In case of delay, the well shall be re-flushed and rechecked prior to grouting, as directed by the Engineer.
- E. Place grout using a tremie pipe extending to the base of the well. Grouting shall continue until the grout return at the top of the pipe is of the same consistency as the grout being pumped.
- F. Pump the grout down the pipe with the minimum pressure required to displace water in the well. Grout pressure shall not exceed 35 psi (or as approved by Engineer) at the gauge. Grout until the return is at least level with the top of the pipe, and adequate return is observed. Record the volume of grout required to fill the well.
- G. Remove the tremie pipe while maintaining the grout level near the top of the riser.
- H. Repeat the steps A through F to grout the attached piezometer.
- I. Remove waste and spoil materials from the site.
- J. All flush water and water return during grouting must be collected and transported to the on-site Water Treatment Facility.

- K. Mark the location of abandoned extraction well.

3.03 FINAL DISPOSITION

- A. Avoid disturbing or pulling on the grouted extraction well during excavation of ditch.
- B. Cut the grouted PVC riser of the extraction well and the piezometer at lengths not to exceed three feet as they are exposed during excavation.
- C. Cut the extraction well and piezometer three feet below final grade.
- D. Survey the final location and elevation of the top of the cut extraction well.
- E. Backfill the excavation in accordance with technical specifications.
- F. Prepare and file all paperwork required by NAC 534.520.

END OF SECTION



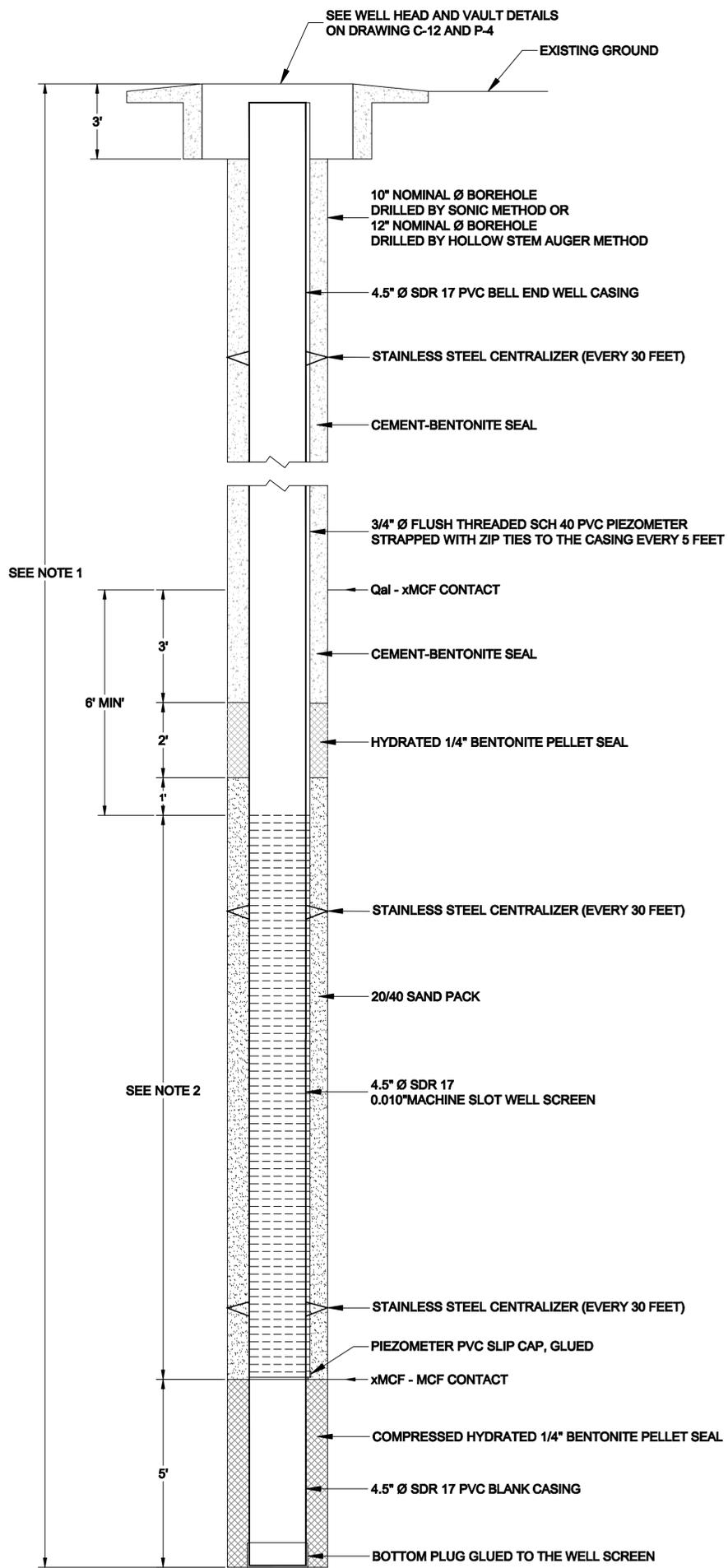
**Qal EXTRACTION WELL DETAIL**  
NOT TO SCALE

**NOTES:**

1. WELL DEPTH AND SCREEN PLACEMENT WILL BE DETERMINED BY FIELD GEOLOGIST AND/OR ENGINEER AT THE TIME OF DRILLING. WELL DEPTH WILL DETERMINED BASED ON GROUNDWATER LEVEL AND CONTACT BETWEEN QUATERNARY ALLUVIUM AND TRANSITIONAL MUDDY CREEK FORMATION. PRELIMINARY, WELL DEPTH IS ESTIMATED AT 50 FEET BGS.
2. WELL DRILLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATION 33 23 00 "WELL INSTALLATION".
3. FOR WELL LOCATIONS SEE DRAWINGS C-9 AND C-10

**FINAL**

C-14 DRAWING NO.: PROJECT NUMBER: 1464901_0003	REMEDIAL DESIGN TITANIUM METALS, HENDERSON, NV		1 06/23/09 VM JUNE 9, 2009 COMMENTS TO 50% DESIGN INCORPORATED 2 07/07/09 VM JUNE 24, 2009 TIMET COMMENTS INCORPORATED 3 07/14/09 VM DRAFT RD COMMENTS (SW AND SDH) INCORPORATED 4 10/11/09 VM DRAFT RD COMMENTS (TIMET AND NDEP) INCORPORATED
	QUATERNARY ALLUVIUM (Qal) WELL DETAIL	DESIGNED BY: VMM DRAWN BY: VMM CHECKED BY:	RE-CHECKED BY: APPROVED BY: DATE: 10/11/09
			REVISIONS



**xMCF EXTRACTION WELL DETAIL**  
NOT TO SCALE

**NOTES:**

1. WELL DEPTH WILL BE DETERMINED BY FIELD GEOLOGIST AND/OR ENGINEER AT THE TIME OF DRILLING. WELL DEPTH WILL DETERMINED BASED UPON CONTACT BETWEEN TRANSITIONAL MUDDY CREEK FORMATION (xMCF) AND MUDDY CREEK (MCF) FORMATION. PRELIMINARY, WELL DEPTH IS ESTIMATED AT 80 FEET BGS.
2. WELL SCREEN PLACEMENT WILL BE DETERMINED BY FIELD GEOLOGIST AND/OR ENGINEER AT THE TIME OF DRILLING. SCREEN WILL BE PLACED FROM AT LEAST 6 FEET BELOW THE CONTACT Qal-xMCF CONTACT DOWN TO xMCF-MCF CONTACT.
3. WELL DRILLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATION 33 23 00 "RECOVERY WELL INSTALLATION".
4. FOR WELL LOCATIONS SEE DRAWINGS C-9 AND C-10.

**FINAL**

C-15	DRAWING NO.: 1464901_0003	PROJECT NUMBER: 1464901_0003	REMEDIAL DESIGN TITANIUM METALS, HENDERSON, NV			1	06/23/09	VM	JUNE 9, 2009 COMMENTS TO 50% DESIGN INCORPORATED	
			TRANSITIONAL MUDDY CREEK (xMCF) WELL DETAIL			DESIGNED BY: VMM	RE-CHECKED BY:	2	07/07/09	VM
					DRAWN BY: VMM	APPROVED BY:	3	07/15/09	VM	DRAFT RD COMMENTS (SW AND SDH) INCORPORATED
					CHECKED BY:	DATE: 10/10/09	4	10/10/09	VM	NVED COMMENTS INCORPORATED
						REV.	DATE	DRAWN	CHECKED	REMARKS
						REVISIONS				

## SECTION 02521

### ABANDONMENT OF EXISTING PIPES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. All required notifications and documentation for abandoning utilities.
- B. Submittals.
- C. Locating, cutting, capping, and disposing of a section of a 18-inch diameter Asbestos Concrete Pipe (The Pitman By-Pass)
- D. Retain a licensed abatement contractor to cut and remove the Asbestos Concrete Pipe from the site.
- E. Locating, cutting, capping and disposing of a section of a 24-inch diameter pipe (The Trade Effluent Line).
- F. Locating, cutting, capping and disposing of a section of 8-inch diameter pipe (Alpha Pipeline).
- G. Cutting, capping, and disposing of other unidentified pipe lines.
- H. Capping and filling three HDPE culverts in-place.
- I. Remove and dispose of the materials from the site in accordance with federal, state, and local laws and regulations.
- J. Project record documents.

##### 1.02 SUBMITTALS

- A. At least 15 days prior to commencing abandonment activities, submit an Abandonment Plan, describing proposed methods of:
  - 1. Notifying proper authorities and confirming the pipes are not in service.
  - 2. Excavation.
  - 3. Cutting and removing sections of pipe. Provide the name of the licensed contractor who will cut and remove the asbestos concrete pipe.
  - 4. Capping sections of pipe that remain in place.
  - 5. Filling HDPE culverts in-place, including proposed concrete grout mix.

##### 1.03 EXISTING CONDITIONS

- A. The Contractor shall familiarize themselves with the site conditions including but not limited to access to the pipe locations, pipe depths, and types of pipe materials.

- B. The Pitman By-Pass is owned and operated by the United States Bureau of Reclamation.
- C. The Trade Effluent Line and Alpha pipelines are owned and operated by the Titanium Metals Corporation.
- D. Other unidentified pipelines are assumed to be owned by Titanium Metals Corporation.

## **PART 2 - PRODUCTS**

### **2.1 Concrete Grout Mix Design**

- A. Compressive Strength: No less than 2,000 psi at 28 days.

## **PART 3 - EXECUTION**

### **3.01 PIPE ABANDONMENT**

- A. Perform all operations in accordance with the approved submittal.
- B. Confirm pipes are not active prior to beginning work.
- C. Cut and remove sections of pipes as indicated on drawing C-3.
- D. Retain a licensed abatement contractor to cut and remove the concrete asbestos pipe from the site.
- E. Cap ends of pipe sections to remain with brick and mortar. The cap shall extend a minimum of 16 - inches into the pipe from the end.
- F. Remove and dispose of the pipe materials from the site in accordance with federal, state, and local laws and regulations.
- G. Survey the final location, invert elevation, and top elevation of the pipe sections left in place.

### **3.02 HDPE CULVERTS**

- A. Perform all operations in accordance with the approved submittal.
- B. Construct bulkheads at each end of culvert.
- C. Tremie place grout from lower end of conduit
- D. Completely fill one HDPE conduit before beginning fill operations for another conduit.
- E. Continue placement operation until approximately 100 percent of estimated conduit volume has been placed.
- F. Do not remove bulkheads, or other equipment that is required to retain freshly placed grout until grout has reached final set but not less than 24 hours after completion of placement.
- G. Collect and dispose of excess grout material and other debris.

- H. Survey the final location, invert elevation, and top elevation of the pipe sections left in place.

END OF SECTION