Turnagain
Marine Construction

Construction Work Plan

SKAGWAY ORE TERMINAL SEDIMENT REMEDIATION PROJECT

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INTRODUCTION

PROJECT OVERVIEW

Turnagain Marine Construction is excited to be a part of the Skagway Ore Terminal Sediment Remediation Project. The project consists of dredging 3,700 cubic yards of contaminated sediment in front of the ore terminal dock. If after 3,700 cubic yards are removed it is found that the basin does not meet the Basis of Design, an additional 3,300 cubic yards may be removed from the basin. Final quantity will be determined once the initial "Post Construction Survey" is completed. If an additional 3,300 cubic yards of material is required to be removed, a second "Post Construction Survey" will be performed at completion of the 3,300 cubic yards of dredging. After the final survey and approval of the dredging units TMC will then install a sand cap. The Skagway Ore Terminal Sediment Remediation project is being conducted consistent with 18 AAC 75.360 – Cleanup Operations Requirements and has been coordinated directly with and is seeking approval from the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Program for implementation of the ADEC-approved remedial option and general approach described in the Basis of Design Report (Anchor QEA 2020).

TMC CONTRACT WORK

Required work under contract:

1. Provide and furnish all supervision, labor, materials, supplies, tools, equipment, transportation, receiving, handling, storage, quality control, environmental protection, surveying, inspection, monitoring, and other services necessary for the proper execution of the work described in the specifications.
2. The following list are examples of but not limited to the principal items of work.
    a. Providing Contractor and public health and safety responsibilities.
    b. Complying with all submissions and documentation requirements
    c. Coordinating with the owner's representative in performing all the work.
    d. Conducting pre-construction, progress, and post construction surveys.
    e. Setting up, operating, and maintaining the staging area, if used.
    f. The staging of all materials will take place on the barges that TMC brings to the site. There will be one barge for the sediment, provided by Boyer Logistics. There will also be another barge for the clean sand (TBD who provides this barge).
    g. Procuring, installing, operating, and maintaining environmental protection systems to comply with any applicable permit conditions and water quality requirements as described in the water quality monitoring program during completion of dredging activities.

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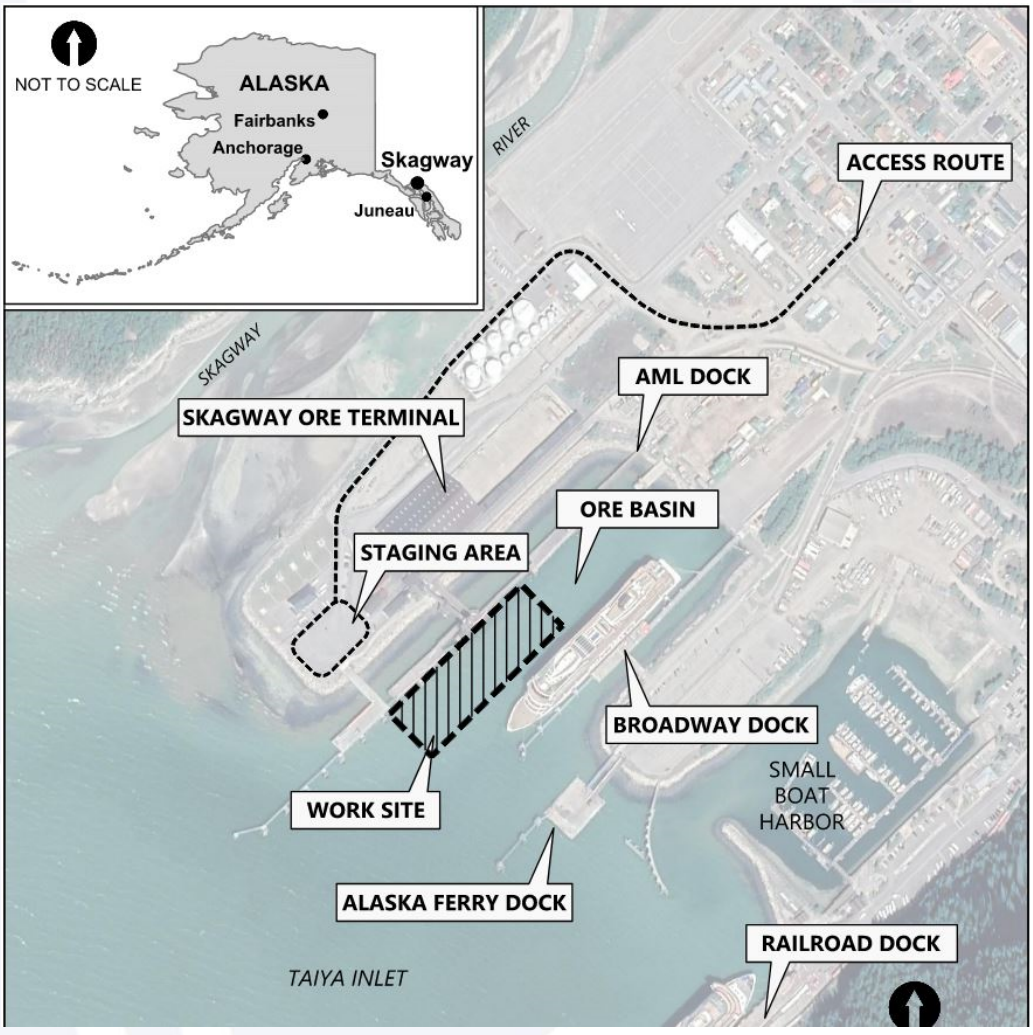
h. Dredging contaminated sediments and debris from the dredge units as shown on the drawings.
i. Dewatering of dredge material, stabilizing and transportation of that material.
j. Offloading and stockpiling all stabilized dredge material and dredge debris at the offloading facility treating dredge effluent water and performing upland transportation and disposal of stabilized dredge material and dredge debris at a disposal facility.
k. Importing and placing of the sand cover material in accordance with the specifications.

PROJECT SITE

Skagway is the northernmost city in the Southeast Alaska region and provides the nearest access to tidewater for much of the neighboring Yukon territory. The Skagway River empties into Taiya Inlet at the head of Lynn Canal. Pullen Creek empties into the Ore Basin at the southeast corner of the basin. The ore Basin is a deep-water port that transitions sharply from a limited nearshore area into the deep marine water of the Lynn Canal. The Ore Terminal is located along the northern berth of the Ore Basin.



PROJECT TEAM/KEY PERSONNEL

OWNER

- White Pass & Yukon Route

DESIGN TEAM

- Anchor QEA - Remediation
- KPFF – Structural
- Hart Crowser- Geotechnical

CONTRACTOR

- Turnagain Marine Construction
    - **Project Manager** – Chris Nielsen
        - **Phone**: 907-891-5499
        - **Email**: cnielsen@turnagain.us
    - **Project Engineer/Safety Officer/Quality Control Officer** – Joshua Janssen
        - **Phone**: 907-201-1043
        - **Email**: jjanssen@turnagain.us
    - **Project Superintendent –** Pat Joens
        - **Phone**: 907-726-7205
        - **Email**: pjoens@turnagain.us

SUBCONTRACTORS

- Boyer Logistics
    - **Operations Manager:** Eric Tran
    - **Phone:** 206-799-6381
    - **Email:** eric@boyertowing.com
- Waste Management
    - **Project Manager:** Troy Tyacke
    - **Phone:** (360) 507-6613
    - **Email:** ttyacke@wm.com
- Hughes and Associates
    - **Professional Land Surveyor:** Cory Hughes
    - **Phone:** 907-355-5532
    - **Email:** CHughes@HughesHydro.com

TMC PERSONNEL

TMC's Project Manager (PM) on this project is Chris Nielsen. The PM reports to the Owner's Project Representative and is responsible for overseeing completion of the construction work in accordance with the project plans and specifications, design drawings, and the approved work plans. The PM is supported by TMC's Site Superintendent, QC Officer, and Health and Safety officer. The responsibilities and authorities of the PM include, but are not limited to:

- Ensure construction is conducted and completed in accordance with the plans and specifications.
- Ensure that TMC's staff follow the approved quality control and health and safety procedures.
- Ensure that required tests and inspections are conducted.
- Ensure that TMC's staff performing the tests and inspection are properly trained.
- Ensure that testing and inspection results meet QC requirements.
- Inform the Project Engineer (PE) and Owner Project Representative of any new findings or changed conditions.
- Provide QC documentation to the PE and Owner Project Representative; and
- Submit as-built conditions to the Owner's Project Representative.

TMC's Project Manager has the full authority to execute all actions necessary to ensure that the construction work complies with the project plans and specifications, and HASP.

SUPERINTENDENT

Pat Joens has been designated as TMC's Site Superintendent. The Site Superintendent will be assisting the Project Foreman whenever work is being performed and supports the TMC's Project Manager. The Site Superintendent responsibilities include, but are not limited to:

- Ensure construction is conducted and completed in accordance with the plans and specifications.
- Ensure that TMC's staff follow the approved quality control and health and safety procedures.
- Ensure that the required tests and inspections are conducted.
- Ensure that TMC's staff performing the tests and inspection are properly trained.
- Ensure that testing and inspection results meet QC requirements.
- Provide QC documentation to TMC's Project Manager, for submittal to the PE and Owner Project Representative, and
- Document as-built conditions.

Pat Joens will be the on-site Shift Safety Officer responsible for overseeing safety while work is occurring, ensuring that safe work procedures are followed at the job site, ensuring that proper safety equipment is available at the job site, and maintaining Health and Safety documentation and providing such documentation to the Owner's Project Representative.

HEALTH AND SAFETY OFFICER/QUALITY CONTROL OFFICER

Joshua Janssen has been designated as TMC's Health and Safety Officer (HSO) as well as the Quality Control Officer (QCO). He will be primarily responsible for implementing and overseeing TMC's HASP. He will also be responsible for providing TMC's staff with the HASP that deals with project-specific hazards

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and ensuring that all employees are trained in appropriate safety techniques relevant to the project. Along with these duties he will oversee day-to-day quality control procedures as well. He will lead in taking samples of sediment to be sent to the lab. As well as overseeing all bathymetric surveying performed by Hughes and Associates. He will also ensure all survey equipment is functioning properly for sand placement to ensure it meets spec.

DAILY/WEEKLY REPORTS

Daily Construction Report

1) As part of the daily construction report, TMC will provide to the Owner's Representative a brief narrative daily summary record of general daily dredging activities conducted and associated relevant details, safety incidents, and progress surveys.
   a) The daily construction report shall include the daily and total volumes of dredge material removed and sand cover material placed to date.
   b) TMC shall include a checkbox within the daily construction report to confirm that equipment and barges have been adequately secured overnight.
2) As part of the daily construction report the contractor shall provide to the owner's representative a brief narrative daily summary record of stabilization, offloading, stockpiling, and re-handling, transportation, and disposal activities to be conducted and associated relevant details, and safety incidents.
3) The Daily Construction Report shall include a record of every vessel that leaves the project site including the identity of the vessel and the approximate quantity of waste carried by the vessel. The Daily Construction Report shall include a record of every vessel that arrives at the Offloading Facility including the identity of the vessel, the identity of every truck or rail car that receives waste, and the approximate quantity of waste loaded onto each truck or rail car. The Daily Construction Report shall include a record of every truck or rail car that arrives at the Disposal Facility including the identity of every truck or rail car that is received at the Disposal Facility, and the actual quantity of waste received at the Disposal Facility on each truck or rail car. The Contractor shall demonstrate, through reconciliation of shipment records and landfill receipts, that all waste shipped from the project site has been received at the disposal facility.
4) The Contractor shall submit empty barge displacement measurements when a haul barge arrives at the Work Site and full displacement measurements before a haul barge leaves the Work Site, along with the corresponding tonnage of material in each barge. The Contractor must also record and submit full barge displacement measurements when a barge arrives at the Offloading Facility and after emptying of the barge, along with the corresponding tonnage of material in each barge. This information shall be included as part of the Contractor's Daily Construction Report.
5) The Contractor shall keep a daily record of the area(s) where clean Sand Cover was placed, the estimated quantity of material placed, daily progress survey, barge displacement tables, and a summary of other details of the work. The Daily Construction Report shall be submitted to the Owner's Representative the morning following completion of the work for that day. The Daily Construction Report shall be signed by Contractor's site superintendent and quality control manager.

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6) Provide the total number of days that Water Quality monitoring has been conducted for payment tracking purposes
7) Attachments to the Daily Report:
   a) Results of the water quality monitoring, as described in the Water Quality Monitoring Plan (WQMP)
   b) Daily Progress Surveys, including quantity calculations/volumes
   c) Structural monitoring report.
   d) Written documentation from the qualified marine surveyor to the owner's representative that the barge is properly loaded; is seaworthy; has no observable stability issues, such as evidenced by barge listing; and is secure.
   e) TMC shall submit to the Owner's representative copies of all barge displacement sheets, manifests, truck sale tickets, Certificates of Disposal, and any other documentation to demonstrate and track the transport and disposal of the dredge material and Dredge Debris. The documentation shall track the material from the point of leaving the Work Site to disposal at the Disposal Facility. This information shall be included as part of the Contractors Daily Construction Report.

Weekly Construction Report

1) TMC as a part of the weekly report shall provide, a summary record of the work completed to date including but not limited to:
   a. Areas dredged
   b. Estimated dredge pay volume removed.
   c. Estimated excessive dredging volume removed
   d. Number of haul barge trips to the offloading facility
   e. Estimated volume and tonnage of dredge materials
   f. Estimated quantity (volume and tonnage) of dredge material that has been stabilized
   g. Estimated quantity of stabilized dredge material that has arrived at both the offloading facility and disposal facilities. Truck or rail car scale measurements for material that has arrived at both the offloading and disposal facilities
   h. Certified weight tickets from the disposal facility
   i. Summary of other relevant details of the weekly work.
2) As part of the weekly report, TMC shall provide to the Owner's representative a weekly summary record of the work completed to date including:
   a. Location of Sand Coverer Placement
   b. Estimated material placement volume/tonnage and area
   c. Estimated excessive over placement volume
   d. Summary of other relevant details of the weekly report
   e. Weight tickets or placement material certifications
3) TMC shall submit to the Owner's representative all backup documentation related to sand cover placement, to demonstrate and track the placement of sand cover material, including barge displacement measurements and weight tickets or receipts from the quarry.
4) The report shall be summitted the following Monday morning following completion of the work for that week. The report shall be signed by the contractors site superintendent and quality control manager.
5) The weekly construction report shall also provide a 3 week look ahead of upcoming dredging, stabilization, and material placement activities and tasks

CONSTRUCTION SCHEDULE

SCHEDULE

PROJECT SEQUENCE

Pre Construction Phase
- Submittal Procedure
- Project Planning
- Pre-Construction Survey

Construction
- Mobilize Equipment
- Dredging
- Post Dredging Survey
- Material Stabilization/Testing
- Sand Placement

Post Construction
- Post Construction Survey
- Sediment Disposal
- Project Wrap-up

SUBMITTAL BREAKDOWN

PRE-CONSTRUCTION

Spec Section	Submittal	Timeline
01 11 00 – 1.06	Construction Schedule	Within 2 weeks of contract award.
01 11 00 – 1.09	Pre-Construction Meeting	TBD
01 35 43	Environmental Protection Plan	Within 2 weeks of contract award.
01 70 12	Health and Safety Plan	Within 2 weeks of contract award.
35 20 23	Construction Work Plan	Within 2 weeks of contract award.
35 20 23	Pre-Construction Survey	1 Calendar week before work starts

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Spec Section	Submittal	Timeline
35 20 23	Construction Schedule	Weekly Updates.
35 20 23	Daily Reports/Surveys	Following day by noon
35 20 23	Weekly Construction Report	Once a week
35 20 23	Dredge Post-Construction Survey	After Completion of dredging
35 23 23	Placement Post-Construction Survey	After Sand Cap installation
35 20 23	Post-Construction Condition Inspection Report	Post Construction
N/A	Transport, Treatment, and Disposal Form	Prior to Construction
35 23 23	Sand Cover Analytical Test Results	10 Days before the barge is to mobilize
35 20 23	Condition Inspection Report	Prior to Construction

CONSTRUCTION

POST-CONSTRUCTION SURVEY

Spec Section	Submittal	Timeline
01 11 00	As-Built Drawings	Submitted before substantial completion request

Note that the Owner and Anchor QEA will develop a Post-Construction Closure Report summarizing the work completed and will include relevant information as attachments (i.e., disposal documentation, stabilization data).

TIMELINE

Please see P6 Gantt Chart in **Appendix A**

OPERATION

TMC will operate on a 12 hour a day, 7 day a week schedule for this project. Unless otherwise noted by the owner.

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REMEDIAL DREDGING

EQUIPMENT

DREDGING EQUIPMENT

a) Swiftwater Crane Barge – Turnagain Marine Construction
   i) Spud Barge – 230'x60'x15'
   ii) Link Belt 718 Crawler Crane – 250 Ton Capacity
   iii) 2 ea. 100' long octagonal mooring spuds
   iv) 2 ea. Manitowoc 390 three drum winches
   v) (1) 4yd Anvil Round Nose Dredge Bucket
   vi) (1) 6yd Anvil Level Cut Environmental Bucket
b) Tractor Tug – AMAK Towing – Le Cheval Rouge
   i) Twin Screw Conventional Tug
   ii) 90.5' x 30' x 12.5'
   iii) 3400HP
   iv) Official number: 568784
c) Boyer Logistics – Klamath
   i) Material Barge
   ii) 333' x 76' x 22'
   iii) Cargo Tonnage – 11800
d) Cat 966 Loader
   i) Loader will be used to assist the crane and move material around on the barges.
e) (1) 4CY Round Nose Bucket.
   i) This bucket will be utilized incase TMC runs into any unexpected hard material or large objects/debris that need to be removed
f) (1) 7CY Level Cut Bucket
   i) The level cut bucket will be the primary bucket used in the dredging process as well as sand placement.
g) Link-Belt LS718 Crawler Crane
   i) The sensors mounted to the crane will be used in conjunction with a real-time kinematic global positioning system (RTK-GPS) and HYPACK 2019 dredging software to facilitate precise positioning and location tracking. This system will allow the position of the bucket to be monitored, in real-time, to approximately +/- 2-inch accuracy. Two GPS antennas mounted on the rear of the crane will provide additional position and direction data

TMC will start by dredging Sequencing Area A1 and A2. This will make the first dredge cut immediately adjacent to the dredge offset area and work down the adjacent 2H:1V slope to the boundary with adjacent Sequencing Area-B. Upon completion of the preliminary dredge pass, TMC will complete the required dredging in sequencing Area-B down to the specified elevations of -42, -43 and -44. Upon completion of Area-B TMC will remove any sloughed material and finish dredging the rest of the dredging footprint. Once the entire footprint has been dredged. TMC's third party surveyor will conduct the Dredge-Post Construction Survey. Results will be submitted to the owner for approval. If there is enough sloughing, the Owner may require deeper dredging in Sequencing Areas A1 and/or A2. The Owner will provide direction on dredging depths and slopes. Direction for this dredging will be based on the results of daily Progress Surveys.

MOBILIZATION OF DREDGING EQUIPMENT

a) Swiftwater Crane Barge
    a. The Swiftwater Crane Barge will be picked up by AMAK Towing from Seward. The Le Cheval Rouge will tow the Swiftwater from Seward to Skagway. The Le Cheval Rouge will stay on site and assist the Swiftwater Crane Barge with any on site barge movements.
b) Material Disposal Barge
    a. To transport and stockpile all contaminated material. TMC will utilize a Boyer Towing barge out of Seattle Washington. Boyer Towing in conjunction with AMAK Towing will handle both the mobilization to and from the jobsite.
c) Sand Material Barge
    a. TMC will use a small ramp style material barge from Ketchikan to haul all imported clean sand to the project site. The material barge will come from Pool Engineering or Olson Marine and will be towed to the project site by AMAK Towing.

MEANS AND METHODS

DREDGE METHOD

Turnagain will utilize DredgePack software to aid in tracking of the location and the amount of material that is being removed. TMC will also have Hughes and Associates conduct a daily survey to monitor the sea floor to make sure there is no excessive dredging. Hughes will accomplish this task by using multibeam equipment. Multibeam sonars emit sound waves from directly beneath a ship's hull to produce fan-shaped coverage of the seafloor. These systems measure and record the time for the acoustic signal to travel from the transmitter (transducer) to the seafloor (or object) and back to the receiver. Multibeam sonars produce a "swath" of soundings (i.e., depths) to ensure full coverage of an

area. The coverage area on the seafloor is dependent on the depth of the water, typically two to four times the water depth. Manual sounding using a rag tape will also be used to gather more information and provide verification on the material removed from the sea floor.

DREDGE SEDIMENT DEWATERING

The dredged material will be stored on a flat deck material barge. The material barge planned for this project will have bin walls. Upon arrival of the material barge, TMC's crew will install the filter fabric around the perimeter of the barge. This material will not create a watertight seal, rather it will allow for water to pass through the filter fabric. During dredging, fabric will be inspected daily for any rips, holes, or other defects that could allow for material to leave the barge. The fabric will extend in 8 feet from the bin walls and will be secured to the deck of the barge via sandbags, preventing any dredge effluent contaminated material to be discharged back into the water. If the water level on the barge looks like it is going to breach the sidewalls, due to the lack of drainage through the filter fabric, TMC will pump the water out. A filter sock will be used to trap and contain all contaminated material during pumping operations.

DREDGING BEST MANAGEMENT PRACTICES

The following dredge best management practices will be instituted for water quality protection:

- The rate of ascent and decent of the environmental bucket may be slowed to reduce potential sediment loss.
- The bucket shall be completely closed before raising it when the bucket is filled with sediment.
- The operator will strive to avoid overfilling the bucket that would cause loss of material over the sides of the bucket as it ascends through the water column.
- If the bucket is not closed completely because of debris obstruction, the operator shall not drop the load at the surface to dislodge the debris but shall complete the dredge pass and dispose of the debris on the haul barge. No pausing of the bucket at the water surface will be allowed, the bucket must immediately swing on the material barge to eliminate dredge sediment loss.
- Dragging the bucket, beam, or other items across the dredge surface to meet design grades is not permitted
- No stockpiling of dredged material on the sea floor.
- The barge will be managed such that the dredged sediment load does not exceed the capacity of the barge. The load will be placed in the barge to maintain an even keel and avoid listing.
- No overtopping of the barge sideboards will be allowed during placement of dredged sediment, and no free water from the dredged sediment will be directly discharged back into the surface waters without passing through the filter media to prevent release of suspended sediments.
- Each descent to the mudline with the dredging bucket will result in only one single bit with bucket.

- To limit turbidity the bucket be paused right before the mudlines and right before the bucket leaves the water.

PRE AND POST CONSTRUCTION CONDITIONS INSPECTIONS AND COLLISION PREVENTION MEASURES DURING DREDGING

TMC will conduct a Pre-Construction Conditions Inspection of the dock, associated fender systems and other existing structures bordering the project limits prior to beginning in-water work. This inspection will be used to document existing conditions. The inspection will include an appropriate level of descriptions and photographs as well as a survey video to support documentation of the pre-construction conditions. Divers will be called in from Juneau to inspect below the waterline. To identify any areas of significant deterioration or physical damage prior to construction. This report will then be reviewed by the owner's representative as and accurate representation of existing conditions.

When the barge is being positioned within the project site there will be spotters on two sides of the barge. With the use of the barge mooring spuds, the tugboat, spotters and operators will use constant radio and visual communication to position the barges in place. The crew will communicate the position of the barge and boats to ensure the barge does not meet the dock in a way that may potentially damage the structure. The barge and boat will be equipped with fenders to ensure if contact is made there is no marking or crushing of the dock structures.

TMC will schedule a meeting at the Facility within ten (10) calendar days of Substantial Completion and conduct a Post-Construction Conditions Inspection of the dock and associated fender systems, and other existing structures bordering the Project limits to determine if TMC adversely impacted the structures during the construction activities. The report will follow the same structure as the pre-construction inspection report. It will include photos as well as a small narrative.

The pre-construction condition inspection report will be used as a baseline reference if any damage to existing structures within the work site occurs during the work. Any damage to facility structures and/or existing facilities caused by TMC's operations, as determined by the Owner, shall immediately be repaired to the pre-project condition at TMC's expense.

A Dock Movement Monitoring Plan will be detailed further in the Survey Plan to be submitted under separate cover. Prior to the start of dredging, TMC will establish monitoring points along the waterside face of the ore loader platform and timber dock at 50-foot intervals. TMC will monitor movement for both lateral and vertical deflections daily through use of either a licensed surveyor or in house surveyor utilizing total station or similar. If movement is observed greater than or equal to ¾", TMC shall immediately notify the owner and engineer and cease any dredging operations that may be underway.

MOORING EQUIPMENT

The Swiftwater utilizes two 100' long octagonal spuds that weight approximately 50,000lbs each. The spuds are controlled by two Manitowoc winches mounted on the deck of the Swiftwater. The winches allow TMC to lift the spuds up and down in a controlled manner. This in turn allows TMC to create less turbidity in the water and create a disruption of a smaller footprint than utilizing anchors. Utilizing spuds allows us to precisely locate the barge on the exact working location, to dredge the necessary amount of material safely and accurately. Each barge will be equipped with 4 navigation lights, mounted on each corner of the barge. The lights will comply with all United States Coast Guard rules and regulations.

SUPPORTING EQUIPMENT

Within the boundaries of the project site Turnagain will use its own tugs/skiffs to maneuver the barges around and relocate on to the next dredging location. If needed, TMC will use AMAK Towing to assist with barge movements around the work site.

DEBRIS REMOVAL AND HANDLING

EQUIPMENT

If while dredging, floating debris is encountered, a work skiff will be deployed to retrieve the debris. Material that cannot be handled by the bucket will be retrieved manually by the deck hands and placed on the material barges.

HANDLING DEBRIS

Non-floating debris will also be placed on the material barges for disposal at the same approved landfill as the dredge material. Floating debris will also be put onto the material barge and disposed of at the approved landfill.

SURVEYING OF DREDGING

PROJECT LAYOUT

Per spec, TMC will not be self-performing any surveying on this project. TMC will subcontract Hughes and Associates to conduct all project Surveying. Please see attached surveying plan and list of applicable equipment in the appendix from Hughes and Associates.

PRE-CONSTRUCTION SURVEY

Hughes and Associates will conduct a pre-construction bathymetric survey and supplemental surveys as necessary to fully identify pre-construction elevations and grades. As noted in the specifications, the

survey will extend 100 feet beyond all dredging units and side slope areas that contain potential slough material, as shown on the drawings. This pre-construction survey will be completed and submitted to the owner's representative 1 week prior to the start of any dredging activities. This survey will also be used as the basis for payment as the project moves forward.

DREDGE POST-CONSTRUCTION SURVEY

TMC will conduct a post dredging survey of the worksite. To verify that all required dredging and additional dredging if required is satisfactory. This survey will also serve as the pre-placement survey for the clean sand cap.

PLACEMENT POST-CONSTRUCTION SURVEY

After the clean sand cap has been placed, TMC's third party surveyor will conduct a survey to verify the sand has been placed in accordance with the specifications and construction drawings. These bathymetric surveys will be given to the owner to review the progress of the work, and to aid in the determination of sloughing from under the Ore Dock. The results of this survey will be compared to the monthly progress reports provided by the contractor (for progress payment) and adjustments to final payment for the work will be made as necessary.

DAILY PROGRESS SURVEYS

In addition to the pre and post construction surveys. TMC will submit daily bathymetric surveys for owner's review of the progress of work and to aid in the determination of sloughing from under the Ore Dock.

NAVIGATION INTERFERENCE

Ore Basin is a busy industrial traffic route with some frequent users. Continuous coordination is required to ensure safe use of the waterway for TMC and its subcontractors as well as other users. To minimize the potential for waterway conflict, TMC will strictly adhere to Coast Guard regulations, waterway rules, and right-of-way hierarchy. TMC will also coordinate closely with tenants and other waterway users to minimize potential conflicts. (e.g., fuel barges)

The right-of-way practices defined by the International Regulations for Preventing Collisions at Sea will be followed. During transit, right-of-way will be determined by communications between the two vessels. TMC will file a "Notice to Mariners" with the US Coast Guard that will alert all commercial and pleasure craft operating in the area. All barges further described in this submittal will be marked with mooring lights located on all four corners of each barge per USCG regulations. No anchor lines will be used for this project. All mooring will be by using the spuds of the Swiftwater barge. The sediment material barge will be towed by a Boyer Towing vessel.

QUALITY CONTROL

METHODS AND PROCEDURES

Turnagain Marine Construction recognizes that in today's competitive marketplace, effective quality systems are essential when providing quality cost effective services to our clients. It is the policy of TMC to adhere strictly to this quality control program and to ensure that this program and the requirements of our customers are met on each project we execute. All employees have the responsibility and authority for implementation of established QA/QC activities. Resolution of conflicts in QA/QC policies shall flow through the organizational chain of command as follows:

1. Field Employees
2. Craft Leaders
3. General Foreman
4. General Superintendent – Pat Joens
5. Project QA/QC Officer – Joshua Janssen
6. Project Manager – Chris Nielsen

It is the responsibility of any employee that manages, performs, or verifies work affecting quality to:

a. Initiate action to prevent the occurrence of work or service non-conformity.
b. Identify and record any quality problems.
c. Initiate, recommend, or provide solutions through designated channels.
d. Verify the implementation of solutions.
e. Control further processing, delivery, or installation of non-conforming work until the deficiency or unsatisfactory condition has been corrected.

Full authority for the implementation and administration of the quality controls described in this manual has been delegated to the Quality Control Officer "QCO". The QCO has the responsibility and organizational freedom to identify quality control problems, stop work, recommend solutions, and verify resolution of such problems. The quality of all subcontractors and vendors shall be the joint responsibility of the QCO and the applicable Project Manager. All projects will be executed in a manner that emphasizes safety, quality, schedule, and maximum cost effectiveness. Any commitment, conflicts, or non-conformance issues not resolved using current established Quality Assurance / Quality Control Procedures shall be brought to the attention of the Owner's Project Representative.

POST DREDGE SAMPLING

Per discussions with ADEC, no immediate post-dredge sampling will be conducted as part of this work. Post dredge sampling will take place on the next occurrence that a drill rig is mobilized to site. During this future event, a drill rig would be mobilized to the harbor and sampling in the current dredge footprint will be conducted, along with presumed sampling in adjacent un-remediated areas. Due to the sediments under the Timber Dock not yet characterized, this work will take place significantly prior to when the site is "pending site closure". Sampling immediately after this dredging event would not be representative of post-cleanup conditions due to the placement of sand cover after dredging. Sampling

also, wouldn't provide an indication of this project's success since the project is being conducted as a risk-based mass removal and is not a sediment remediation project based on numeric sediment standards.

STABILIZATION, TRANSPORTATION, & DISPOSAL

MATERIAL OFFLOADING

Stabilized dredged material will be transported back to Seattle, WA by Boyer logistics. To their facility on 4th Avenue. At that point Waste Management will take control of the barge for final disposal. The material disposal barge will sit on Boyers dock, where the material will be then loaded onto rail trucks and taken to the Columbia Ridge Subtitle D landfill.

STABILIZATION

MATERIAL STABILIZATION METHODOLOGY

Material Stabilization will be as follows:

i) The material will be loaded onto the barge to begin the dewatering process.
ii) If the barge begins to fill with too much water and looks like it will begin to overrun the sidewalls, TMC will pump out the water. A filter sock will be utilized to catch contaminants during pumping operations.
iii) Once the material has been dewatered, the material will be moved to a watertight mixing area. TMC will then begin mixing in the super sacks of cement. Cement will be mixed with a 966 loader. The loader will be fitted with the CAT payload system. This system will allow the operator to accurately measure how much material he is moving. Turnagain will create 500 cubic yard stockpiles that will be able to accurately be measured by the CAT Payload system. The operator will track how much each stockpile weighs, and cement will be added accordingly. TMC will start by adding 3% of the stockpiles weight in cement to stabilize the material. The loader will pick up the material spread it out and continue this action until the material shows a consistent homogenous mixture. TMC will not employ any other method to determine if the mix is completely homogenous.
iv) If after 3% cement has been added to the stockpiles, it is discovered that TCLP standards are still exceeded, TMC will be prepared to add 2% more cement. A maximum cement content of 5% will be achieved after an additional 2% has been added. If the additional 2% does not achieve the desired test results. Additional cement would be added on site and then retested until a passing ratio was achieved.
v) After the material has been loaded into supersacks it will be stored for shipment to Seattle. Prior to departure, the bags will be tarped to prevent water intrusion. As a third level of

containment the barge will have BMP's in place around the inside of the bin walls to manage rain and wave runoff.

POST-STABILIZATION VERIFICATION SAMPLING AND TESTING

SAMPLE COLLECTION PROCEDURE

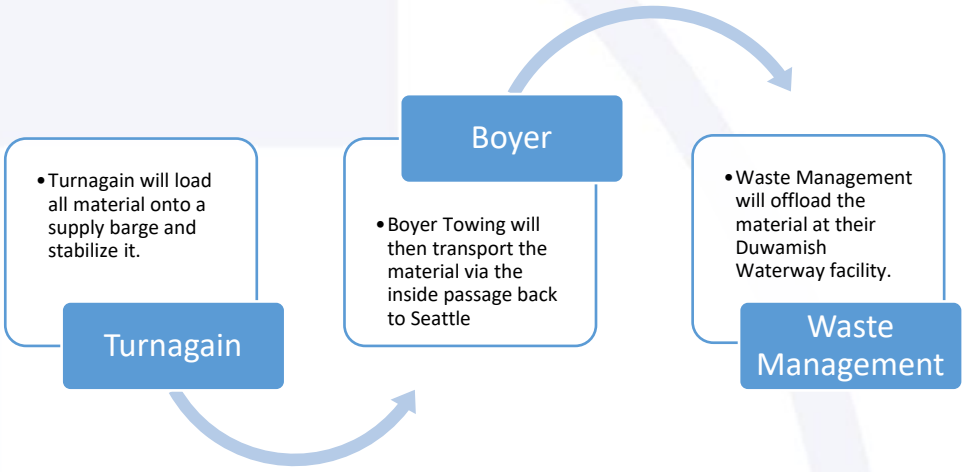
- Sampling and laboratory data review will be completed in accordance with ADEC sampling guidance: ADEC (Alaska Department of Environmental Conservation), 2019. *Field Sampling Guidance.* Division of Spill Prevention and Response Contaminated Sites Program. October 2019.
- Analytical testing will consist of Total Metals and Toxicity Characteristic Leaching Procedure (TCLP) for RCRA 8 metals.
- Test results will be provided to the Owner and ADEC for approval as an attachment to the Transport, Treatment, and Disposal form. Material will not leave the site until ADEC approval has been received.
- After the material has been thoroughly mixed. TMC will take samples of the material and will have them tested to make sure that the material has met the stabilization requirements and is therefore safe to transport by Boyer/AMAK Towing down to Seattle. The material will be deemed safe to transport once the material has been confirmed to be at or below the EPA's Maximum Concentration of Contaminants for the Toxicity Characteristic (See v Appendix B for Table 1 – Maximum Concentration of Contaminants for the Toxicity Characteristic).
- TMC will take three samples from each stockpile and each sample will be a composite (collection of several points) of a portion of the stockpile. The samples should be collected in decontaminated (washed with alconox soap) stainless steel bowls and spoons, then thoroughly homogenized in the bowl before transferring to the lab-provided clean sampling jars.

LAB TESTING

- After the samples have been taken in the field the QC manager will arrange to have the samples transported to SGS in Anchorage, AK for testing. All three samples will need to pass TCLP testing for the stockpile to pass. If all three samples do not pass TMC will increase the amount of cement and will retest.

LOADING AND TRANSPORTATION OF STABILIZED MATERIAL

TRANSPORTATION SEQUENCE



TRANSPORTATION ROUTES

BARGE ROUTE

- After test results have been received and approved, TMC will begin super sacking material. The material will be deemed safe to super sack/transport once the material has been confirmed to be at or below the EPA's Maximum Concentration of Contaminants for the Toxicity Characteristic (See v Appendix B for Table 1 – Maximum Concentration of Contaminants for the Toxicity Characteristic). After all the material has been loaded into the sacks, TMC will stack the material in a pyramid formation and install a tarp over it to ensure no excess water will be gained while transporting. While the material is being stacked it will be carefully counted and
- the daily quantity will be documented the daily report of how many sacks were bagged and stacked at end of day.
- Before the material leaves the jobsite a final number of super sacks will be submitted to the owner so that upon arrival it can be confirmed that all material made it through transport.

BOYER LOGISTICS

- The material will then be transported by Boyer Logistics via the inside passage to Waste Management's facility in Seattle on the Duwamish Waterway for offloading. At which point Waste Management will take control of the material. While the material is in transit, the barge can be tracked via AIS. TMC's QC officer will document the daily progress of the barge and will note if any deviations were made from the scheduled route. Estimated travel time for the barge is 10 days to reach Seattle.

WASTE MANAGEMENT

- Waste management will take control of the material after it has arrived at their Duwamish facility. The super sacks will be offloaded from the barge and will be counted to ensure that all material made the trip. Waste Management will employ the following BMP's while offloading:
    - A spill apron and/or spill collection plate (or equivalent spill prevention measure) shall be used between the barge and Offloading Facility during all offloading activities
    - Spill aprons shall be covered with heavy sheeting (geomembrane or similar)
    - If the sediment is temporarily stockpiled at the Offloading Facility (e.g., not immediately loaded onto trucks or rail cars), aprons shall span the gap between the stockpile area and the truck beds or the Contractor shall conduct routine and ongoing inspection of the pavement, truck bodies, and tires to catch any dropped material before it gets on the wheels of the trucks.
    - No discharge from the in-water transportation barges will be allowed during transport.
    - No stabilized dredged material, Dredge Debris, or dredge effluent water transfer can begin at the Offloading Facility until the spill prevention measures are evaluated and accepted by the Owner's Representative and determined to be in place.
    - Personnel will be trained in hazardous material handling and spill response and will be equipped with appropriate response tools, including absorbents. In the event of a spill,

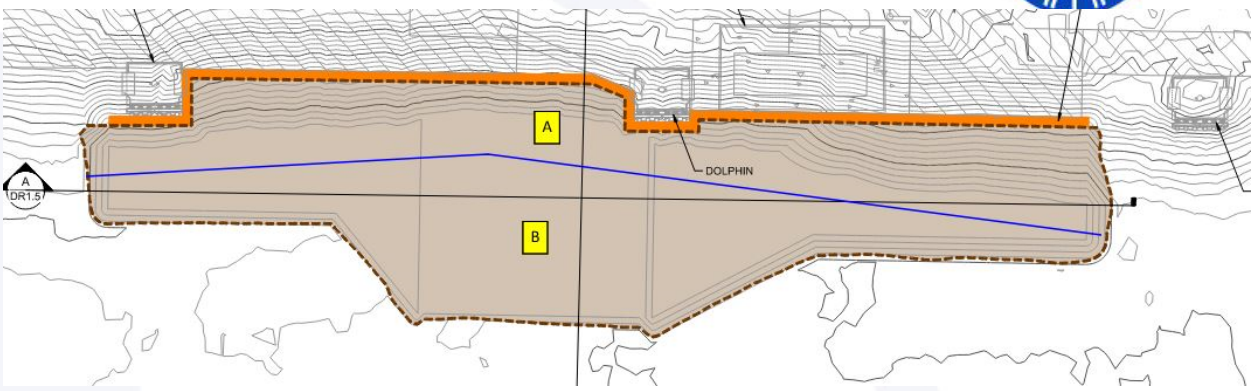
- spill cleanup and containment efforts will begin immediately and will take precedence over normal work. If a spill occurs on the spill apron, spillage shall be removed as soon as practicable and properly disposed. Any spillage outside of the spill apron shall be promptly cleaned up.
- The Contractor shall use equipment and methods capable of loading trucks or rail cars without spilling material and shall inspect vehicles and loading areas to detect any spillage. If spillage is observed, the Contractor shall sweep vehicles and loading areas to capture and contain all spilled material. The Contractor shall not allow spilled material to be tracked off site from the Offloading Facility on vehicle, wheels, or tires.
- Equipment and supplies shall be kept at the Offloading Facility to remove spilled materials expeditiously to prevent the release of spilled materials to the environment, to minimize disruption of offloading operations, and to prevent tracking of materials off site.
- The Contractor shall dispose of all stabilized dredge material, Dredge Debris, and dredge effluent water as soon as practical. Materials may not be stockpiled for extended periods of time unless otherwise accepted by the Owner's Representative.
- The Contractor shall always maintain strict dust control to prevent dust particles from becoming airborne. Sprinkle or treat areas disturbed by operations with dust suppressants or water.

After the material has been loaded onto trucks the drivers will follow the designated route previously shown. The material will then be dumped in a segregated area and loaded into 110-ton capacity gondolas. These gondolas are tarped and then transported via Union Pacific RR from Seattle to WM's facility Arlington, OR where they are dug out, loaded into dump trucks, and transported to Columbia Ridge Landfill, where the waste is dumped into the landfill.

SAND COVER PLACEMENT

SAND PLACEMENT SEQUENCE

All clean sand cover material will be placed from the deepest elevations to the shallowest elevations. TMC will work up the slope as the sand is placed. TMC's third party surveyor will conduct the Placement-Post Construction Survey. Results will be submitted to the owner's representative for approval. After approval by the owner's representative final measurement and payment for work will be determined based off the third-party surveyors submitted results.



SAND MATERIAL SOURCE

Turnagain will source the sand from Coalaska out of Haines. Their quarry is located on the Haines Highway northwest of town. The sand design is attached in **Appendix A. Sand Chemistry makeup will be submitted 45 days prior to placement. Grain size distribution as well metal results can be found in Appendix A. Semivolatile organic compounds, PAH, and PCB tests will be performed and will be submitted prior to sand placement.**

SAND MATERIAL MOBILIZATION

Sand Mobilization will be as follows:

1. Material barge will be mobilized from Ketchikan. The barge will be towed by AMAK towing and will leave Ketchikan enroute to Haines, AK.
2. The barge will be loaded in Haines at the AML dock or other prearranged location. Coalaska will truck the material from their pit on the Haines Highway to the prearranged location.
3. Once the barge is loaded it will depart for Skagway.

SURVEYING OF SAND PLACEMENT

TMC will utilize DredgePack software to precisely place the sand cap after dredging has been completed. The Software will allow the operator to see in real time where the bucket is located. The system consists of a series of sensors that are tied in with GPS positioning to determine the position and depth of the bucket. An angle sensor is utilized to determine the boom angle, a rotation sensor to determine the rotation of the lifting drum, and a switch box to calibrate the depth of the bucket and mark the bucket positions. After installation, the system can be calibrated by the operator. In addition to the software on the crane, Hughes and associates will be performing daily progress surveys, to ensure that all specifications are being met and that there is no excessive over placement

PRE-PLACEMENT SURVEY

Per 35 23 23-3.06 B1 in the specification. The post-construction survey will be utilized as the pre-placement survey.

SAND PLACEMENT DAILY TRACKING

Turnagain will utilize the DredgePack software that was mentioned above to aid in tracking the thickness and area of sand placement. TMC will also have Hughes and Associates conduct a daily survey to monitor thickness and area of sand placement. Hughes will accomplish this task by using multibeam equipment. Multibeam sonars emit sound waves from directly beneath a ship's hull to produce fan-shaped coverage of the seafloor. These systems measure and record the time for the acoustic signal to travel from the transmitter (transducer) to the seafloor (or object) and back to the receiver. Multibeam sonars produce a “swath” of soundings (i.e., depths) to ensure full coverage of an area. The coverage area on the seafloor is dependent on the depth of the water, typically two to four times the water depth. Manual sounding using a rag tape will also be used to gather more information on the thickness of the sand as well as the area that the sand has covered.

POST-PLACEMENT SURVEY

TMC’s third party surveyor Hughes and Associates will conduct the Placement Post-Construction Survey after completion of Sand Cover placement has been accepted as complete by the owner’s

representative review of progress surveys. Final measurement and payment for the work will be determined using the accepted survey results.

SAND PLACEMENT BEST MANAGEMENT PRACTICES

TMC’s Best Management Practices for sand placement are as follows:

- The rate of ascent and decent of the environmental bucket may be slowed to reduce potential sediment loss.

- Dragging the bucket, beam, or other items across the dredge surface to meet design grades is not permitted
- Sand will be tarped to limit any excess water from entering the material. That could cause the material to want to run off the barge.

8241 Dimond Hook Drive, Unit A Anchorage, AK 99507 ph 907-261-8960 www.turnagain.build

MEANS AND METHODS

SAND PLACEMENT

Sand will be placed using TMC's Link-Belt LS 718 crane. The operator will load a 7-yard level cut bucket full of sand from the attached material barge. He will then swing and lower the bucket down to the sea floor being careful to not contact the existing subgrade. The bucket will then be opened, and material will be released in a slow sweeping motion to lower the amount of turbidity and disturbance to the sea floor. Once the bucket has been completely depleted of all material, the operator will slowly bring the bucket to the surface and will repeat the process.

FIELD VERIFICATION

Please refer to Survey section to ensure proper placement of sand.

QUALITY CONTROL

Turnagain will rely heavily on the daily surveys and dredging software to ensure proper placement of sand. TMC will use manual sounding techniques out of the work skiff to ensure that all survey equipment and software are functioning properly. All material will be tested before it arrives o the job site to ensure that it meets the chemistry requirements provided in the specification.

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APPENDIX A

8241 Dimond Hook Drive, Unit A Anchorage, AK 99507 ph 907-261-8960 www.turnagain.build

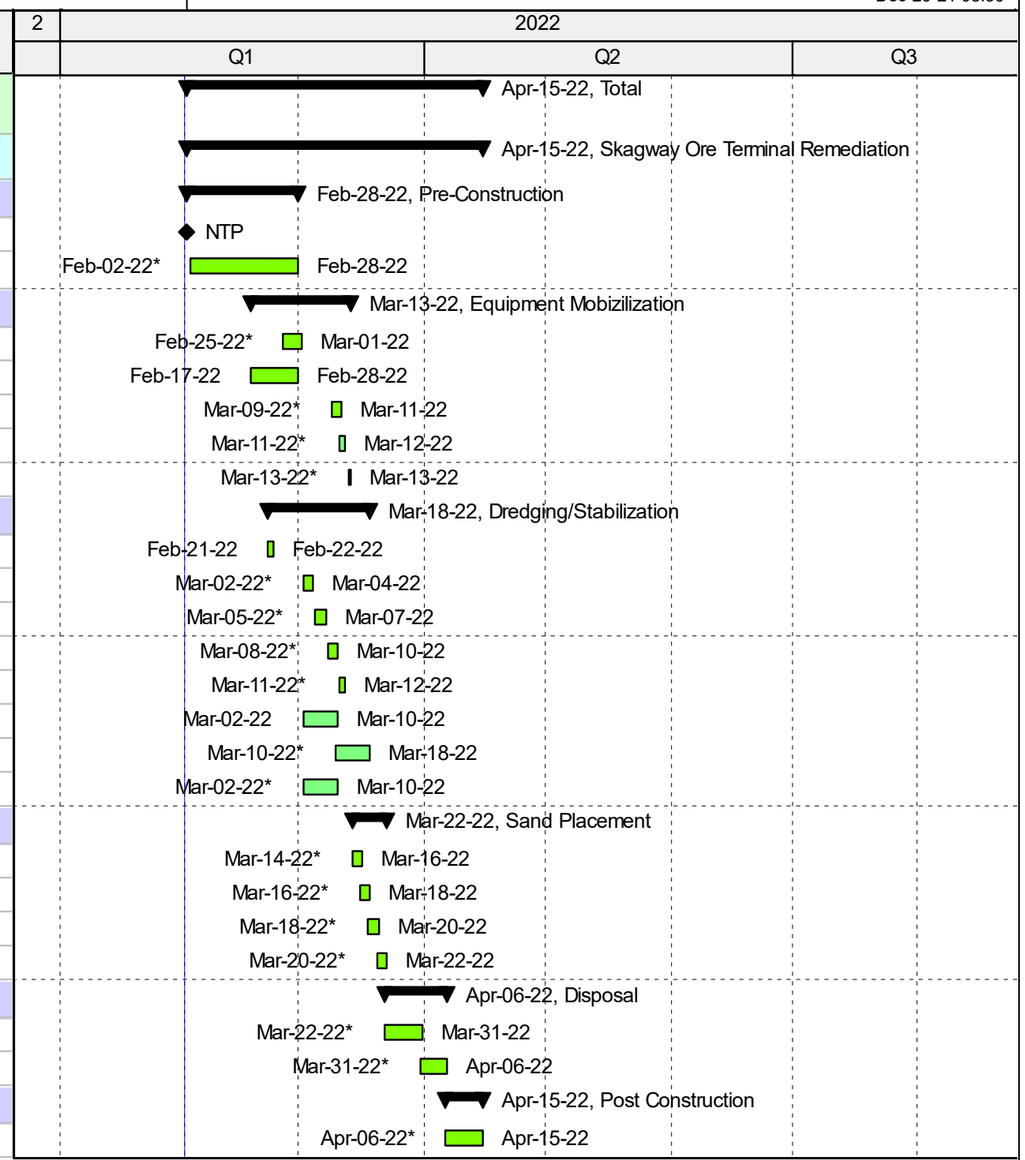
CLIENT : **Hecla Greens Creek Mining Company**
PROJECT : **HGCMC - Southeast Road Builders**
SGS Project # : **08123**
Test : **Synthetic Precipitation Leaching Procedure (EPA Method 1312) at**
Date : **April 28, 2014**

Leachate Analysis **Extractant pH = 5.00**

Sample:			**SERB_4-Mile Haines 01_04112014_GC**	**Blank**
Parameter	**Method**	**Units**		
Volume Extractant		mL	2000	1000
Sample Weight		g	100	-
pH (18 Hr)	meter		9.26	5.00
pH (Titrator)	meter		8.39	-
Redox	meter	mV	399	-
Conductivity	meter	uS/cm	26	2
Acidity (to pH 4.5)	titration	mg CaCO3/L	#N/A	-
Total Acidity (to pH 8.3)	titration	mg CaCO3/L	#N/A	-
Alkalinity	titration	mg CaCO3/L	16.7	-
Sulphate	Turbidity	mg/L	4	-
Ion Balance				
Major Anions	Calc	meq/L	0.42	#N/A
Major Cations	Calc	meq/L	0.41	#N/A
Difference	Calc	meq/L	0.01	#N/A
Balance (%)	Calc	%	0.8%	#N/A
Dissolved Metals				
Hardness CaCO3		mg/L	15.1	-
Aluminum Al	ICP-MS	mg/L	0.727	-
Antimony Sb	ICP-MS	mg/L	< 0.0002	-
Arsenic As	ICP-MS	mg/L	0.0007	-
Barium Ba	ICP-MS	mg/L	0.00082	-
Beryllium Be	ICP-MS	mg/L	0.000008	-
Bismuth Bi	ICP-MS	mg/L	0.000039	-
Boron B	ICP-MS	mg/L	0.0010	-
Cadmium Cd	ICP-MS	mg/L	< 0.000004	-
Calcium Ca	ICP-MS	mg/L	5.43	-
Chromium Cr	ICP-MS	mg/L	0.00016	-
Cobalt Co	ICP-MS	mg/L	0.000066	-
Copper Cu	ICP-MS	mg/L	0.00220	-
Iron Fe	ICP-MS	mg/L	0.095	-
Lead Pb	ICP-MS	mg/L	0.00020	-
Lithium Li	ICP-MS	mg/L	0.000057	-
Magnesium Mg	ICP-MS	mg/L	0.382	-
Manganese Mn	ICP-MS	mg/L	0.0021	-
Mercury Hg	CVAA	ug/L	< 0.01	-
Molybdenum Mo	ICP-MS	mg/L	0.00013	-
Nickel Ni	ICP-MS	mg/L	0.0002	-
Phosphorus P	ICP-MS	mg/L	0.017	-
Potassium K	ICP-MS	mg/L	0.245	-

Selenium Se	ICP-MS	mg/L	< 0.00004	-
Silicon Si	ICP-MS	mg/L	1.55	-
Silver Ag	ICP-MS	mg/L	0.000008	-
Sodium Na	ICP-MS	mg/L	0.38	-
Strontium Sr	ICP-MS	mg/L	0.0045	-
Sulphur (S)	ICP-MS	mg/L	0.07	-
Thallium Tl	ICP-MS	mg/L	< 0.000005	-
Tin Sn	ICP-MS	mg/L	0.00003	-
Titanium Ti	ICP-MS	mg/L	0.00375	-
Uranium U	ICP-MS	mg/L	< 0.000002	-
Vanadium V	ICP-MS	mg/L	0.00387	-
Zinc Zn	ICP-MS	mg/L	< 0.001	-
Zirconium Zr	ICP-MS	mg/L	< 0.002	-

Activity ID	Original Duration	Activity Name	Start	Finish
Total	74.0		Feb-01-22	Apr-15-22
Skagway Ore Terminal Remediation	74.0		Feb-01-22	Apr-15-22
Pre-Construction	28.0		Feb-01-22	Feb-28-22
A1010	0.0	NTP	Feb-01-22	
A1020	27.0	Submittals	Feb-02-22*	Feb-28-22
Equipment Mobilization	25.0		Feb-17-22	Mar-13-22
A1060	5.0	Mobilize Swiftwater	Feb-25-22*	Mar-01-22
A1070	12.0	Mobilize Boyer Barge	Feb-17-22	Feb-28-22
A1080	3.0	Mobilize Sand Barge to Haines	Mar-09-22*	Mar-11-22
A1120	2.0	Load Sand To Barge	Mar-11-22*	Mar-12-22
A1220	1.0	Mobilize to Skagway	Mar-13-22*	Mar-13-22
Dredging/Stabilization	26.0		Feb-21-22	Mar-18-22
A1089	2.0	Pre-Construction Baseline Survey	Feb-21-22	Feb-22-22
A1090	3.0	Dredge Area A1	Mar-02-22*	Mar-04-22
A1100	3.0	Dredge Area A2	Mar-05-22*	Mar-07-22
A1110	3.0	Dredge Area B	Mar-08-22*	Mar-10-22
A1130	2.0	Post Dredge Survey	Mar-11-22*	Mar-12-22
A1210	9.0	Stabilize Dredged Material	Mar-02-22	Mar-10-22
A1230	9.0	Additional Dredging	Mar-10-22*	Mar-18-22
A1240	9.0	Test Stabilized Material	Mar-02-22*	Mar-10-22
Sand Placement	9.0		Mar-14-22	Mar-22-22
A1140	3.0	Sand Placement Area A1	Mar-14-22*	Mar-16-22
A1150	3.0	Sand Placement Area A2	Mar-16-22*	Mar-18-22
A1160	3.0	Sand Placement Area B	Mar-18-22*	Mar-20-22
A1170	3.0	Post-Construction Survey	Mar-20-22*	Mar-22-22
Disposal	16.0		Mar-22-22	Apr-06-22
A1180	10.0	Move Dredged Material Barge to Seattle	Mar-22-22*	Mar-31-22
A1190	7.0	Waste Management Disposal Time	Mar-31-22*	Apr-06-22
Post Construction	10.0		Apr-06-22	Apr-15-22
A1200	10.0	Project Wrap up	Apr-06-22*	Apr-15-22



SOUTHEAST ROADBUILDERS
HAINES, ALASKA

PO BOX 1129 HAINES, AK 99827
(907)766-2833 FAX (907)766-2832

ITEM NUMBER 1
MATERIAL Sand for Asphalt
SAMPLE FROM Stock Pile
SOURCE Kiana Pit 4.8 mile
QUANTITY REPRESENTED 3085
DATE SAMPLED: 6-1-21 TESTED: 6-1-21
Time 6:30 Am

PROJECT NAME Chilkoot HWY
PROJECT NO.

OVERSIZED	
WT	
WT	
TOTAL WT	
%	

PLEASE INITIAL BY EACH TEST PERFORMED

FRACTURE

WORK FROM RIGHT TO LEFT				BASE ON GRADING AT RIGHT		
WT'D AVER. FRACTURE 1-2	% FRACTURED 2	FRACTURED WEIGHT	WT. TEST. PROTION	% GROUP 1	GROUP WEIGHT	INDIVIDUAL WEIGHT
	TOTAL % FRACTURE		SPECS	ADD TO 100		TOTAL WEIGHT +4

GRADUATION

SIEVE SIZE	CUM. WEIGHT	% RETAIN	% PASS TOTAL	SPECS
4"				
3"				
2"				
1.5"				
1"				
3/4"				
5/8"				
1/2"				
3/8"	0	0	100%	100%
1/4"				
PAN				
TOTAL		A	X	

COARSE WASH

SIEVE SIZE	CUM. WEIGHT	% RETAINED	% PASS B	A-B
#4				
#8				
#10				
#16				
#20				
#30				
#40				
#50				
#60				
#80				
#100				
#200				
TOTAL				

FINE WASH

SIEVE SIZ	CUM. WEIGHT	% RETAINED	% PASS Y	X-Y	A-B PLUS X-Y
#4	78	2%	98%		99%
#8	536	17%	83%		82%
#10					
#16	1177	38%	62%		63%
#20					
#30	1667	54%	46%		47%
#40					
#50	2342	76%	24%		28%
#60					
#80					
#100	2727	88%	12%		13%
#200	2933.8	95.1	4.9%		4.9%
TOTAL	2960.1				

FINE		SPECIFIC GRAVITY	COARSE		
WT. PYC.& H20	B		WT SSD AGG	B	
WT. SSD AGG.	D		WT AGG IN H20	C	
WT. PYC. AGG & H20	C		WT DRY AGG.	A	
WT. DRY AGG.	A		BULK $\frac{A}{B+C}$		
BULK $\frac{A}{B+C}$			SSD $\frac{B}{B-C}$		
SSD $\frac{B}{B+C}$			APP. $\frac{A}{A-C}$		
APP $\frac{A}{B+A-C}$			% ABSORP. $\frac{B-A}{A} \times 100$		
% ABSORP. $\frac{D-A}{A} \times 100$					

ATTERBURG LIMITS			NATURAL MOISTURE
NO. BLOWS			
TARE NO.			
WET WT. + TARE			
DRY WT. + TARE			
WT. MOIST			
TARE			
DRY WT. SOIL			
% MOIST			

	PI	LL	PL
SPECS			

CONCRETE AGG		DELETERIOUS MATERIAL		FRIABLE FINE	STICKS & ROOTS COARSE
FINE		WT BEFORE			
DESIGN FM		WT AFTER			
MIX DESIGN NO.		DIFFERENCE			
% VARIANCE		% DEL			
SPECS		SPECS.			

REMARKS Scalping
Ran through the Wash Plant
3 Revolutions
TD - ½ Cloth mat
MD - ½ x 3/8 Slotted
TITLE: DD - #8 Slotted

APPROVED BY:

APPENDIX B –

TABLE 1: MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC

Maximum Concentration Contamination for the Toxicity Characteristic			
EPA HW No[1]	Containment	C.A.S No[2]	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.00
D006	Cadmium	7440-43-9	1.0
D007	Chromium	7440-47-3	5.0
D008	Lead	7439-92-1	5.0
D009	Mercury	7439-97-6	.20
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0