PIONEER
TECHNICAL SERVICES, INC.

April 26, 2013

Tom Henderson
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

RE: Final *2012 Annual Construction Completion Report for the McLaren Tailings Abandoned Mine Site Reclamation Project*

Dear Tom,

Please find enclosed four copies of the Final *2012 Annual Construction Completion Report for the McLaren Tailings Abandoned Mine Site Reclamation Project.* An electronic PDF version of the report has been included with each copy of the document. Also as outlined in the Task Order, I have provided one DVD containing the electronic Word, Excel, and CADD files for the report. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Joseph S McElroy

Joseph S. McElroy, P.E.
Project Manager

Enclosures

Final 2012 Construction Completion Report for the McLaren Tailings Abandoned Mine Site

April 2013

Prepared for:
Mr. Tom Henderson
Montana Department of Environmental Quality/
Mine Waste Cleanup Bureau
P.O. Box 200901
Helena, Montana 59620

PIONEER TECHNICAL SERVICES, INC.

Pioneer Technical Services, Inc.
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List of Acronyms

AMRB	Abandoned Mine Reclamation Bureau
amsl	above mean sea level
bcy	bank cubic yards
BMPs	Best Management Practices
CCR	Construction Completion Report
COCs	Contaminants of Concern
cy	cubic yards
DAC	Data Acquisition Control
DCB	Dewatering Control Building
DEQ	Montana Department of Environmental Quality
DOJ	U.S. Department of Justice
DSL	Department of State Lands
DTI	Dosing Tank Inlet
EEE/CA	Expanded Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
HDPE	high-density polyethylene
hp	horsepower
Knife River	Knife River-Yellowstone Division
MCC	Motor Control Center
MWCB	Mine Waste Cleanup Bureau
P.O.	Post Office
Pioneer	Pioneer Technical Services, Inc.
QA	Quality Assurance
RCTS	Rotating-Cylinder Treatment System
Site	McLaren Tailings Abandoned Mine Site,
SPO	Sediment Pond Outlet
U.S.	United States

1.0 INTRODUCTION

1.1 Project Description

The McLaren Tailings Abandoned Mine Site (Site) is an abandoned hard rock mine/mill site listed on the Montana Department of Environmental Quality/Mine Waste Cleanup Bureau (DEQ/MWCB) (formally the Department of State Lands/Abandoned Mine Reclamation Bureau [DSL/AMRB]) Priority Sites List. At the Site, identified waste sources, including mill tailings and waste rock, are located within the historic floodplain of Soda Butte Creek. The waste materials discharge acid mine drainage impacting water quality and sediment quality in Soda Butte Creek. The contaminants of concern (COCs) include aluminum, arsenic, barium, cadmium, chromium, copper, mercury, iron, lead, manganese, nickel, and zinc. Soda Butte Creek downstream from the Site contains elevated concentrations of copper, iron, and manganese.

The purpose of this reclamation project is to limit human and environmental exposure to the COCs, reduce the mobility and migration of these COCs, and mitigate impacts to the local surface water and groundwater. The reclamation project plan involves removal of waste materials from designated areas and placement of the stabilized tailings in an on-site repository.

Due to the short construction seasons at the Site and the large volume of mine wastes present, the reclamation project was scheduled to be completed over a six-year period. The McLaren Tailings Abandoned Mine Reclamation Project began in 2010 and consists of **1,963** calendar days. The 2012 reclamation project construction season started on May 17, 2012, and was shut down on October 10, 2012, for the winter. Winter dewatering operations began October 10, 2012, and will continue until approximately May 1, 2013. This 2012 Construction Completion Report (CCR) documents the work completed during the third construction season. A detailed description of the previous construction seasons is provided in the *Final Construction Completion Report for the McLaren Tailings Abandoned Mine Site* (DEQ/MWCB-Pioneer, 2010) and *Final Construction Completion Report for the McLaren Tailings Abandoned Mine Site* (DEQ/MWCB-Pioneer, 2011). Project documents are posted at the following internet address: http://www.deq.mt.gov/abandonedmines/mclaren.mcpx.

1.2 Location and Access

The McLaren Tailings Abandoned Mine Site Reclamation Project is located in Park County in Section 25 of Township 9 South, Range 14 East of the Montana Principal Meridian. Access to the Site is by traveling 1/4 mile east of Cooke City, Montana, along Montana Highway 212 and turning south onto a dirt road that exits the highway. The Site is located less than 500 feet south of the highway and encompasses an area of approximately 20 acres.

1.3 Land Ownership

The Site is owned by the DEQ under an agreement between U.S. Department of Justice (DOJ), U.S. Environmental Protection Agency (EPA), and DEQ.

1.4 Site History

An Expanded Engineering Evaluation/Cost Analysis (EEE/CA) completed in 2002 describes the results of environmental and engineering investigations performed prior to 2002. The *Draft Final Expanded Engineering Evaluation/Cost Analysis for the McLaren Tailings Site (EEE/CA), Cooke City, Montana* (DEQ/MWCB-Pioneer, 2002) summarizes the results. The preferred reclamation alternative was Alternative 5b: On-Site Disposal in an Un-Lined Repository with a Multi-Layered Cap. All mine waste materials currently located at the Site (tailings impoundment and dam, waste rock dump, and materials within the old stream channel) were to be excavated and disposed of in an on-site repository constructed on the elevated bench located southwest of the current location of the tailings impoundment. The multi-layered cap installed on the repository was to consist of an impermeable liner, a drainage layer, and the vegetated cover component of the cap, which would be a minimum of 2 feet thick.

Additional investigations were completed in September 2008 to support the reclamation design. The field work included investigating an existing cover soil, the proposed repository location, waste source areas, the groundwater within the tailings area, and the stream channel, and including surface water sampling, a geotechnical investigation, seismic stability analysis, and haul route analysis. A detailed description of the results can be found in the *Final Reclamation Design Report for the McLaren Tailings Abandoned Mine Site Cooke City, Montana* (DEQ/MWCB-Pioneer, 2009). The results of these investigations were utilized to develop the final reclamation design and construction bid package completed in October 2009.

On April 2, 2010, the DEQ executed an Agreement with Knife River to implement the McLaren Tailings Abandoned Mine Site Project under DEQ Contract #410010.

On May 17, 2012, Knife River mobilized to the Site to initiate the third year construction activities for the Site. This CCR summarizes the construction activities associated with the 2012 construction season.

2.0 RESPONSIBLE PARTIES

2.1 DEQ/MWCB Coordination

From 2008 through 2012, the DEQ/MWCB Project Manager, Mr. Tom Henderson, Reclamation Specialist, coordinated the project planning phases, provided technical and regulatory review

during the design process, developed the construction bid package and bidding processes, provided regulatory oversight, and coordinated implementing the construction project.

The Project Manager's address and telephone number are as follows:

Mr. Tom Henderson
Montana Department of Environmental Quality
Mine Waste Cleanup Bureau
P.O. Box 200901
Helena, Montana 59620
Telephone: 406-841-5052

2.2 Contractor

The Contractor for the project was Knife River – Yellowstone Division (Knife River). The Contractor's address and telephone number are as follows:

Knife River – Yellowstone Division
1375 4th Ave. North, Suite C
P.O. Box 1498
Billings, Montana 59101
Telephone: 406-651-2520

Mr. Van Hildreth served as Knife River's Project Manager and Mr. Tom Lester served as Knife River's Project Superintendent.

2.3 Reclamation and Engineering Planning

Under contract with the DEQ/MWCB, Pioneer Technical Services, Inc. (Pioneer) provided planning and documentation necessary to facilitate resource managers with the appropriate decision-making tools necessary for full-scale reclamation at the Site. Pioneer also prepared the final design and engineering specifications for the reclamation project. Also under contract with the DEQ/MWCB, Pioneer provided construction oversight. The engineer's address and telephone number are as follows:

Pioneer Technical Services, Inc.
P.O. Box 3445
1101 South Montana
Butte, Montana 59702
Telephone: 406-782-5177

2.4 Construction Monitoring and Quality Assurance Inspection

Pioneer performed the quality assurance (QA) inspection for the project. Mr. Doug Richmond and Mr. Ted Decker functioned as the full-time, on-site inspectors. Mr. Joe McElroy, Mr. Will Goldberg, and Mr. Marty Bennett functioned as the design engineers and part-time on-site inspectors, and Mr. McElroy functioned as the Project Manager.

3.0 CHRONOLOGICAL LISTING OF EVENTS

3.1 Contract Time

The 2012 construction season was the third year of the six-year contract. The total contract time is 1,963 consecutive calendar days, which began on June 1, 2010. As of December 31, 2012, 943 contract days have been used. No additional contract days were added during the 2012 construction seasoned/schedule. The anticipated completion date for the McLaren Tailings Abandoned Mine Reclamation Project is October 15, 2015.

3.2 Project Submittals

Prior to the start of construction, Knife River provided the required submittals as specified in the Pre-Construction Meeting and the Special Provisions. The submittal process is ongoing throughout the McLaren Tailings Abandoned Mine Site reclamation project. Prior to starting a project task, Knife River submitted the required materials submittals, plans, and certifications to the Engineer for approval. The reviewed and approved project submittals for 2012 for the McLaren Tailings Abandoned Mine Reclamation Project are in Appendix A (provided electronically).

3.3 2012 Summer Construction Overview

Knife River started the 2012 summer construction season work on May 17, 2012, and completed all 2012 summer construction activities on October 10, 2012.

Construction activities during the month of May 2012 included the following:

- Mobilized equipment and materials to the project Site.
- Repaired/replaced Best Management Practices (BMPs) including silt fencing, and stream protection structures damaged during the previous winter.
- Worked on electrical components in the Dewatering Control Building (DCB).
- Installed C2 series well pumps.
- Worked on installing plumbing and tank components in the DCB.
- Delivered flocculent to DCB.
- Delivered hydrated lime to DCB.

- Conducted staff training for summer water treatment operations.
- Began hauling stockpiled cover soil from repository.

Construction activities during the month of June 2012 included the following:

- Began summer water treatment operations on June 8, 2012.
- Continued hauling stockpiled cover soil from repository.
- Continued working on plumbing and electrical components in the DCB, worked on the generator transfer switch, and fixed broken wires to perimeter wells.
- Delivered quick lime to site.
- Completed final grading of the repository.
- Began stripping and hauling cover soils from tailings excavation area.
- Removed the interim cap placed over repository tailings from the 2011 season.
- Began the process of hauling, liming, disking, and compacting of tailings from 2012 excavation area in the on-site repository.
- Began stabilizing tailings using the ALLU system.

Construction activities during the month of July 2012 included the following:

- Continued summer water treatment operations.
- Continued electrical work in the DCB.
- Continued quick lime deliveries.
- Continued stabilizing tailings using the ALLU system.
- Continued process of hauling, liming, disking, and compacting of tailings from 2012 excavation area in the on-site repository.
- Continued stripping and hauling cover soils from 2012 tailings excavation area.

Construction activities during the month of August 2012 included the following:

- Continued summer water treatment operations.
- Continued quick lime deliveries.
- Continued stabilizing tailings using the ALLU system.
- Began hauling, liming, disking, and compacting of tailings from 2013 excavation area in the on-site repository.
- Began stripping and hauling cover soils from 2013 tailings excavation area.
- Delivered flocculent to DCB.
- Began placing soil abutment materials along north side of sediment detention pond.

Construction activities during the month of September 2012 included the following:

- Continued summer water treatment operations.
- Continued quick lime deliveries.
- Continued process of hauling, liming, disking, and compacting of tailings from dam area (2013 excavation area) in the on-site repository.
- Demobilized ALLU system from site.
- Began stripping and hauling cover soils from dam area (2014 excavation area).
- Began hauling, liming, disking, and compacting of tailings from the dam area (2014 excavation area) in the on-site repository.
- Continued placing soil abutment materials along north side of sediment detention pond.

- Began winter shutdown punch-list work.
- Shut down summer water treatment operations on September 19, 2012.
- Continued site dewatering using selected perimeter pumping wells.
- Lowered C2 series pumping well casings and reconnected pipes and electrical wires.
- Repaired damaged liner at east end of sediment detention pond.
- Began installation of the interim repository liner over amended tailings.

Construction activities during the month of October 2012 consisted of the following:

- Continued working on winter shutdown punch-list items.
- Began demobilizing equipment from site.
- Completed installation of repository interim liner over amended tailings.
- Installed lined spillway to Storm Water Channel No. 5 at dam.
- Initiated winter operations at the DCB.
- Hydromulched specified cover soil stockpiles and disturbed areas.
- Repaired holes in interim repository liner.
- Secured the site for winter operations.

All summer construction activities were completed and equipment demobilized from the site on October 10, 2012.

3.4 Substitution Requests

During the 2012 construction season at the McLaren Tailings Abandoned Mine Site Reclamation Project the Contractor did not request any substitutions.

3.5 Work Directive Changes

During the 2012 construction season at the McLaren Tailings Abandoned Mine Site Reclamation Project a total of three Work Directive Changes were executed. The Work Directive Changes resulted in the two change orders outlined in the section below. Appendix A contains the executed Work Directive Changes (provided electronically).

3.6 Change Orders

Two change orders (Change Order 7 and Change Order 8) were issued for the project during the 2012 construction season. The sections below summarize the change orders and their justification. Appendix B contains a copy of each change order with justification (provided electronically).

Change Order #7

Change Order #7 was issued on February 13, 2012, and included the following items:

- Installed an additional mixer stand for the flocculent tank ($1,400.00).

- Provided labor and materials to install power supply to lime silo unit ($4,465.00).
- Installed power supply to second motor on Rotating-Cylinder Treatment System (RCTS) unit ($4,543.00).
- Installed power supply to flocculent mixer ($3,114.05).
- Installed electrical breaker for 10 horsepower (hp) motor on horizontal screw auger ($1,226.66).
- Installed starters and breakers for C3-1 and C3-3 in Motor Control Center (MCC) ($2,392.71).
- Installed supplemental waterline from C3-10 and safety ladder ($6,329.03).
- Installed additional piping in DCB ($8,866.52).
- Installed 3", 4", and 8" pipe supports in DCB ($10,190.00).
- Installed BW5200 relays for high/low probes ($4,922.79).
- Installed longer APPCOR mixer shafts and 4-inch butterfly valves on dosing tank. ($8,234.31)

Change Order #7 increased the total contract amount by $55,684.07.

Change Order #8

Change Order #8 was issued on December 11, 2012, and included the following items:

- Installed higher amperage overload heaters to dewatering wells ($1,923.08).
- Installed reverse control switch for horizontal screw auger ($1,457.53).
- Provided labor and materials to lower C2 series well casings ($7,782.28).
- Provided labor and materials to repair sediment detention pond liner ($16,914.00).
- Placed additional structural fill on north embankment of sediment detention pond ($12,550.00).
- Increased total contract cost to include fuel adjustment costs from 2010 through December 2012 ($355,039.43).

Change Order #8 increased the total contract amount by $395,666.32.

3.7 Work Stoppages

There were no official work stoppages during the 2012 construction season/schedule.

3.8 Work Progress

Initial site mobilization began May 17, 2012, due to minimal snowpack in the Cooke City area. Late spring snow storms coupled with muddy conditions at the site hindered productivity for the first two weeks of construction. Water treatment operations shakedown with operations personnel began the last week of May followed by monitoring training of the COP (subcontractor) staff. Both events finished with few operational problems. Full water treatment operations started on June 8 with the pumping of the C2-3 and C2-2 wells in addition to the

perimeter wells. Water quality monitoring conducted included daily onsite monitoring and weekly sampling of influent and effluent water quality for laboratory analysis. The water quality field monitoring results and laboratory analytical results are presented in Appendix E (provided electronically).

Knife River removed the cover soil stockpile and completed the excavation of the repository floor to the design elevations in June. The primary focus of work in 2012 was to excavate, stabilize, and compact tailings in the on-site repository. Knife River began excavation efforts at Station 12+00 and worked west towards the dam. With the perimeter wells (C1 and C3 series) and center wells (C2 series) working as designed, minimal groundwater entered the excavation area. Water from within the excavation area was pumped to the DCB as necessary throughout the duration of the construction season. Daily and weekly monitoring of the water treatment system influent and system effluent documented effective operation of the system. The ALLU system was used periodically throughout the constructions season as saturated pockets of tailings were encountered. Because of the drier nature of the tailings due to the dewatering efforts, the majority of the excavated tailings were stabilized in the repository using the disking method approved during the 2011 construction season. Based on these favorable conditions, all the 2012 and 2013 scheduled tailings were excavated, stabilized, and placed in the repository and part of the dam (2014 schedule) was removed.

To maintain dry conditions in the excavation, the C2 series dewatering wells were not abandoned as the tailings excavation proceeded past them. These wells were kept operational and the steel casings were lowered as described in Change Order No. 8.

On September 19, 2012, active water treatment ceased for the 2012 construction season and Knife River and COP began preparing the DCB and site for winter operations. Winter operations of the site began on October 10, 2012.

3.9 Weather Days

During the 2012 construction season there were two weather days that slowed work on the McLaren Tailings Project. These days occurred primarily due to late spring snow storms not allowing work at the site. The documented weather days occurred on May 24 and May 25, 2012.

3.10 Requests for Payment

Knife River issued 12 Requests for Payment for work performed in 2012 (see the list below). Copies of the Requests for Payment are in Appendix C (included electronically).

- **Pay Request #14** for $141,730.00 for payment of change orders No. 5 and No. 6 and work completed as part of winter operations of the DCB, including snow removal from January 1, 2012, to January 31, 2012.

- **Pay Request #15** for $80,544.07 for payment of change order No. 7 and work completed as part of winter operations of the DCB, including snow removal from February 1, 2012, to February 29, 2012.

- **Pay Request #16** for $27,140.00 for work completed as part of winter operations of the DCB, including snow removal from March 1, 2012, to March 31, 2012.

- **Pay Request #17** for $24,290.00 for work completed as part of winter operations of the DCB, including snow removal from April 1, 2012, to April 30, 2012.

- **Pay Request #18** for $237,162.24 for the work completed from May 1, 2012, through May 31, 2012.

- **Pay Request #19** for $898,348.90 for the work completed from June 1, 2012, through June 30, 2012.

- **Pay Request #20** for $2,378,420.83 for the work completed from July 1, 2012, through July 31, 2012.

- **Pay Request #21** for $2,907,503.70 for the work completed from August 1, 2012, through August 31, 2012.

- **Pay Request #22** for $1,402,009.00 for the work completed from September 1, 2012, through September 30, 2012.

- **Pay Request #23** for $411,707.75 for the work completed from October 1, 2012, through October 31, 2012.

- **Pay Request #24** for $25,050.00 for the work completed from November 1, 2012, through November 30, 2012.

- **Pay Request #25** for $65,866.89 for the work completed from December 1, 2012, through December 31, 2012.

3.11 2012 Summer Startup

The summer construction began with Knife River mobilizing equipment on May 17, 2012. Subcontractors COP Construction and Advantage Electric completed the remaining plumbing and electrical work in the DCB. All work in the DCB was completed by June 3, 2012. The electricians spent several days locating and repairing damaged electrical power lines to perimeter wells C3-3 and C3-4.

During the spring runoff, groundwater saturated the soil behind the east side of the sediment detention pond liner causing the embankment slope to slump into the sediment detention pond.

The sediment detention pond water level was lowered 1.0 foot and DCB water was discharged through outlet #1 to alleviate further saturation of the soils until repairs could be made. Repairs to the liner and a drainage system were completed in September 2012 to avoid additional sloughing in the spring of 2013.

On June 5 the center dewatering wells C2-3, C2-2, and C2-1 were started and active water treatment began in the DCB. Initial flows were 102, 75, and 75 gallons per minute (gpm), respectively, for each well. The remaining perimeter wells were brought online in the following days.

Issues encountered during startup included the following:

- Damaged and broken wires going to perimeter wells C3-3 and C3-4.
- The hydrated lime silo scale was damaged during shipping. In order to complete the necessary repairs, the scale was removed and sent back to the manufacturer. This made accurate batching of the lime slurry difficult.
- The minimum flow from the lime slurry pump to the dosing tank was too high to achieve correct dosing tank. The lime slurry pump was taken offline and a peristaltic pump was utilized to provide lime slurry to the dosing tank. Lime slurry concentrations were modified and a re-circulation line and globe valve added to the lime slurry pump to resolve the issue.

3.12 2012 Summer Operation

During summer operations, extending from late May to October, groundwater was pumped from the perimeter and center wells to facilitate excavation of the tailings. Depending on the water quality of each well, the water was classified either as bypass or process water. Water from the bypass wells were pumped to the DCB and diverted around the sediment detention pond through the 18" high-density polyethylene (HDPE) line installed on the south side of the sediment detention pond. This water then discharges into the head of Storm Water Channel 5, and flows on into Soda Butte Creek below the site.

The following wells were bypassed as part of the summer operations:

- All four C1 series wells (C1-1 through C1-4); and
- C3-1, C3-2, C3-3, C3-9, and C3-10.

Flow rates of the bypass wells ranged from 228 to 390 gpm. As expected, the highest flows occurred in late spring, early summer with flows gradually tapering off in late summer, early fall as the groundwater table was lowered. Pumping well flow rates are in Appendix E-5 (provided electronically). Water quality monitoring from the bypass wells is included in Appendix E.

Process water was actively treated through the addition of hydrated lime to raise the pH and precipitate any metals present (primarily iron) from the water. Process water was pumped to the lime dosing tank, where lime slurry from the slurry tanks was added based on the incoming pH of the water. The treated water then gravity flowed from the discharge port to the RCTS for additional aeration to increase the overall efficiency of the neutralization reaction. Treated water passed through the entire length of the clockwise-rotating RCTS, then discharged into an open floor drain in the DCB floor. Chemical flocculent was added to the treated water flow prior to entering the sediment detention pond. Water flowed through the sediment detention pond before being discharged to Soda Butte Creek via the stop log structure and Storm Water Channel 5 located at the west end of the pond.

By contract, during summer operations Contractor personnel were dedicated full time to the DCB operations—a minimum of 10 hours per day, 7 days per week.

Operators managed the entire treatment system including the operation and maintenance of the lime system, RCTS unit, flocculent system, sediment detention pond, and ancillary devices required to make the system function. The operators also completed daily sampling and field analysis for the following parameters: pH, temperature, total dissolved solids, total suspended solids, specific conductance, turbidity, field iron, and field manganese.

Along with daily sampling and field analysis, operators performed the following tasks:

- Collect, prepare, and ship water samples for laboratory analysis on a weekly basis.
- Monitor pumping flow rates and performance of perimeter and center wells.
- Monitor pH levels in the dosing and at the 30-inch drop structure, prior to discharging to the sediment detention pond.
- Respond to all alarms 24 hours per day, 7 days a week.
- General maintenance of DCB.

Groundwater from the following wells was treated as part of the summer operations:

- C2 series; and
- C3-4, C3-5, C3-6, C3-7, and C3-8.

Flow rates of the process wells ranged from 149 to 293 gpm. As expected, the highest flows occurred late in spring, early summer with flows gradually tapering off in late summer, early fall as the groundwater table was lowered. Pumping well flow rates are in Appendix E-5 (provided electronically).

3.13 2012 Summer Water Quality

Part of the QA for groundwater treatment at the McLaren Site required daily collection of field measurements. Additionally, technicians collected, prepared, and shipped samples to an

analytical laboratory on a weekly basis. Field and laboratory sampling results are in Appendix E-4 (provided electronically). Technicians collected samples from the following four locations:

- Dosing Tank Inlet (DTI) – this sample was a base line for the process water prior to the addition of lime.
- Bypass (BP) – this sample confirmed that water being bypassed met the State of Montana discharge standards.
- Sediment Pond Outlet (SPO) – this sample depicted the water quality after lime and flocculent addition and residence time within the sediment detention pond prior to discharge to Storm Water Channel 5.
- Storm Water Channel 5 (CHL5) – this sample, collected downgradient of the bypass and sediment pond outlets, depicted the overall water quality after both discharges had mixed and prior to entering Soda Butte Creek.

Analytical results (See Appendix E) indicate the water treatment system was effective at meeting DEQ-7 water quality standards.

3.14 2012 Winter Shutdown Inspection

The 2012 summer construction season ended on September 19, 2012. Prior to demobilizing equipment and personnel from the site, Knife River completed all 2012 winter shutdown punch-list items. These items consisted primarily of reinforcing storm water runoff controls, minor site grading, and marking all potential hazards to the snow plow and other vehicles. Water treatment building items included cleaning and flushing all lines, lime slurry pumps, lime slurry tanks, and the flocculent system; removing and storing pH probes; and winterizing wells C2-1, C2-2, C2-3, C3-4, C3-5, C3-6, C3-7, and C3-8 by pulling up pitless adaptor and blowing water from the lines using compressed air and removing the iron scale from the RCTS unit. On October 9 and 10, 2012, Quality Landscape completed hydromulching of the site. Inspection of the repository interim liner revealed numerous holes and tears in the liner. Knife River used a foil-backed tape specifically made for repairing this type of liner material to repair the holes and tears in the liner. Knife River also placed additional sandbags on the liner surface.

Details of the inspections and meetings can be found on the completed daily inspection logs/field notes for the McLaren Tailings Abandoned Mine Site Reclamation Project provided in Appendix D and Appendix H (provided electronically).

3.15 2012 Winter Operations Overview

Winter operations began on October 10 and will continue until approximately May 30, 2013. Groundwater will be pumped from the C1 series perimeter wells (C1-1 through C1-4); C3-1,

C3-2, C3-3, C3-4, and C3-9; and center wells C2-2 and C2-3. Monitoring results indicated a significant improvement in groundwater quality occurred as the tailings were removed and placed in the repository. All water will be pumped to the DCB and into the sediment detention pond. Pumped water will not be treated through lime addition during winter operations. Water will flow through the sediment detention pond before being discharged to Soda Butte Creek via the stop log structure and Storm Water Channel 5 located at the south end of the pond.

During winter operations, groundwater will be pumped and processed through the sediment detention pond for the following reasons:

- to intercept groundwater before it enters the mine reclamation site;
- to keep water within the sediment detention pond from completely freezing; and
- prevent the flotation of the sediment detention pond liner during spring runoff and the associated rise in groundwater level at the site.

During winter operations the pumping system will be inspected by Contractor personnel a minimum of twice per day (during morning and afternoon hours), seven days per week. Operators will also perform daily sampling and field analysis for the following parameters: pH, temperature, total dissolved solids, total suspended solids, specific conductance, turbidity, field iron, and field manganese.

In addition to daily sampling and field analysis operators will perform the following tasks:

- Collect, prepare, and ship water samples for laboratory analysis on a monthly basis.
- Monitor pumping flow rates and performance of wells.
- Respond to all alarms 24 hours per day, 7 days a week.
- Monitor and coordinate delivery of propane for the heating system.
- Monitor and coordinate delivery of diesel for the backup generator.
- Maintain building power and heating systems.
- Remove snow and conduct site access maintenance.

4.0 2012 CONSTRUCTION

4.1 Summary of the Project

The 2012 project construction consisted of the following tasks:

- Mobilized and demobilized equipment to the Site.
- Repaired/replaced existing BMPs.
- Completed plumbing and electrical work in DCB.
- Provided, stored, and handled 23.14 tons of hydrated lime.
- Provided, stored, and handled 5-drums of anionic flocculent.
- Stripped, loaded, hauled, and stockpiled 46,682 cubic yards (cy) of cover soils.

- Excavated 11,470 bank cubic yards (bcy) from the repository for cover soil and structural fill materials.
- Implemented construction dewatering.
- Provided, stored, and handled 8,791 tons of quick lime.
- Stabilized 169,536 bcy of tailings.
- Excavated, loaded, hauled, and placed 156,077 bcy of stabilized tailings, mine wastes, and impacted soils in repository.
- Installed 25,534 square yards of interim cap over stabilized tailings in repository.
- Hydromulched 5.1 acres cover soil stockpiles and disturbed areas.

The area was secured for the winter on October 10, 2012. Winter operations of the Dewatering Control Building began October 10, 2012, and will continue until the spring of 2013 when summer construction activities will begin and Site conditions permit. Summer construction activities are tentatively scheduled to start on June 1, 2013, but are flexible depending on weather and site conditions.

4.2 Major Equipment List

Table 4-1 on the next page lists the major pieces of equipment used for this project.

4.3 Contractor Employees

The Contractor utilized 3 to 14 employees on the project site at various times. The majority of the labor involved 5 to 8 equipment operators, with the remaining personnel serving in a supervisory capacity.

Table 4-1 . Equipment Used at McLaren Tailings Abandoned Mine Site Reclamation Project 2012 Construction Season

TYPE	MAKE/MODEL	SIZE/CAPACITY
Lime Storage Guppy		
Semi Tractor		Lime Pup
Track Excavator	CAT 336D	ALLU Mixing Head
PF 7+7 Pressure Feeder	ALLU	14 cubic meters
Off-Road Trucks (2 each)	CAT 740C	35 Tons
Off Road Truck	Case 340B	35 Ton
Track Excavator	John Deere 450C	5 cy
Track Bulldozer	John Deere 850J	
Track Bulldozer	John Deere 750k (LGP)	
Front End Loader	John Deere 644K	3 cy
Blade	CAT 140H	12 ft blade
Water Truck	CAT Articulating	4,000 Gallons
Compactor	Hamm 3625	Smooth Drum Roller
Skidsteer	Case 1845C	
Man Lift	Genie S-80	
Crane	Grove RT700E	60 Tons
Fuel Truck		2,500 gallons
Lime Spreader	Stoltz Site Spreader	
Agricultural Tractor	CAT Challenger	Rubber Tracked
Agricultural Disk		12 inches
Mechanics Service Truck		
Polaris Ranger XP UTV	COP Construction	

cy – cubic yards
UTV – Utility Terrain Vehicle

4.4 Subcontractors

During the implementation of the project, Knife River utilized the following subcontractors to complete specific project tasks.

Northwest Linings & Geotextile Products, Inc.
21000 77th Avenue
Kent, Washington 98032
Phone: (253) 872-0244
Project Tasks: Installed interim cap on stabilized tailings and repaired sediment detention pond liner.

COP Construction
242 S 64th Street West
Billings, Montana 59106
Phone: (406) 656-4632
Fax: (406) 656-4808
Project Tasks: Installed DCB piping and performed winter and summer operations and maintenance duties at the DCB.

Advantage Electric Plus Inc.
3505 1st Avenue South
Billings, Montana 59101
Phone: (406) 256-7446
Fax: (406) 256-7458
Project Tasks: Performed all electrical work for the DCB and perimeter wells.

Quality Landscape and Seeding
191 Lower Lynch Creek Road
Plains, Montana 59859-9556
Phone: (406) 826-7300
Project Tasks: Performed hydromulching of soil stockpiles and disturbed areas.

Northern Industrial Hygiene
201 South 30th Street
Billings, Montana 59101
Phone: (406) 245-7766
Project Tasks: Provided health and safety services for Knife River.

Dick Irvin Trucking
575 Wilson
Box 950
Shelby, Montana 59474
Phone: (406) 434-5583
Project Tasks: Transported quick lime and hydrated lime to the project site.

Cross Country Pipeline Supply
(Provided ALLU System)
2420 Uravan Street
Aurora, Colorado 80011-3535
Phone: (303) 361-6797
Project Tasks: Provided lime mixing equipment for tailings stabilization.

TW Enterprises, Inc.
636 Logan Lane
Billings, Montana 59105
Phone: (406) 245-4600 Ext 16
Project Tasks: Provided backup generator service and repair.

Industrial Automation Consulting
123 Main Street
Three forks, Montana 59752
Phone: (406) 285-4627 Ext 120
Project Tasks: Provided DCB alarm and call out service and repair.

4.5 Construction Activities

4.5.1 Project Oversight

During construction, Pioneer provided project oversight for the McLaren Tailings Abandoned Mine Site Reclamation Project. The responsibility of the oversight personnel is to ensure that the Contractor is implementing the work as specified in the Construction Bid Package and communicate discrepancies to the Engineer, Owner, and Contractor. Also, oversight personnel document the project implementation by completing daily field notes. Field notes for the project are in Appendix D (provided electronically).

4.5.2 Quality Assurance

During the construction activities, it is necessary to perform QA measures to ensure the project progresses as specified in the Construction Bid Package. These QA measures at the Site consisted of sampling for geotechnical parameters (soil proctors) and compaction testing of the stabilized tailings placed in the repository. Laboratory data sheets and results for the sampling and testing conducted during the construction activities at the McLaren Tailings Abandoned Mine Site Reclamation Project are in Appendix E-1 and E-2 (provided electronically).

4.5.3 Project Information

Additional project information collected to document the project included quick lime scale tickets and lime usage printouts from the ALLU Data Acquisition Controller (DAC). This project information is in Appendix F (provided electronically).

4.5.4 Bi-Weekly Progress Meetings

During the McLaren Tailings Abandoned Mine Site Reclamation Project, bi-weekly progress meetings were held at Pioneer's field office located in Cooke City, Montana. The dates and location of the weekly progress meeting were mutually agreed upon by the Contractor, Owner, and Engineer and were typically held at 8:00 a.m. on every other Wednesday during the project. Knife River prepared an agenda and conducted each bi-weekly progress meeting. The meetings identified decisions required, scheduling, milestones accomplished, opportunities, problems, and corrective actions. Each meeting included a discussion of the work to be performed in the two weeks following the meeting (two-week look-ahead tasks). Field visits were conducted after each progress meeting. The bi-weekly progress meeting agenda and meeting notes are in Appendix G (included electronically).

4.5.5 Daily Activities

Detailed descriptions of the daily construction activities observed by the Pioneer oversight personnel are in the Daily Project Logs in Appendix H (provided electronically). Knife River's Quality Control Reports are in Appendix I (provided electronically).

4.5.6 Construction Photographs

Pioneer oversight personnel took daily construction photos to document construction activities and the implementation of the project. The photographs were assembled into daily photo logs and are in Appendix J (provided electronically).

5.0 QUANTITIES USED

5.1 Project Summary

The 2012 summer construction activities were completed in 146 consecutive calendar days. Table 5-1 summarizes the final quantities and costs associated with each pay item for the 2010 through 2012 construction seasons. The table also lists the Change Orders (modifications) that were not part of the original contract.

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid		Estimate				2010		2011		2012		2013		Total to Date		Percent
Item No.	Description	Quantity	Units	Unit Price	Total Price	Quantity	Cost	Quantity	Cost	Quanity	Cost	Quanity	Cost	Quantity	Cost	Completed
1	**Mobilization, Bonding and Insurance**															
	Mobilization, Bonding and Insurance	1	L.S.	XXXXXXXX	$ 1,900,000.00	0.5	$ 950,000.00	0.08	$ 152,000.00	0.08	$ 152,000.00			0.66	$ 1,254,000.00	66%
2	**Facilities and Infrastrucutre**															
a	Provide and Install West Bridge	1	L.S.	XXXXXXXX	$ 500,000.00	1.0	$ 500,000.00	0		0	$ -			1.0	$ 500,000.00	100%
b	Provide and Install East Bridge	1	L.S.	XXXXXXXX	$ 285,250.00	1.0	$ 285,250.00	0		0	$ -			1.0	$ 285,250.00	100%
c	Construct Temporary Haul Roads	3,600	L.F.	$ 35.000	$ 126,000.00	900.0	$ 31,500.00	600	$ 21,000.00		$ -			1,500.0	$ 52,500.00	41.7%
d	Maintain and Obliterate Temporary Haul Roads	1	L.S.	XXXXXXXX	$ 120,900.00	0.2	$ 24,180.00	0.2	$ 24,180.00	0.2	$ 24,180.00			0.60	$ 72,540.00	60%
e	Clear, Grub and Timber Removal	1	L.S.	XXXXXXXX	$ 150,000.00	0.9	$ 135,000.00	0	$ -	0	$ -			0.90	$ 135,000.00	90%
f	Provide, Install and Remove Jersey Barriers	48	EA	$ 673.000	$ 32,304.00	40.0	$ 26,920.00	0	$ -	0	$ -			40.0	$ 26,920.00	83%
3	**Provide and Install Electrical Systems**															
a (S)	Provide and Install Electrical Systems	1	L.S	XXXXXXXX	$ 508,000.00	0.1	$ 71,120.00	0.71	$ 358,140.00	0.155	$ 78,740.00			1.00	$ 508,000.00	100%
4	**Well Abandonment**															
a	Well Abandonment	20	EA	$ 1,067.000	$ 21,340.00	1.0	$ 1,067.00	0	$ -	0	$ -			1.00	$ 1,067.00	5%
5	**Initial Construction Dewatering System**										$ -					
a	Install Temporary Submersible Pump	4	EA	$ 5,000.000	$ 20,000.00	4.0	$ 20,000.00	0	$ -	0	$ -			4.00	$ 20,000.00	100%
b	Provide and Install Temporary Piping System to Storm Water Channel #5	1	L.S.	XXXXXXXX	$ 15,200.00	1.0	$ 15,200.00	0.25	$ 3,800.00	0	$ -			1.25	$ 19,000.00	125%
c	Initial Start Up, Monthly Operation, and Maintenance of Initial Construction Dewatering System	5	MONTH	$ 5,000.000	$ 25,000.00	0.6	$ 3,000.00	1.3	$ 6,500.00	0	$ -			1.90	$ 9,500.00	38%
d	Disassemble Initial Construction Dewatering System	1	L.S.	XXXXXXXX	$ 1,000.00	0.0	$ -	1.0	$ 1,000.00	0	$ -			1.00	$ 1,000.00	100%
6	**Dewatering Control Building**															
a	Grade and Install 6 inch Base Course Building Pad	1	L.S.	XXXXXXXX	$ 148,900.00	1.0	$ 145,922.00	0.0	$ -	0	$ -			0.98	$ 145,922.00	98%
b	Install Concrete Footings and Concrete Slabs	1	L.S.	XXXXXXXX	$ 95,200.00	1.0	$ 95,200.00	0.0	$ -	0	$ -			1.00	$ 95,200.00	100%
c	Provide and Install Dewatering Control Building	1	L.S.	XXXXXXXX	$ 158,700.00	0.9	$ 142,830.00	0.1	$ 15,870.00	0	$ -			1.00	$ 158,700.00	100%
d	Provide and Install Insulation	1	L.S.	XXXXXXXX	$ 38,100.00	1.0	$ 38,100.00	0	$ -	0	$ -			1.00	$ 38,100.00	100%
e	Provide and Install Heating System	1	L.S.	XXXXXXXX	$ 31,700.00	0.5	$ 15,850.00	0.5	$ 15,850.00		$ -			1.00	$ 31,700.00	100%
f	Remove Dewatering Control Building	1	L.S.	XXXXXXXX	$ 12,700.00	0.0	$ -	0	$ -	0	$ -			0.00	$ -	0%
7	**Sediment Pond Construction**															
a	Construct Sediment Detention Pond	1	L.S.	XXXXXXXX	$ 190,000.00	0.2	$ 28,500.00	0.85	$ 161,500.00	0	$ -			1.00	$ 190,000.00	100%
b	Provide and Install Sediment Detention Pond Inlet #1	1	L.S.	XXXXXXXX	$ 7,110.00	0.5	$ 3,555.00	0.5	$ 3,555.00	0	$ -			1.00	$ 7,110.00	100%
c	Provide and Install Sediment Detention Pond Inlet #2	1	L.S.	XXXXXXXX	$ 4,950.00	0.5	$ 2,475.00	0.5	$ 2,475.00	0	$ -			1.00	$ 4,950.00	100%
d	Provide and Install Perimeter Water Bypass	1	L.S.	XXXXXXXX	$ 5,841.00	1.0	$ 5,841.00	0	$ -	0	$ -			1.00	$ 5,841.00	100%
e	Provide and Install Sediment Detention Pond Outlet Structure	1	L.S.	XXXXXXXX	$ 35,000.00	0.0	$ -	1	$ 35,000.00	0	$ -			1.00	$ 35,000.00	100%
f	Provide and Install Sediment Detention Pond Liner	6,896	S.Y	$ 10.500	$ 72,408.00	0.0	$ -	6,501.0	$ 68,260.50	0	$ -			6,501.00	$ 68,260.50	94%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid Item No.	BID TAB Description	Estimate Quantity	Units	Unit Price	Total Price	2010 Quantity	2010 Cost	2011 Quantity	2011 Cost	2012 Quanity	2012 Cost	2013 Quanity	2013 Cost	Total to Date Quantity	Total to Date Cost	Percent Completed
7	**Sediment Pond Construction (cont.)**															
g (S)	Provide, Install and Remove Gunderbooms	2	EA	$ 53,200.000	$ 106,400.00	0.0	$ -	2.0	$ 106,400.00	0	$ -			2.00	$ 106,400.00	100%
h	Provide, Install and Remove Wildlife Exclusion Fence	1,660	LF	$ 26.500	$ 43,990.00	0.0	$ -	1512.0	$ 40,068.00	0	$ -			1,512.00	$ 40,068.00	91%
i	Remove Sediment Detention Pond	1	L.S.	XXXXXXXX	$ 10,000.00	0.0	$ -	0.0	$ -	0	$ -			0.00	$ -	0%
8	**Phase I Dewatering System Installation**															
a	Phase I Dewatering System Installation	1	L.S.	XXXXXXXX	$ 175,000.00	0.6	$ 105,000.00	0.2	$ 35,000.00	0.2	$ 35,000.00			1.00	$ 175,000.00	100%
b	Miscellaneous Phase I Dewatering Equipment and Operation	3	Construction Schedule	$ 27,900.000	$ 83,700.00	0.8	$ 20,925.00	1.25	$ 34,875.00	0.8	$ 22,320.000			2.80	$ 78,120.00	93%
9	**Dewatering Control Building Piping, Valves, and Instrumentation**															
a	Provide and Install 2 inch Schedule 40 PVC Pipe	240	L.F.	$ 21.500	$ 5,160.00	0.0	$ -	180.0	$ 3,870.00					180.00	$ 3,870.00	75%
b	Provide and Install 3 inch Schedule 40 PVC Pipe	100	L.F.	$ 23.000	$ 2,300.00	0.0	$ -	123.0	$ 2,829.00	5	$ 115.000			128.00	$ 2,944.00	128%
c	Provide and Install 4 inch Schedule 40 PVC Pipe	100	L.F.	$ 33.000	$ 3,300.00	0.0	$ -	79.0	$ 2,607.00					79.00	$ 2,607.00	79%
d	Provide and Install 6 inch Schedule 40 PVC Pipe	10	L.F.	$ 39.500	$ 395.00	0.0	$ -	14.0	$ 553.00	8	$ 316.000			22.00	$ 869.00	220%
e	Provide and Install 8 inch Schedule 40 PVC Pipe	140	L.F.	$ 51.000	$ 7,140.00	0.0	$ -	114.0	$ 5,814.00					114.00	$ 5,814.00	81%
f	Provide and Install 8 inch Schedule 40 PVC Pipe Coupling	1	E.A.	$ 330.000	$ 330.00	0.0	$ -	1.0	$ 330.00					1.00	$ 330.00	100%
g	Provide and Install 2-inch 90 degree Schedule 40 PVC Elbow	17	E.A.	$ 108.000	$ 1,836.00	0.0	$ -	13.0	$ 1,404.00					13.00	$ 1,404.00	76%
h	Provide and Install 3-inch 90 degree Schedule 40 PVC Elbow	4	E.A.	$ 152.000	$ 608.00	0.0	$ -	9.0	$ 1,368.00					9.00	$ 1,368.00	225%
i	Provide and Install 4-inch 90 degree Schedule 40 PVC Elbow	10	E.A.	$ 165.000	$ 1,650.00	0.0	$ -	14.0	$ 2,310.00					14.00	$ 2,310.00	140%
j	Provide and Install 6-inch 90 degree Schedule 40 PVC Elbow	1	E.A.	$ 190.000	$ 190.00	0.0	$ -	3.0	$ 570.00					3.00	$ 570.00	300%
k	Provide and Install 8-inch 90 degree Schedule 40 PVC Elbow	8	E.A.	$ 254.000	$ 2,032.00	0.0	$ -	9.0	$ 2,286.00					9.0	$ 2,286.00	113%
l	Provide and Install 8-inch X 8-inch x 6-inch 45 degree Schedule 40 PVC Reducing Wye	1	E.A.	$ 787.000	$ 787.00	0.0	$ -	1.0	$ 787.00					1.0	$ 787.00	100%
m	Provide and Install 2-inch X 2-inch X 2-inch Schedule 40 PVC Pipe Tee	28	E.A.	$ 110.000	$ 3,080.00	0.0	$ -	21.0	$ 2,310.00					21.0	$ 2,310.00	75%
n	Provide and Install 3-inch X 3-inch X 3-inch Schedule 40 PVC Pipe Tee	6	E.A.	$ 116.000	$ 696.00	0.0	$ -	9.0	$ 1,044.00	1	$ 116.000			10.0	$ 1,160.00	167%
o	Provide and Install 4-inch X 4-inch X 4-inch Schedule 40 PVC Pipe Tee	2	E.A.	$ 178.000	$ 356.00	0.0	$ -	2.0	$ 356.00	1	$ 178.000			3.0	$ 534.00	150%
p	Provide and Install 8-inch X 8-inch X 8-inch Schedule 40 PVC Pipe Tee	2	E.A.	$ 444.000	$ 888.00	0.0	$ -	2.0	$ 888.00					2.0	$ 888.00	100%
q	Provide and Install 2-inch Schedule 40 PVC Pipe End Cap	14	E.A.	$ 109.000	$ 1,526.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
r	Provide and Install 3-inch Schedule 40 PVC Pipe End Cap	3	E.A.	$ 105.000	$ 315.00	0.0	$ -	0.0	$ -	3	$ 315.000			3.0	$ 315.00	100%
s	Provide and Install 4-inch Schedule 40 PVC Pipe End Cap	1	E.A.	$ 152.000	$ 152.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
t	Provide and Install 8-inch Schedule 40 PVC Pipe End Cap	4	E.A.	$ 203.000	$ 812.00	0.0	$ -	3.0	$ 609.00					3	$ 609.00	75%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid	BID TAB	Estimate				2010		2011		2012		2013		Total to Date		Percent
Item No.	Description	Quantity	Units	Unit Price	Total Price	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Completed
9	**Dewatering Control Building Piping, Valves, and Instrumentation (cont.)**															
u	Provide and Install 8-inch X 2-inch Schedule 40 PVC Clamp on Saddle	27	E.A.	$ 241.000	$ 6,507.00	0.0	$ -	20.0	$ 4,820.00					20	$ 4,820.00	74%
v	Provide and Install 8-inch X 3-inch Schedule 40 PVC Saddle	6	E.A.	$ 254.000	$ 1,524.00	0.0	$ -	10.0	$ 2,540.00					10	$ 2,540.00	167%
w	Provide and Install 8-inch X 4-inch Schedule 40 PVC Saddle	3	E.A.	$ 406.000	$ 1,218.00	0.0	$ -	4.0	$ 1,624.00					4.0	$ 1,624.00	133%
x	Provide and Install 4-inch X 2-inch Schedule 40 PVC Reducer	6	E.A.	$ 165.000	$ 990.00	0.0	$ -	3.0	$ 495.00	1	$ 165.000			4.0	$ 660.00	67%
y	Provide and Install 3-inch X 2-inch Schedule 40 PVC Reducer	8	E.A.	$ 165.000	$ 1,320.00	0.0	$ -	8.0	$ 1,320.00					8.0	$ 1,320.00	100%
z	Provide and Install 4-inch Schedule 40 PVC Check Valve	2	E.A.	$ 2,158.000	$ 4,316.00	0.0	$ -	2.0	$ 4,316.00					2.0	$ 4,316.00	100%
aa	Provide and Install 2-Inch Air Relief Valve	17	E.A.	$ 279.000	$ 4,743.00	0.0	$ -	17.0	$ 4,743.00					17.0	$ 4,743.00	100%
ab	Provide and Install 3-Inch Pipe Hangers	3	E.A.	$ 343.000	$ 1,029.00	0.0	$ -	2.0	$ 686.00					2.0	$ 686.00	67%
ac	Provide and Install 8-Inch Pipe Hangers	10	E.A.	$ 406.000	$ 4,060.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
ad	Provide and Install 2-inch Flow Meter	12	E.A.	$ 2,412.000	$ 28,944.00	0.0	$ -	11.0	$ 26,532.00	1	$ 2,412.000			12.0	$ 28,944.00	100%
ae	Provide and Install 8-inch Flow Meter	1	E.A.	$ 6,602.000	$ 6,602.00	0.0	$ -	1.0	$ 6,602.00					1.0	$ 6,602.00	100%
af	Provide and Install 2-inch Gate Valve	13	E.A.	$ 203.000	$ 2,639.00	0.0	$ -	10.0	$ 2,030.00	1	$ 203.000			11.0	$ 2,233.00	85%
ag	Provide and Install 3-inch Gate Valve	4	E.A.	$ 267.000	$ 1,068.00	0.0	$ -	6.0	$ 1,602.00					6.0	$ 1,602.00	150%
ah	Provide and Install 4-inch Gate Valve	1	E.A.	$ 508.000	$ 508.00	0.0	$ -	1.0	$ 508.00					1.0	$ 508.00	100%
ai	Provide and Install 6-inch Lever Handle Type Butterfly Valve	1	E.A.	$ 533.000	$ 533.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
aj	Provide and Install 8-inch Lever Handle Type Butterfly Valve	3	E.A.	$ 736.000	$ 2,208.00	0.0	$ -	3.0	$ 2,208.00					3.0	$ 2,208.00	100%
ak	Provide and Install 6-inch ANSI PVC Flange for 6" Butterfly Valve	2	E.A.	$ 203.000	$ 406.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
al	Provide and Install 8-inch ANSI PVC Flange	8	E.A.	$ 241.000	$ 1,928.00	0.0	$ -	8.0	$ 1,928.00					8.0	$ 1,928.00	100%
am	Provide and Install 2-inch PVC Ball Valve	26	E.A.	$ 178.000	$ 4,628.00	0.0	$ -	25.0	$ 4,450.00	2	$ 356.000			27.0	$ 4,806.00	104%
an	Provide and Install 3-inch PVC Ball Valve	8	E.A.	$ 216.000	$ 1,728.00	0.0	$ -	10.0	$ 2,160.00	1	$ 216.000			11.0	$ 2,376.00	138%
ao	Provide and Install 4-inch PVC Ball Valve	8	E.A.	$ 279.000	$ 2,232.00	0.0	$ -	8.0	$ 2,232.00					8.0	$ 2,232.00	100%
ap	Provide and Install 2-inch Unistrut Clamp	42	E.A.	$ 165.000	$ 6,930.00	0.0	$ -	30.0	$ 4,950.00	2	$ 330.000			32.0	$ 5,280.00	76%
aq	Provide and Install 3-inch Unistrut Clamp	12	E.A.	$ 190.000	$ 2,280.00	0.0	$ -	29.0	$ 5,510.00					29.0	$ 5,510.00	242%
ar	Provide and Install 4-inch Unistrut Clamp	7	E.A.	$ 216.000	$ 1,512.00	0.0	$ -	12.0	$ 2,592.00					12.0	$ 2,592.00	171%
as	Provide and Install 8-inch Unistrut Clamp	11	E.A.	$ 203.000	$ 2,233.00	0.0	$ -	11.0	$ 2,233.00					11.0	$ 2,233.00	100%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid	BID TAB	Estimate			2010		2011		2012		2013		Total to Date		Percent
Item No.	Description	Quantity	Units	Unit Price	Total Price	Quantity	Cost	Quantity	Cost	Quanity	Cost	Quanity	Cost	Quantity	Cost	Completed
9	**Dewatering Control Building Piping, Valves, and Instrumentation (cont.)**															
at	Provide and Install Unistrut "L" Bracket	4	E.A.	$ 305.000	$ 1,220.00	0.0	$ -	3.0	$ 915.00					3.0	$ 915.00	75%
au	Provide and Install Unistrut Channel	126	L.F.	$ 33.000	$ 4,158.00	0.0	$ -	176.0	$ 5,808.00	8	$ 264.000			184.0	$ 6,072.00	146%
av	Provide and Install 2-inch Female Cam-Lok	5	E.A.	$ 203.000	$ 1,015.00	0.0	$ -	2.0	$ 406.00					2.0	$ 406.00	40%
aw	Provide and Install 2-inch Male Cam-Lok	5	E.A.	$ 190.000	$ 950.00	0.0	$ -	4.0	$ 760.00					4.0	$ 760.00	80%
ax	Provide and Install 4-inch Female Cam-Lok	9	E.A.	$ 203.000	$ 1,827.00	0.0	$ -	7.0	$ 1,421.00					7.0	$ 1,421.00	78%
ay	Provide and Install 4-inch Male Cam-Lok	11	E.A.	$ 203.000	$ 2,233.00	0.0	$ -	9.0	$ 1,827.00					9.0	$ 1,827.00	82%
az	Provide and Install 4-inch Cam-Lok Protective Cover	2	E.A.	$ 330.000	$ 660.00	0.0	$ -	2.0	$ 660.00					2.0	$ 660.00	100%
ba	Provide and Install 8-inch Male Cam-Lok	1	E.A.	$ 432.000	$ 432.00	0.0	$ -	1.0	$ 432.00					1.0	$ 432.00	100%
bb	Provide and Install 8-inch Cam-Lok Protective Cover	1	E.A.	$ 432.000	$ 432.00	0.0	$ -	1.0	$ 432.00					1.0	$ 432.00	100%
bc	Provide and Install 3-inch Poly Tank Fitting (Bulkhead)	2	E.A.	$ 279.000	$ 558.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
bd	Provide and Install 4-inch Poly Tank Fitting (Bulkhead)	7	E.A.	$ 394.000	$ 2,758.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
be	Provide and Install 6-inch Poly Tank Fitting (Bulkhead)	2	E.A.	$ 597.000	$ 1,194.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
bf	Provide and Install 2-inch Schedule 40 PVC Union	30	E.A.	$ 165.000	$ 4,950.00	0.0	$ -	11.0	$ 1,815.00	3	$ 495.000			14.0	$ 2,310.00	47%
bg	Provide and Install 4-inch Pipe Penetration Boot	2	E.A.	$ 368.000	$ 736.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
bh	Provide and Install 8-inch Pipe Penetration Boot	1	E.A.	$ 521.000	$ 521.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
bi	Provide and Install 2-Inch Flex Hose	32	L.F.	$ 14.000	$ 448.00	0.0	$ -	18.0	$ 252.00					18.0	$ 252.00	56%
bj	Provide and Install 4-Inch Flex Hose	32	L.F.	$ 20.500	$ 656.00	0.0	$ -	36.0	$ 738.00					36.0	$ 738.00	113%
bk	Provide and Install Eye Wash Station	2	E.A.	$ 648.000	$ 1,296.00	0.0	$ -	2.0	$ 1,296.00					2.0	$ 1,296.00	100%
bl	Provide and Install 4-Inch FemaleThread Adaptor to Threaded Male Cam-Lock to PVC	11	E.A.	$ 190.000	$ 2,090.00	0.0	$ -	16.0	$ 3,040.00					16.0	$ 3,040.00	145%
bm	Provide and Install 2-Inch FemaleThread Adaptor to Threaded Male Cam-Lock to PVC	5	E.A.	$ 190.000	$ 950.00	0.0	$ -	34.0	$ 6,460.00					34.0	$ 6,460.00	680%
bn	Provide and Install 3/4-Inch Petcocks Brass	6	E.A.	$ 178.000	$ 1,068.00	0.0	$ -	2.0	$ 356.00					2.0	$ 356.00	33%
bo	Provide and Install 8-Inch by 3/4-Inch PVC Tapping Saddle	6	E.A.	$ 254.000	$ 1,524.00	0.0	$ -	2.0	$ 508.00					2.0	$ 508.00	33%
bp	Provide and Install 3-inch Flow Meter	5	E.A.	$ 1,778.000	$ 8,890.00	0.0	$ -	5.0	$ 8,890.00					5.0	$ 8,890.00	100%
bq	Provide and Install 4-inch Flow Meter	1	E.A.	$ 2,285.000	$ 2,285.00	0.0	$ -	1.0	$ 2,285.00					1.0	$ 2,285.00	100%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid	BID TAB	Estimate				2010		2011		2012		2013		Total to Date		Percent
Item No.	Description	Quantity	Units	Unit Price	Total Price	Quantity	Cost	Quantity	Cost	Quanity	Cost	Quanity	Cost	Quantity	Cost	Completed
9	**Dewatering Control Building Piping, Valves, and Instrumentation (cont.)**															
br	Provide and Install 3-inch ANSI PVC Flange	10	E.A.	$ 178.000	$ 1,780.00	0.0	$ -	10.0	$ 1,780.00					10.0	$ 1,780.00	100%
bs	Provide and Install 4-inch ANSI PVC Flange	2	E.A.	$ 178.000	$ 356.00	0.0	$ -	10.0	$ 1,780.00					10.0	$ 1,780.00	500%
10	**Provide and Install Water Treatment System**															
a	Provide and Install Horizonal Screw Conveyor	1	L.S.	XXXXXXXX	$ 38,100.00	0.0	$ -	1.0	$ 38,100.00					1.0	$ 38,100.00	100%
b	Provide and Install 600 Gallon Lime Slurry Tanks	2	E.A.	$ 25,400.000	$ 50,800.00	1.8	$ 45,720.00	0.20	$ 5,080.00					2.0	$ 50,800.00	100%
c	Provide and Install 3/4 HP Lime Slurry Mixers	2	E.A.	$ 12,700.000	$ 25,400.00	0.0	$ -	2.0	$ 25,400.00					2.0	$ 25,400.00	100%
d	Provide and Install Tank Level Indicator	1	E.A.	$ 12,700.000	$ 12,700.00	0.0	$ -	1.0	$ 12,700.00					1.0	$ 12,700.00	100%
e	Provide and Install Air Actuated Knife Valves	2	E.A.	$ 6,348.000	$ 12,696.00	0.0	$ -	2.0	$ 12,696.00					2.0	$ 12,696.00	100%
f	Provide and Install 3-Gallon Air Compressor	1	L.S.	XXXXXXXX	$ 2,539.00	0.0	$ -	1.0	$ 2,539.00					1.0	$ 2,539.00	100%
g	Provide and Install 2 HP Lime Slurry Pump	1	E.A.	$ 31,700.000	$ 31,700.00	0.0	$ -	1.0	$ 31,700.00					1.0	$ 31,700.00	100%
h	Provide and Install Dosing Tank and Stand	1	E.A.	$ 15,200.000	$ 15,200.00	0.9	$ 13,680.00	0.1	$ 1,520.00					1.0	$ 15,200.00	100%
i	Provide and Install Dosing Tank Mixer	1	E.A.	$ 12,700.000	$ 12,700.00	0.0	$ -	1.0	$ 12,700.00					1.0	$ 12,700.00	100%
j	Provide and Install pH Probe and Controller	4	E.A.	$ 2,500.000	$ 10,000.00	0.0	$ -	4.0	$ 10,000.00					4.0	$ 10,000.00	100%
k (S)	Provide and Install RCTS-60HS	1	E.A.	$ 190,500.000	$ 190,500.00	0.9	$ 171,450.00	0.1	$ 19,050.00					1.0	$ 190,500.00	100%
l	Provide and Install Lime Silo	1	L.S.	XXXXXXXX	$ 76,200.00	0.0	$ -	1.0	$ 76,200.00						$ 76,200.00	#VALUE!
m	Provide and Install Staircase and Platform	1	L.S.	XXXXXXXX	$ 31,700.00	0.0	$ -	1.0	$ 31,700.00					1.0	$ 31,700.00	100%
11	**Flocculant System**															
a	Provide and Install 200 Gallon Flocculant Mixing Tank	1	EA	$ 11,400.000	$ 11,400.00	0.0	$ -	1.0	$ 11,400.00					1.0	$ 11,400.00	100%
b	Provide and Install 3/4 HP mixer	1	EA	$ 12,700.000	$ 12,700.00	0.0	$ -	1.0	$ 12,700.00					1.0	$ 12,700.00	100%
c	Provide and Install Peristaltic Pump, Tubing, and PVC Pipe	1	L.S.	XXXXXXXX	$ 11,400.00	0.0	$ -	1.0	$ 11,400.00	1	$ 11,400.00			2.0	$ 22,800.00	200%
12	**Water Treatment System Operation, Maintenance and Monitoring**															
a	Summer Operation, Maintenance, and Monitoring	15	30 Calendar Days	$ 22,900.000	$ 343,500.00	0.0	$ -	0.0	$ -	4.5	$ 103,050.000			4.5	$ 103,050.00	30%
b	Winter Operation, Maintenance, and Monitoring	21	30 Calendar Days	$ 24,100.000	$ 506,100.00	0.0	$ -	1.0	$ 24,100.00	9	$ 216,900.000			10.0	$ 241,000.00	48%
c	Snow Removal	148	EA	$ 190.000	$ 28,120.00	0.0	$ -	7.0	$ 1,330.00	41	$ 7,790.000			48.0	$ 9,120.00	32%
d	Provide, Store, and Handle Anionic Flocculant	6	55-gallon drums	$ 2,539.000	$ 15,234.00	0.0	$ -	0.0	$ -	5	$ 12,695.000			5.0	$ 12,695.00	83%
e	Provide, Store, and Handle Hydrated Lime Product	198	Tons	$ 216.000	$ 42,768.00	0.0	$ -	0.0	$ -	23.14	$ 4,998.24			23.14	$ 4,998.24	12%

TABLE 5.1
2010, 2011 AND 2012
CONSTRUCTION QUANTITIES AND COSTS

Bid	BID TAB	Estimate				2010		2011		2012		2013		Total to Date		Percent
Item No.	Description	Quantity	Units	Unit Price	Total Price	Quantity	Cost	Quantity	Cost	Quanity	Cost	Quanity	Cost	Quantity	Cost	Completed
13	**Maintenance of Major Equipment**															
a	Lime Screw Conveyor Shear Pins/Flex Coupling	1	EA	$ 8,634.000	$ 8,634.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
b	Lime Screw Coveyor Motor	1	EA	$ 3,047.000	$ 3,047.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
c	Lime Slurry and Dosing Tank Mixers	1	EA	$ 6,095.000	$ 6,095.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
d	Flocculant Tank Mixer	1	EA	$ 6,095.000	$ 6,095.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
e	Lime Slurry Pump	1	EA	$ 14,100.000	$ 14,100.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
f	Peristaltic Pump	1	EA	$ 4,825.000	$ 4,825.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
g	Peristaltic Pump Head Assembly	1	EA	$ 2,412.000	$ 2,412.00	0.0	$ -	0.0	$ -	1	$ 2,412.000			1.0	$ 2,412.00	100%
h	Tank Level Indicators	1	EA	$ 6,095.000	$ 6,095.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
i	Influent Line 8" Flow Meter	1	EA	$ 7,491.000	$ 7,491.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
j	pH Probe and Controller	1	EA	$ 6,095.000	$ 6,095.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
k	RCTS-60 Motor	1	EA	$ 2,793.000	$ 2,793.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
l	5-HP Submersible Pump	1	EA	$ 4,571.000	$ 4,571.00	0.0	$ -	0.5	$ 2,285.50	1	$ 4,571.000			1.5	$ 6,856.50	150%
m	7-HP Submersible Pump	1	EA	$ 5,079.000	$ 5,079.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
n	1-HP Submersible Pump	1	EA	$ 3,047.000	$ 3,047.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
o	1.5-HP Submersible Pump	1	EA	$ 3,047.000	$ 3,047.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
p	2-inch Flow Meter	1	EA	$ 3,809.000	$ 3,809.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
q	3-inch Flow Meter	1	EA	$ 3,174.000	$ 3,174.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
r	4-inch Flow Meter	1	EA	$ 3,682.000	$ 3,682.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
s	Sediment Pond Sludge Removal	6	EA	$ 44,400.000	$ 266,400.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
t	Cleaning of IWT RCTS-60HS Unit	3	EA	$ 1,905.000	$ 5,715.00	0.0	$ -	0.0	$ -	1	$ 1,905.000			1.0	$ 1,905.00	33%
14	**Construct, Operate and Maintain Phase II Dewatering System**								$ -							
a	Construct, Operate, and Maintain Phase II Dewatering System	1	L.S.	XXXXXXXX	$ 23,800.00	0.0	$ -	0.0	$ -					0.0	$ -	0%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid	BID TAB	Estimate			2010		2011		2012		2013		Total to Date		Percent
Item No.	**Description**	**Quantity**	**Units**	**Unit Price**	**Total Price**	**Quantity**	**Cost**	**Quantity**	**Cost**	**Quanity**	**Cost**	**Quanity**	**Cost**	**Quantity**	**Cost**	**Completed**
15	**Stabilization /Dehydration of Mine Wastes**															
a	Strip, load, Haul and Stockpile Cover Soils	48,128	C.Y.	$ 7.000	$ 336,896.00	11,262.0	$ 78,834.00	12,620.0	$ 88,340.00	46,682.0	$ 326,774.000			70,564.0	$ 493,948.00	147%
	Fuel Adjustment pay request #2 See attached fuel calculations	500		$ 0.040		500.0	$ 20.00									0%
	Fuel Adjustment pay request #3 See attached fuel calculations	200		$ 0.080		200.0	$ 16.00									0%
	Fuel Adjustment pay request #4 See attached fuel calculations	4,800		$ 0.100		4,800.0	$ 480.00									0%
	Fuel Adjustment pay request #5 See attached fuel calculations	1,262		$ 0.140		1,262.0	$ 176.68									0%
	Fuel Adjustment pay request #8 See attached fuel calculations	6,080.00		$ 0.310				6,080.0	$ 1,884.80							0%
	Fuel Adjustment pay request #9 See attached fuel calculations	6,540.00		$ 0.360				6,540.0	$ 2,354.40							0%
	Fuel Adjustment pay request #19 See attached fuel calculations	3,400.00		$ 0.280												
	Fuel Adjustment pay request #20 See attached fuel calculations	9,188.00		$ 0.240												
	Fuel Adjustment pay request #21 See attached fuel calculations	1,474.00		$ 0.370												
	Fuel Adjustment pay request #22 See attached fuel calculations	17,000.00		$ 0.420												
	Fuel Adjustment pay request #23 See attached fuel calculations	15,620.00		$ 0.430												
b	**Provide, Store, and Handle Quick Lime Product**	13,400	TON	$ 260.000	$ 3,484,000.00	370.2	$ 96,254.60	3,204.77	$ 833,240.20	8,791.61	$ 2,285,818.600			12,366.59	$ 3,215,313.40	92%
	Fuel Adjustment pay request #3 See attached fuel calculations	127.93		$ 1.460		127.9	$ 186.78									0%
	Fuel Adjustment pay request #4 See attached fuel calculations	181.61		$ 1.860		181.6	$ 337.79									0%
	Fuel Adjustment pay request #5 See attached fuel calculations	60.67		$ 2.610		60.7	$ 158.35									0%
	Fuel Adjustment pay request #7 See attached fuel calculations	259.84		$ 5.870				259.84	$ 1,525.26							0%
	Fuel Adjustment pay request #8 See attached fuel calculations	972.79		$ 5.530				972.79	$ 5,379.53							0%
	Fuel Adjustment pay request #9 See attached fuel calculations	1,123.60		$ 6.460				1,123.60	$ 7,258.46							0%
	Fuel Adjustment pay request #10 See attached fuel calculations	848.54		$ 7.040				848.54	$ 5,973.72							0%
	Fuel Adjustment pay request #19 See attached fuel calculations	930.00		$ 5.08												
	Fuel Adjustment pay request #20 See attached fuel calculations	2,850.81		$ 4.26												
	Fuel Adjustment pay request #21 See attached fuel calculations	3,396.80		$ 6.77												
	Fuel Adjustment pay request #22 See attached fuel calculations	1,600.00		$ 7.65												
	Fuel Adjustment pay request #23 See attached fuel calculations	14.00		$ 7.75												
c	**Stabilization of Tailings and Other Saturated Mine Wastes/Impacted Soils**	168,915	B.C.Y.	$ 22.500	$ 3,800,587.50	11,154.0	$ 250,965.00	38,000.0	$ 855,000.00	169,536.00	$ 3,814,560.000			218,690.0	$ 4,920,525.00	129%
	Fuel Adjustment pay request #4 See attached fuel calculations	8,400.00		$ 0.250		8,400.0	$ 2,100.00									0%
	Fuel Adjustment pay request #5 See attached fuel calculations	2,754		$ 0.340		2,754.0	$ 936.36									0%
	Fuel Adjustment pay request #7 See attached fuel calculations	2,922		$ 0.770				2,922.0	$ 2,249.94							0%
	Fuel Adjustment pay request #8 See attached fuel calculations	11,865		$ 0.730				11,865.0	$ 8,661.45							0%
	Fuel Adjustment pay request #9 See attached fuel calculations	13,042		$ 0.850				13,042.0	$ 11,085.70							0%
	Fuel Adjustment pay request #10 See attached fuel calculations	10,171		$ 0.930				10,171.0	$ 9,459.03							0%
	Fuel Adjustment pay request #19 See attached fuel calculations	17,000		$ 0.67												
	Fuel Adjustment pay request #20 See attached fuel calculations	54,227		$ 0.56												
	Fuel Adjustment pay request #21 See attached fuel calculations	69,510.00		$ 0.89												
	Fuel Adjustment pay request #22 See attached fuel calculations	28,000.00		$ 1.01												
	Fuel Adjustment pay request #22 See attached fuel calculations	799.00		$ 1.02												
16	**Excavate Repository and Stockpile Soil**															
a	**Excavate Repository and Stockpile Soil**	60,400	B.C.Y.	$ 5.000	$ 302,000.00	47,600.0	$ 238,000.00	23,596.0	$ 117,980.00	11,470.00	$ 57,350.000			82,666.0	$ 413,330.00	137%
	Fuel Adjustment pay request #2 See attached fuel calculations	27,000		$ 0.030		27,000.0	$ 810.00									0%
	Fuel Adjustment pay request #3 See attached fuel calculations	5,500		$ 0.070		5,500.0	$ 385.00									0%
	Fuel Adjustment pay request #4 See attached fuel calculations	5,900		$ 0.090		5,900.0	$ 531.00									0%
	Fuel Adjustment pay request #5 See attached fuel calculations	9,200		$ 0.130		9,200.0	$ 1,196.00									0%
	Fuel Adjustment pay request #7 See attached fuel calculations	13,023		$ 0.290				13,023	$ 3,776.67							0%
	Fuel Adjustment pay request #8 See attached fuel calculations	10,045		$ 0.270				10,045	$ 2,712.15							0%
	Fuel Adjustment pay request #9 See attached fuel calculations	2,500		$ 0.320				2,500	$ 800.00							0%
	Fuel Adjustment pay request #10 See attached fuel calculations	-1,972		$ 0.350				-1,972	$ (690.20)							0%
	Fuel Adjustment pay request #19 See attached fuel calculations	11,470		$ 0.250				11,470	$ 2,867.50							0%
b	Construct Earthen Dams	1	L.S.	XXXXXXXX	$ 20,300.00	1.0	$ 20,300.00	0	$ -					1.0	$ 20,300.00	100%
c	Partially Backfill Existing Dry Channel	1	L.S.	XXXXXXXX	$ 35,800.00	1.0	$ 35,800.00	0	$ -					1.0	$ 35,800.00	100%
17	**Install Repository Cap**															
a	Provide and Install Interim Cap	43,750	S.Y.	$ 7.000	$ 306,250.00	4,638.0	$ 32,466.00	13,339.0	$ 93,373.00	25,534.00	$ 178,738.000			43,511.0	$ 304,577.00	99%
b (S)	Provide and Install Geocushion	26,500	S.Y.	$ 3.100	$ 82,150.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
c (S)	Provide and Install HDPE Cap Liner	26,500	S.Y.	$ 14.500	$ 384,250.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
d (S)	Provide and Install Geocomposite Drainage Material	26,500	S.Y.	$ 5.400	$ 143,100.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
e	Install Repository Cover Soil Cap	25,000	C.Y.	$ 9.800	$ 245,000.00	0.0	$ -	0.0	$ -					0.0	$ -	0%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid Item No.	BID TAB Description	Estimate Quantity	Units	Unit Price	Total Price	2010 Quantity	2010 Cost	2011 Quantity	2011 Cost	2012 Quanity	2012 Cost	2013 Quanity	2013 Cost	Total to Date Quantity	Total to Date Cost	Percent Completed
18	**Organic Amendment**															
a	Organic Amendment	6,818	Dry Tons	$ 144.000	$ 981,792.00	272.5	$ 39,241.44	0.0	$ -					272.51	$ 39,241.44	4%
Fuel Adjustment pay request #3 See attached fuel calculations		234.76		$ 3.580		234.8	$ 840.44	0.0	$ -							0%
Fuel Adjustment pay request #4 See attached fuel calculations		37.75		$ 4.570		37.8	$ 172.52	0.0	$ -							0%
19	**Backfill Excavated Areas with Amended Cover Soil**															
a	Backfill Excavated Areas with Amended Cover Soil	43,560	L.C.Y.	$ 10.000	$ 435,600.00	2,250.0	$ 22,500.00	0.0	$ -					2,250.0	$ 22,500.00	5%
Fuel Adjustment pay request #4 See attached fuel calculations		2,800.00		$ 0.220		2,800.0	$ 616.00	0.0	$ -							0%
Fuel Adjustment pay request #5 See attached fuel calculations		-1,500		$ 0.300		-1,500.0	$ (450.00)	0.0	$ -	1,500.00	$ 450.000			0.0	$ -	0%
20	**Stream Reconstruction**						$ -									
a	Soda Butte Creek Reconstruction	1,475	L.F.	$ 300.000	$ 442,500.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
b	Miller Creek Reconstruction	525	L.F.	$ 300.000	$ 157,500.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
c	Soda Butte Creek Grade Control Structures	32	EA	$ 4,004.000	$ 128,128.00	1.0	$ 4,004.00	0.0	$ -					1.0	$ 4,004.00	3%
d	Miller Creek Grade Control Structures	14	EA	$ 4,200.000	$ 58,800.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
e	Install Isolation Cofferdams	3	EA	$ 8,533.000	$ 25,599.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
f	Install Willow Fascines	400	L.F.	$ 14.000	$ 5,600.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
g	Install Willow Brush Layer	1,300	L.F.	$ 12.500	$ 16,250.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
h	Install Tree Boles with Root Wads	1	L.S.	XXXXXXXX	$ 4,292.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
i	Install Log Grade Control Structures	2	EA	$ 1,682.000	$ 3,364.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
j	Install Log Wing Deflectors	3	EA	$ 1,082.000	$ 3,246.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
k	Backfill and Grade Former Soda Butte Creek Channel	1	L.S.	XXXXXXXX	$ 21,900.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
l	Relocate East Bridge	1	L.S.	XXXXXXXX	$ 44,400.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
m	Remove and Dispose of West Bridge	1	L.S.	XXXXXXXX	$ 31,700.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
21	**Storm Water Control Systems**															
a	Construct Type 1 Grass Lined Channel	700	L.F.	$ 65.000	$ 45,500.00	208.0	$ 13,520.00	0.0	$ -					208.0	$ 13,520.00	30%
b	Construct Type 2 Grass Lined Channel	380	L.F.	$ 80.500	$ 30,590.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
c	Construct Type 3 Grass Lined Channel	400	L.F.	$ 59.500	$ 23,800.00	400.0	$ 23,800.00	0.0	$ -					400.0	$ 23,800.00	100%
d	Construct Type 3 Riprap Channel	10	L.F.	$ 247.000	$ 2,470.00	35.0	$ 8,645.00	0.0	$ -					35.0	$ 8,645.00	350%
e	Construct Grouted Riprap Channel	120	L.F.	$ 179.000	$ 21,480.00	0.0	$ -	0.0	$ -					0.0	$ -	0%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid	BID TAB	Estimate				2010		2011		2012		2013		Total to Date		Percent
Item No.	Description	Quantity	Units	Unit Price	Total Price	Quantity	Cost	Quantity	Cost	Quanity	Cost	Quanity	Cost	Quantity	Cost	Completed
21	**Storm Water Control Systems**															
f	Construct Storm Water Drain System	720	L.F.	$ 63.000	$ 45,360.00	66.0	$ 4,158.00	652.0	$ 41,076.00					718.0	$ 45,234.00	100%
g	Construct Repository Grouted Riprap Lined V-Channel	710	L.F.	$ 196.000	$ 139,160.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
h	Construct RPP Lined Channel	190	L.F.	$ 39.500	$ 7,505.00	160.0	$ 6,320.00	0.0	$ -					160.0	$ 6,320.00	84%
i	Install 36" HDPE Culvert	1	L.S.	XXXXXXXX	$ 6,873.00	1.0	$ 6,873.00	0.0	$ -					1.0	$ 6,873.00	100%
j	Install 24" HDPE Culvert	1	L.S.	XXXXXXXX	$ 2,167.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
k	Install 36" inch Temporary HDPE/CMP Culvert	1	L.S.	XXXXXXXX	$ 7,387.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
22	**Install Erosion Control Mat**						$ -									
a	Install Erosion Control Mat	8,100	S.Y.	$ 4.400	$ 35,640.00	6,461.0	$ 28,428.40	0.0	$ -					6,461.0	$ 28,428.40	80%
23	**Fertilize and Seed**															
a	Upland Areas	31	AC	$ 1,320.000	$ 40,920.00	3.8	$ 4,950.00	0.0	$ -					3.75	$ 4,950.00	12%
b	Riparian Areas (Streambanks)	0.8	AC	$ 8,100.000	$ 6,480.00	0.0	$ -		$ -					0.0	$ -	0%
24	**Mulch**				$ -											
a	Straw Mulch	26	AC	$ 3,335.000	$ 86,710.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
b	Hydromulch	5	AC	$ 4,099.000	$ 20,495.00	2.35	$ 9,632.65	3.3	$ 13,321.75	5.1	$ 20,904.90			10.70	$ 43,859.30	214%
25	**Plant Tree and Shrub Tubelings**															
a	Plant Russet Buffaloberry Shrub Tubelings	600	EA	$ 14.000	$ 8,400.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
b	Plant Douglas-fir Tree Seedlings	400	EA	$ 14.000	$ 5,600.00	0.0	$ -	0.0	$ -					0.0	$ -	0%
26	**Install Construction BMPs**						$ -									
a (S)	Install Compost Filter Sox	1,800	L.F.	$ 9.900	$ 17,820.00	2,026.0	$ 20,057.40	0.0	$ -					2,026.0	$ 20,057.40	113%
b	Install Stream Protection Structures	1,040	L.F.	$ 12.000	$ 12,480.00	936.0	$ 11,232.00	0.0	$ -					936.0	$ 11,232.00	90%
c	Install Stone Check Dams	6	EA	$ 443.000	$ 2,658.00	6.0	$ 2,658.00	0.0	$ -					6.0	$ 2,658.00	100%

TABLE 5.1

2010, 2011 AND 2012

CONSTRUCTION QUANTITIES AND COSTS

Bid Item No.	BID TAB Description	Estimate Quantity	Units	Unit Price	Total Price	2010 Quantity	2010 Cost	2011 Quantity	2011 Cost	2012 Quanity	2012 Cost	2013 Quanity	2013 Cost	Total to Date Quantity	Total to Date Cost	Percent Completed
A-2	**Excavate, Load, Haul, Stockpile, Scale and Transport Stabilized Tailings Materials to Off-Site Processing Facility**															
A-2a	Provide, Install and Remove Truck Scale	1	Construction Schedule	$ 100,000.000	$100,000.00	0.0	$ -	0.0	$ -	0.00	$ -	$0.00		0.0	$ -	0%
A-2b	Excavate, Load, Haul, Stockpile, and Transport Stabilized Tailings Materials to Off-Site Processing Facility	68,700	Ton	$ 63.500	$4,362,450.00	0.0	$ -	0.0	$ -	0.00	$ -	$0.00		0.0	$ -	0%
A-2c	Excavate, Load, Haul, Place and Compact Stabilized Tailings, Mine Wastes and Impacted Soils in the Repository	148,800	C.Y.	$ 5.000	$ 744,000.00	4,550.0	$ 22,750.00	55,781.0	$ 278,905.00	156,077.00	$ 780,385.000			216,408.0	$ 1,082,040.00	145%
Fuel Adjustment pay request #4 See attached fuel calculations		4,000.00		$ 0.110		4,000.0	$ 440.00									0%
Fuel Adjustment pay request #5 See attached fuel calculations		550		$ 0.160		550.0	$ 88.00									0%
Fuel Adjustment pay request #6 See attached fuel calculations		4,373		$ 0.130				4,373.0	$ 568.49							0%
Fuel Adjustment pay request #7 See attached fuel calculations		1,140		$ 0.360				1,140	$ 410.40							0%
Fuel Adjustment pay request #8 See attached fuel calculations		7,075		$ 0.340				7,075	$ 2,405.50							0%
Fuel Adjustment pay request #9 See attached fuel calculations		25,757		$ 0.400				25,757	$ 10,302.80							0%
Fuel Adjustment pay request #10 See attached fuel calculations		17,436		$ 0.430				17,436	$ 7,497.48							0%
Fuel Adjustment pay request #19 See attached fuel calculations		17,000		$ 0.31												
Fuel Adjustment pay request #20 See attached fuel calculations		50,554		$ 0.26												
Fuel Adjustment pay request #21 See attached fuel calculations		59,724.00		$ 0.42												
Fuel Adjustment pay request #22 See attached fuel calculations		28,000.00		$ 0.47												
Fuel Adjustment pay request #22 See attached fuel calculations		799.00		$ 0.48												
ROUNDING CORRECTION IN FUEL ADJUSTMENTS (est 25)		1.00		$ (0.01)												
TOTAL CONTRACT AMOUNT				**$**	**24,243,731.50**		**$ 3,888,715.41**		**$ 3,993,670.03**		**$ 8,148,422.74**				**$ 15,934,834.18**	

CHANGE ORDERS						2010		2011								
1	Change Order #1	1	LS	$ 24,912.600	$ 24,912.60	1.0	$ 24,912.60							1.0	$ 24,912.60	100%
2	Change Order #2 - adjusted in 16, A2a, A2b, A2c															
2	Adjustment in QTY for Bid Item 16	27,400	C.Y.	$ 5.000	$ 137,000.00											
2	Adjustment in QTY for Bid Item A-2a	-1	Construction Schedule	$ 100,000.000	$ (100,000.00)											
2	Adjustment in QTY for Bid Item A-2b	-68,700	Ton	$ 63.500	$ (4,362,450.00)											
2	Adjustment in QTY for Bid Item A-2c	41,000	C.Y.	$ 5.000	$ 205,000.00											
3	Change Order #3	1	LS	$ 1,890.000	$ 1,890.00			1.0	$ 1,890.00					1.0	$ 1,890.00	100%
4	Change Order #4	1	LS	$ 8,922.490	$ 8,922.49			1.0	$ 8,922.49					1.0	$ 8,922.49	100%
5	Change Order #5	1	LS	$ 23,400.000	$ 23,400.00			1.0	$ 23,400.00					1.0	$ 23,400.00	100%
6	Change Order #6	1	LS	$ 92,520.000	$ 92,520.00			1.0	$ 92,520.00					1.0	$ 92,520.00	100%
7	Change Order #7	1	LS	$ 55,684.070	$ 55,684.07					1	$ 55,684.07			1.0	$ 55,684.07	
8	Change Order #8 Wells, Building, Sed Pond and Fuel Adjustement	1	LS	$ 395,666.320	$ 395,666.32					1	$ 395,666.32			1.0	$ 395,666.32	
TOTAL CONTRACT AMOUNT/PROGRESS WITH CHANGE ORDERS					**$ 20,726,276.98**		**$ 3,913,628.01**		**$ 4,120,402.52**		**$ 8,599,773.13**				**16,537,829.66**	**79.79%**

6.0 ANNUAL PROJECT COSTS

The 2012 construction costs for the McLaren Tailings Abandoned Mine Site Reclamation Project was $8,599,773.38. During the 2012 construction season there were two change orders issued that increased the total contract amount by $451,350.39.

The 2012 construction inspection and management costs were $294,591.28.

7.0 POST 2012 CONSTRUCTION

7.1 Site Conditions after Completion

At the conclusion of the 2012 construction season, the McLaren Tailings Abandoned Mine Site Reclamation Project is 79.8% completed. The DCB, pumping wells, and sediment detention pond are operating as described in the *Final Winter 2011- 2012 Operations and Maintenance for the McLaren Tailings Abandoned Mine Site Cooke City, Montana* (DEQ/MWCB-Pioneer, 2011). Previously installed storm water controls, BMPs, and interim caps are in place to protect the construction work completed in 2012.

Exposed tailings along the perimeter of the excavation were reduced and covered with rock materials and alluvium. Minor grading was completed on the western end of the site to create a temporary sediment retention basin. All runoff water from the site will flow to this area and be allowed to settle and/or potentially infiltrate into the subsurface. A temporary lined spillway was constructed in the dam with an invert elevation of 7,619 above mean sea level (amsl), which will then discharge into Storm Water Channel #5. The excavation floor elevation is approximately 7,610 amsl.

As stated previously, dewatering wells C2-2 and C2-3 were kept in operation to maintain low groundwater level within the excavation area. C2-1 was placed in standby mode ready to be started early in the spring of 2013. This water will be pumped to the DCB and treated if necessary. Approximately two tons of hydrated lime have been stored in super sacks to allow for any required water treatment prior to semi loads of lime being able to access the site.

7.2 Maintenance or Follow-Up

Any maintenance issues that occur will be incorporated into the 2013 construction activities. As part of the winter operations of the DCB, Contractor personnel will be on site through the winter maintaining the site and building, conducting water sampling, and completing snow removal.

7.3 2012 As-Built Drawings

Pioneer prepared the as-built drawings for the 2012 construction season based on field survey data and field notes. The as-built drawings represent the site conditions after completing the 2012 construction season. The drawings are in Appendix K.

8.0 REFERENCES

DEQ/MWCB-Pioneer, 2002. Draft Final Expanded Engineering Evaluation/Cost Analysis for the McLaren Tailings Abandoned Mine Site (EEE/CA), Cook City, Montana. May 2002.

DEQ/MWCB-Pioneer, 2009. Final Reclamation Design Report for the McLaren Tailings Abandoned Mine Site Cooke City, Montana. April 2009.

DEQ/MWCB-Pioneer, 2010. Final Construction Completion Report for the McLaren Tailings Abandoned Mine Site. 2010).

DEQ/MWCB-Pioneer, 2011. Final Construction Completion Report for the McLaren Tailings Abandoned Mine Site February 2011).

DEQ/MWCB-Pioneer, 2011. Final Winter 2011-2012 Operations and Maintenance for the McLaren Tailings Abandoned Mine Site Cooke City, Montana. November 2011.

LIST OF APPENDICES

(Appendices A through J are provided in individual folders on the CD/DVD)

Appendix A Project Correspondence
- Appendix A-1 2012 Pre-Construction Conference Minutes
- Appendix A-2 2012 Equipment Inspections
- Appendix A-3 Project Submittals
- Appendix A-4 Work Directives
- Appendix A-5 Substitutions

Appendix B Contract Change Orders

Appendix C Payment Requests

Appendix D Daily Field Notes

Appendix E Laboratory Data
- Appendix E-1 Soil Proctor Results
- Appendix E-2 Compaction Results
- Appendix E-3 Field Water Quality Results
- Appendix E-4 Laboratory Water Quality Results
- Appendix E-5 Perimeter Well Flows

Appendix F Project Information
- Appendix F-1 Quick Lime Scale Tickets
- Appendix F-2 Hydrated Lime Delivery Tickets
- Appendix F-3 Tailings Stabilization Reports

Appendix G Bi-Weekly Construction Progress Meeting Minutes

Appendix H Construction Daily Activity Reports

Appendix I Quality Control Reports

Appendix J Construction Photographs

Appendix K 2012 As-Built Drawings (Hard Copy)

Appendix K
2012 As-Built Drawings

MCLAREN TAILINGS ABANDONED MINE SITE
RECLAMATION PROJECT
COOKE CITY, MONTANA
2012 AS-BUILT CONSTRUCTION DRAWINGS

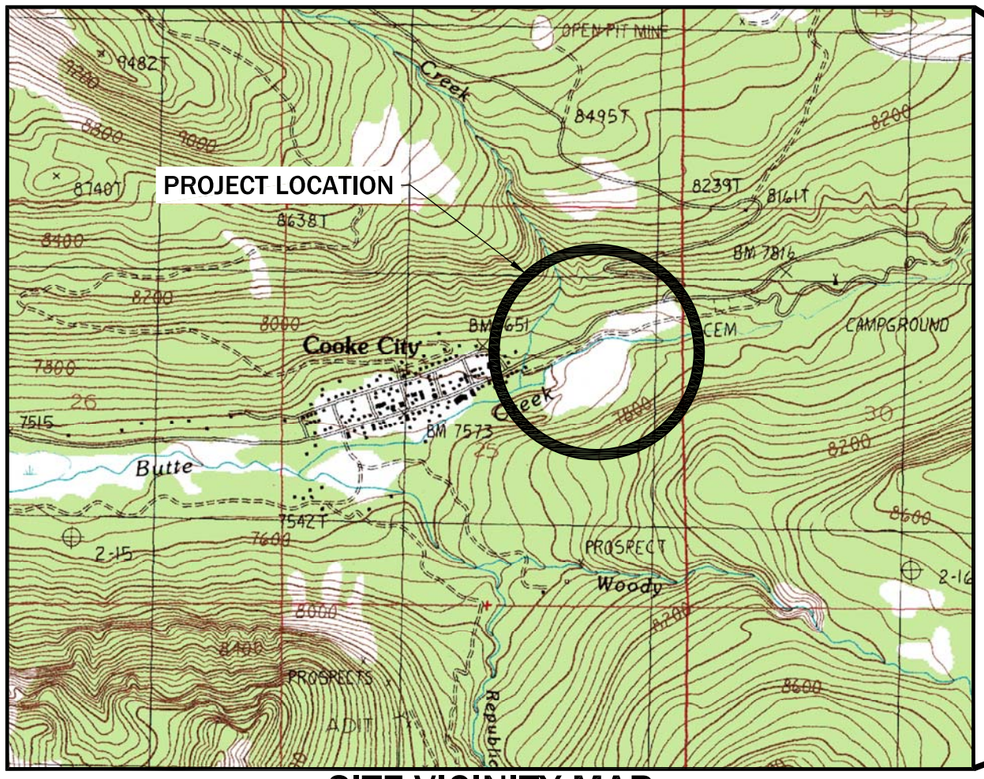
PREPARED FOR

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY MINE WASTE CLEANUP

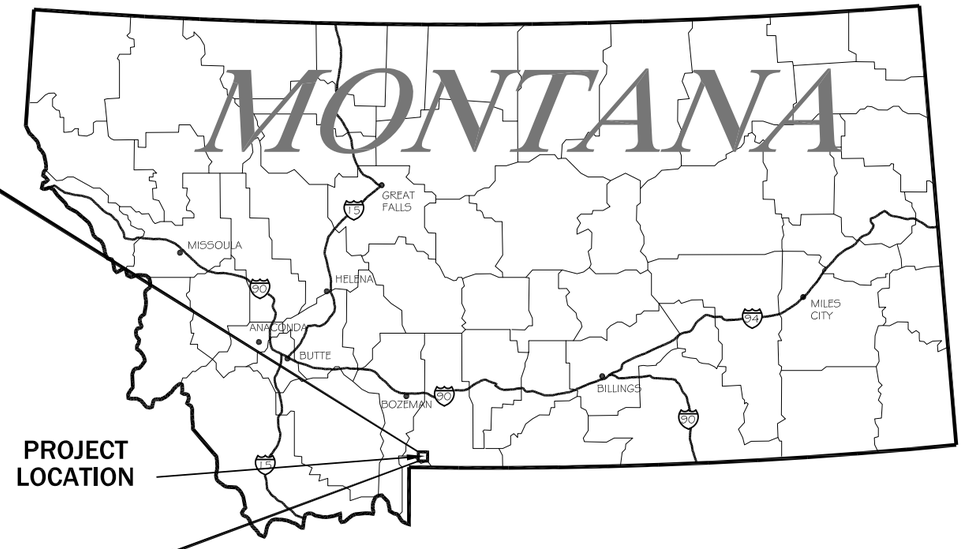
PREPARED BY

PIONEER TECHNICAL SERVICES, INC.

APRIL 2013



SITE VICINITY MAP



SOURCE: 7.5 MINUTE USGS QUADS

SHEET
G-1AB

LEGEND

EXISTING - PLAN VIEW

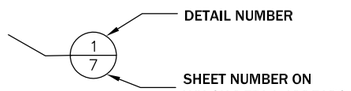
- 7700 — INDEX CONTOURS
- INTERMEDIATE CONTOURS
- CULVERT
- EXISTING ROAD
- STREAM CHANNEL/SURFACE WATER
- PWR — PWR — ELECTRICAL LINE
- PROPERTY LINE

PROPOSED - PLAN VIEW

- 7700 — INDEX CONTOURS
- INTERMEDIATE CONTOURS
- 2+00 — 100 FT. STATIONING
- 2% — GRADE OR SURFACE SLOPE (PERCENT)
- PROPOSED ROAD
- OE — OE — OVERHEAD ELECTRICAL LINE
- UE — UE — UNDERGROUND ELECTRICAL LINE
- JSB — JSB — JERSEY BARRIER
- SOX — SOX — COMPOST FILTER SOX
- SPS — SPS — STREAM PROTECTION STRUCTURE
- PRP — PRP — PROPANE LINE
- X — X — WILDLIFE EXCLUSION FENCE

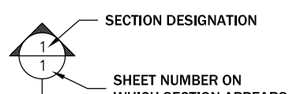
- CENTERLINE
- ℄ CENTERLINE
- SLOPE DESIGNATION (ARROWS POINT DOWN SLOPE)
- 1 / 3 SLOPE DESIGNATION

DETAIL INDICATOR



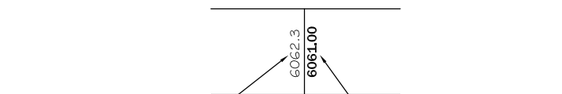
ON PLAN

SECTION INDICATOR



ON PLAN

PROFILE ELEVATIONS



DETAIL 1/7 DETAIL NUMBER; SHEET NUMBER ON WHICH DETAIL IS REFERENCED.

AT DETAIL

SECTION 1/7 SECTION DESIGNATION; SHEET NUMBER ON WHICH SECTION IS REFERENCED.

AT SECTION

NOTES:
ON PLANS: "–" SYMBOL IN UPPER HALF OF BUBBLE INDICATES GENERAL REFERENCE TO NOTED DRAWING NUMBER.
AT DETAIL/SECTIONS: "–" SYMBOL (NO DRAWING NUMBER) IN LOWER HALF OF BUBBLE INDICATES DETAIL/SECTION IS REFERENCED ON MORE THAN ONE DRAWING.

REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: JSM\MCB
CHECKED BY: JSM\MWB\MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: NA
SOURCE: PIONEER

SCALE IN FEET
0

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

LEGEND

PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET G-2AB

SHEET INDEX

SHEET NO.	DESCRIPTION
G-1AB	COVER
G-2AB	LEGEND
G-3AB	SHEET INDEX
G-4AB	SITE VICINITY MAP
G-5AB	PROJECT OVERVIEW
F-1AB	PROJECT FACILITIES PLAN
WRE-1AB	WASTE ROCK EXCAVATION PLAN VIEW
WRE-2AB	WASTE ROCK EXCAVATION CROSS SECTIONS STA 0+00 TO 4+50
WRE-3AB	WASTE ROCK EXCAVATION CROSS SECTIONS STA 5+00 TO 5+50
TE-1AB	TAILINGS EXCAVATION AND SEQUENCE
TE-2AB	TAILINGS EXCAVATION CROSS SECTIONS STA 2+00 TO 6+00
TE-3AB	TAILINGS EXCAVATION CROSS SECTIONS STA 6+50 TO 9+00
TE-4AB	TAILINGS EXCAVATION CROSS SECTIONS STA 9+50 TO 12+50
TE-5AB	TAILINGS EXCAVATION CROSS SECTIONS STA 13+00 TO 15+50
R-2AB	REPOSITORY FINAL EXCAVATION PLAN
R-5AB	REPOSITORY CROSS SECTIONS STA 0+80 TO 1+40
R-6AB	REPOSITORY CROSS SECTIONS STA 1+60 TO 2+20
R-7AB	REPOSITORY CROSS SECTIONS STA 2+40 TO 3+00
R-8AB	REPOSITORY CROSS SECTIONS STA 3+20 TO 3+80
R-9AB	REPOSITORY CROSS SECTIONS STA 4+00 TO 4+60
R-10AB	REPOSITORY CROSS SECTIONS STA 4+80 TO 5+40
R-11AB	REPOSITORY CROSS SECTIONS STA 5+60 TO 6+20
R-12AB	REPOSITORY VOLUMES
SW-1AB	STORM WATER CONTROLS PLAN VIEW
C-1AB	REVEGETATION PLAN
GWD-2AB	TYPICAL PUMPING WELL DETAILS
SDP-1AB	SEDIMENT POND LINER REPAIR PLAN AND PROFILE
SDP-2AB	SEDIMENT POND LINER REPAIR

REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: JSM\MWB\MCB
CHECKED BY: JSM\MWB\MCB
APPROVED BY: JSM
PROJECT NO: 10140
DATE: 4/22/13

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DATUM: NA
UNITS: NA
SOURCE: PIONEER

SCALE IN FEET
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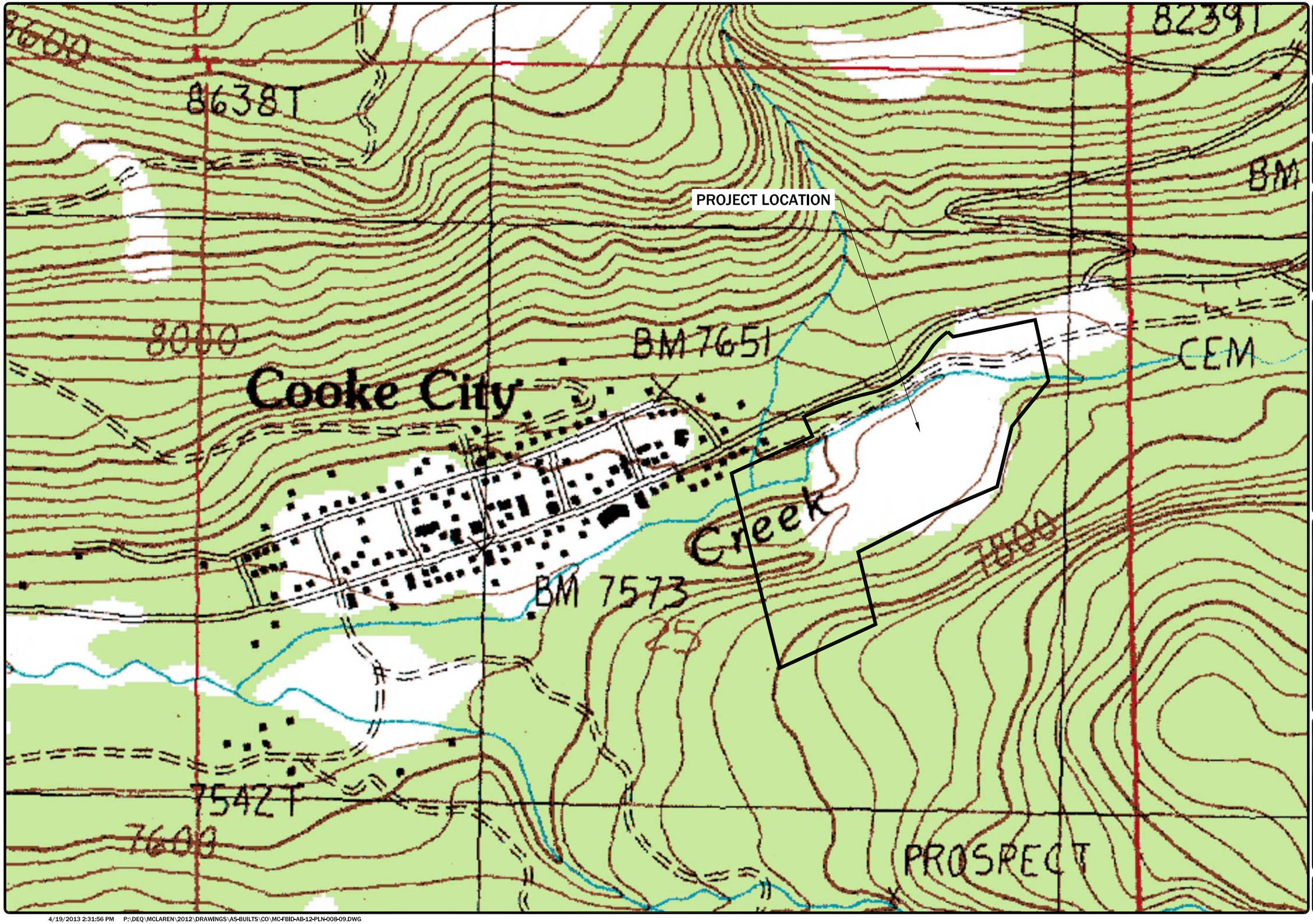
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

SHEET INDEX

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
G-3AB



REVISION:

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DESIGNED BY: JSM
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

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COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: USGS 7.5 MIN QUAD

N

SCALE IN FEET
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MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

SITE VICINITY MAP

PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
G-4AB

WASTE ROCK EXCAVATION/COVER SOIL STOCKPILE AREA, SEE SHEETS WRE-1AB TO WRE-3AB

STAGING AREA

LIME STORAGE AREA, LIME SILO AND GUPPY

COVER SOIL STOCKPILES

COVER SOIL STOCKPILE

TAILINGS EXCAVATION BOUNDARY, SEE SHEETS TE-1AB TO TE-5AB

TEMPORARY LINED SPILLWAY

DEWATERING CONTROL BUILDING

SEDIMENT POND LINER REPAIR, SEE SHEETS SDP-1AB AND SDP-2AB.

STORM WATER CONTROL CHANNEL 5

SEDIMENT DETENTION POND

REPOSITORY, SEE SHEETS R-2AB TO R-12AB

USFS BOUNDARY

SCALE IN FEET
0 100 200

REVISION:
DATE: BY: DESC:

DRAWN BY: CLA
DESIGNED BY: JSM
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

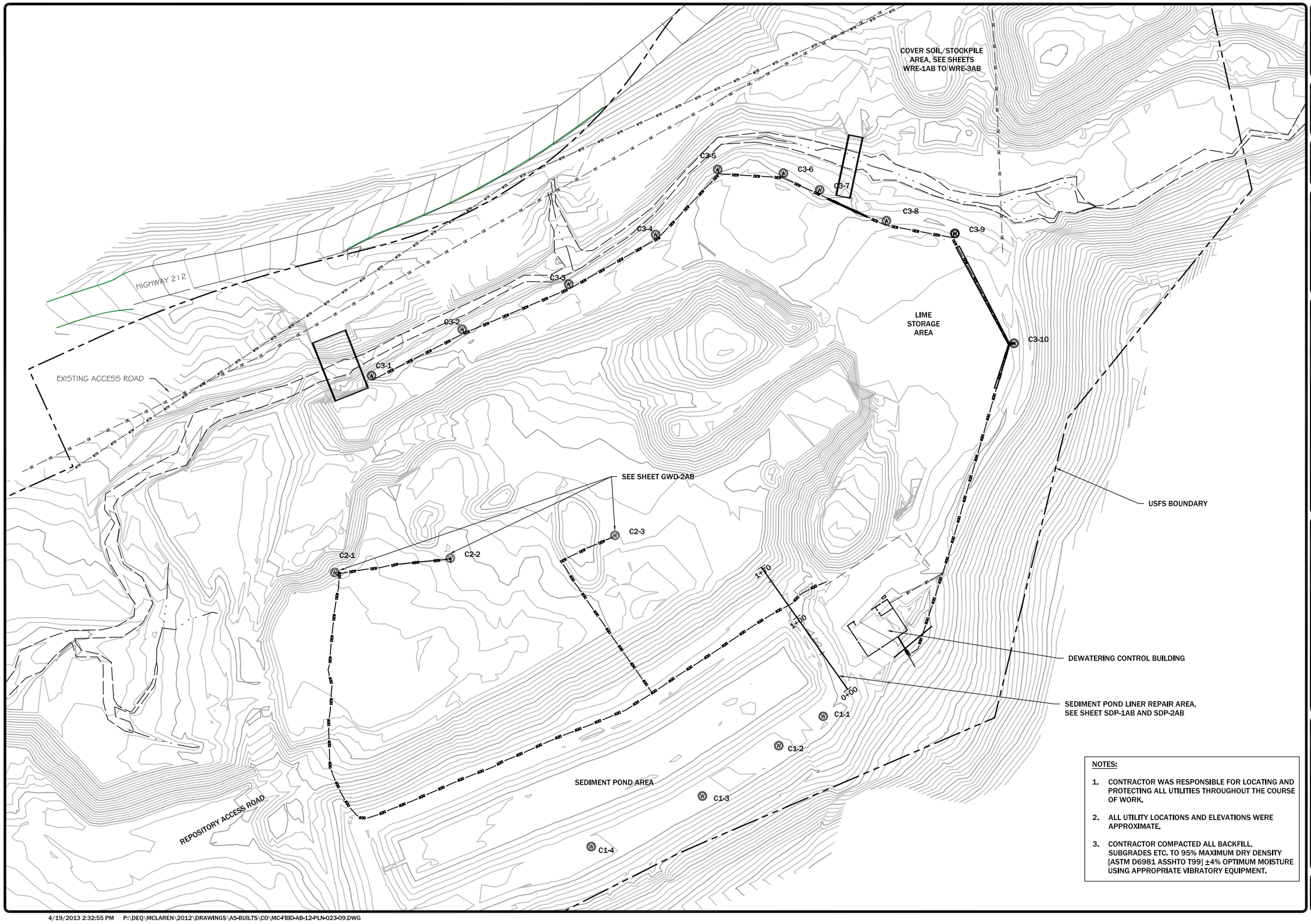
DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

PROJECT OVERVIEW

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
G-5AB



NOTES:

1. CONTRACTOR WAS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES THROUGHOUT THE COURSE OF WORK.
2. ALL UTILITY LOCATIONS AND ELEVATIONS WERE APPROXIMATE.
3. CONTRACTOR COMPACTED ALL BACKFILL, SUBGRADES ETC. TO 95% MAXIMUM DRY DENSITY [ASTM D6981 ASSHTO T99] ±4% OPTIMUM MOISTURE USING APPROPRIATE VIBRATORY EQUIPMENT.

REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: JSM
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
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MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

PROJECT FACILITIES PLAN VIEW

PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET F-1AB

WASTE ROCK EXCAVATION BOUNDARY

USFS BOUNDARY

EXISTING WATERLINE
DO NOT DISTURB

GATE

FILTER SOX

EXISTING ACCESS ROAD, SEE SHEET F-4

WASTE ROCK EXCAVATION BOUNDARY

STREAM PROTECTION STRUCTURE

SODA BUTTE CREEK

EAST BRIDGE

STORM WATER CHANNEL #4, CONSTRUCTED 2011

NOTES:

1. CONTRACTOR WAS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES THROUGHOUT COURSE OF WORK.
2. CONTRACTOR COORDINATED WITH ALL UTILITY COMPANIES PRIOR TO COMPLETING ANY EARTHWORK WITHIN 15 FEET OF ALL OVERHEAD POWER LINES.
3. CONTRACTOR WAS RESPONSIBLE FOR HAVING UTILITY OWNER INSTALL POLE WRAPS ON UTILITY POLES AS REQUIRED.
4. CONTRACTOR INSTALLED BMP'S (STREAM PROTECTION STRUCTURES) PRIOR TO EXCAVATION OF WASTE ROCK- AS SPECIFIED IN SPECIAL PROVISIONS AND AS SHOWN ON SHEET BMP-1
5. CONTRACTOR EXCAVATED WASTE ROCK FOR GENERAL FILL. AS SHOWN ON THE DRAWING.
6. CONTRACTOR STOCKPILED COVER SOIL WITHIN THE EXCAVATION BOUNDARY FOLLOWING WASTE ROCK REMOVAL.

REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: MCB
CHECKED BY: JSM
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 25 50

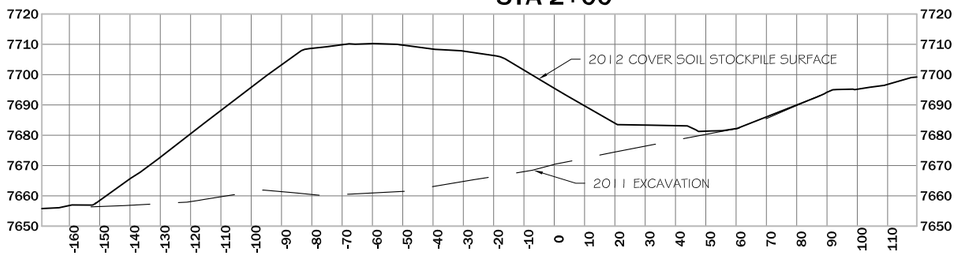
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

WASTE ROCK EXCAVATION PLAN VIEW

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
WRE-1AB

STA 2+00



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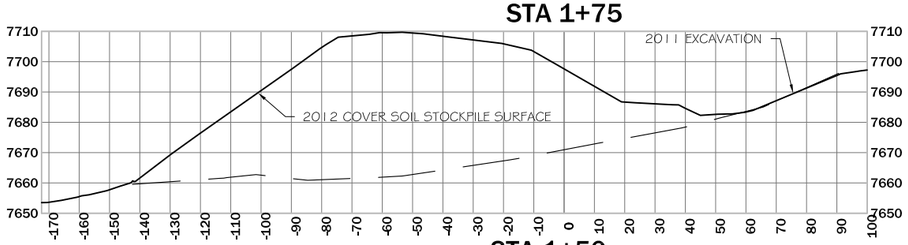

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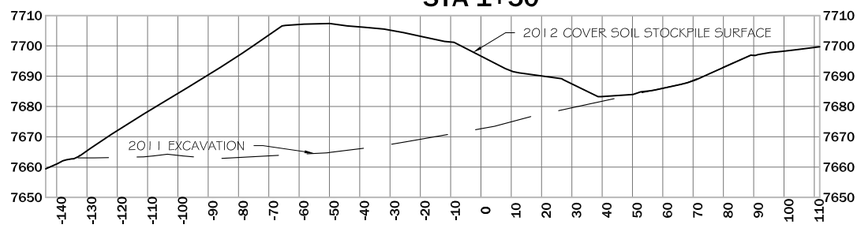

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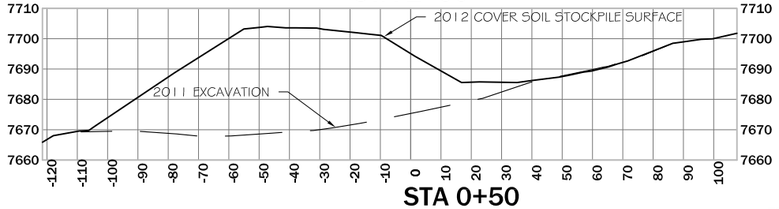

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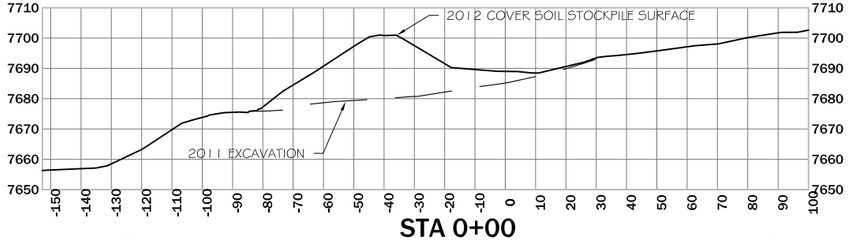

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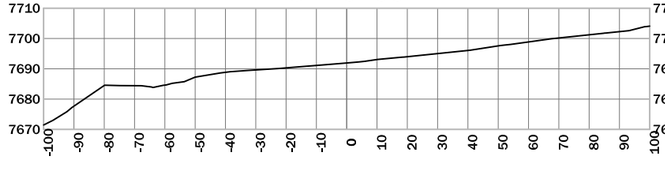

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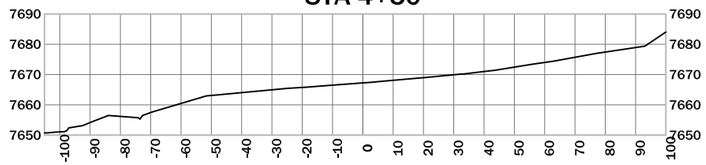

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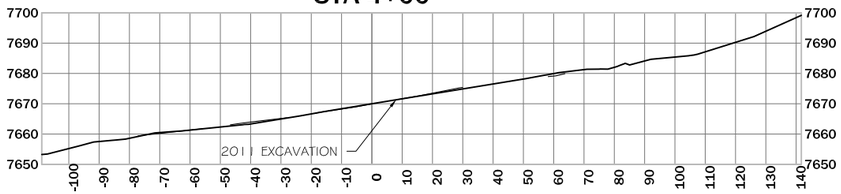

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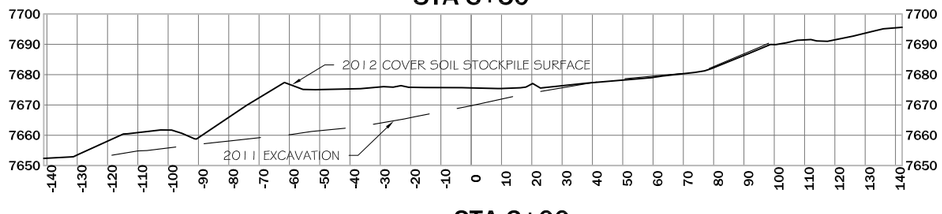

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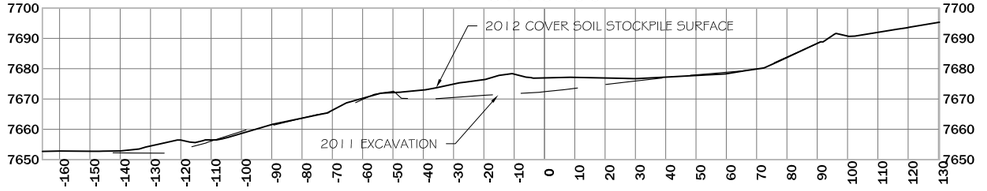

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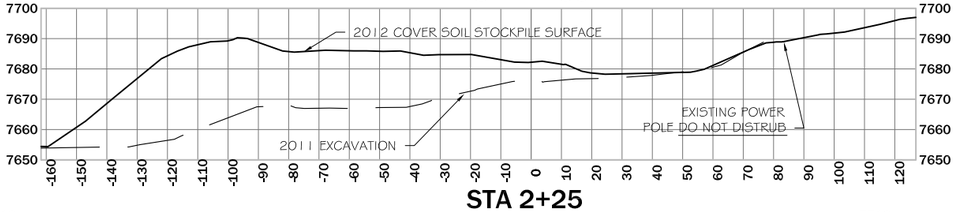

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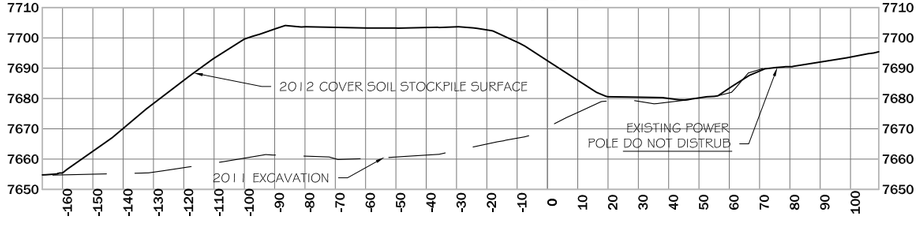

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DRAWN BY: CLA
DESIGNED BY: MCB
CHECKED BY: JSM
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 25 50

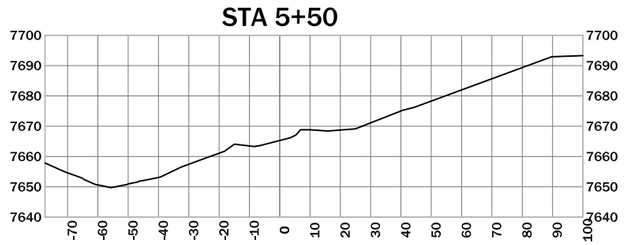
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

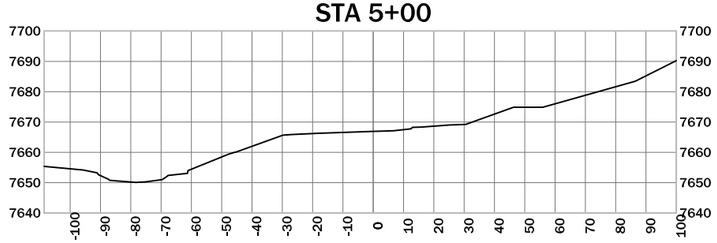
WASTE ROCK EXCAVATION CROSS SECTIONS STA 0+00 TO 4+50

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
WRE-2AB

Cover Soil Material Volume Table		
Station	Fill Volume (bcy)	Cumulative Fill Vol (bcy)
0+00.00	0.00	0.00
0+25.00	0.00	0.00
0+50.00	455.18	455.18
0+75.00	1433.09	1888.26
1+00.00	2343.83	4232.09
1+25.00	2998.71	7230.80
1+50.00	3661.85	10892.65
1+75.00	4482.66	15375.30
2+00.00	5120.12	20495.43
2+25.00	5220.87	25716.30
2+50.00	3892.02	29608.32
2+75.00	1593.67	31201.99
3+00.00	433.69	31635.68
3+25.00	715.96	32351.64
3+50.00	1106.06	33457.70
3+75.00	688.85	34146.55
4+00.00	125.47	34272.02
4+25.00	4.42	34276.44
4+50.00	0.00	34276.44
4+75.00	0.00	34276.44
5+00.00	0.00	34276.44
5+25.00	0.00	34276.44
5+50.00	0.00	34276.44
5+75.00	0.00	34276.44





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DISPLAYED AS:
COORD SYS/ZONE: NA
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UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 25 50

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

WASTE ROCK
EXCAVATION
CROSS SECTIONS
STA 5+00 TO 5+50

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
WRE-3AB

LEGEND

- 2011 CONSTRUCTION SEASON
- 2012 CONSTRUCTION SEASON
- 2013 CONSTRUCTION SEASON
- 2014 CONSTRUCTION SEASON
- 2010-2014 CONSTRUCTION SEASON

REVISION:

DATE:	BY:	DESC:

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PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

N

SCALE IN FEET
0 100 200

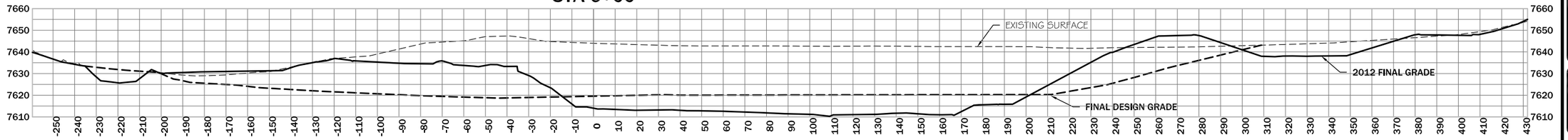
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

TAILINGS EXCAVATION AND SEQUENCE

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
TE-1AB

STA 6+00



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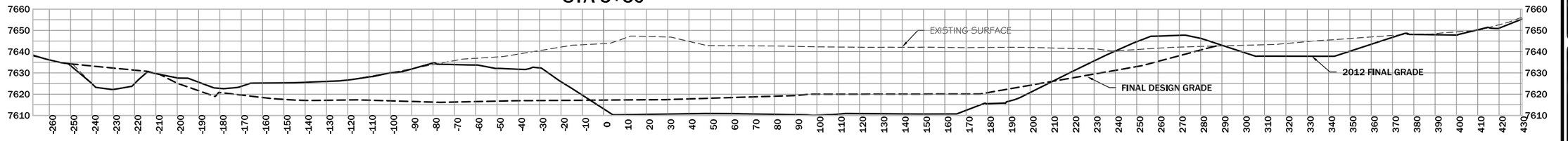

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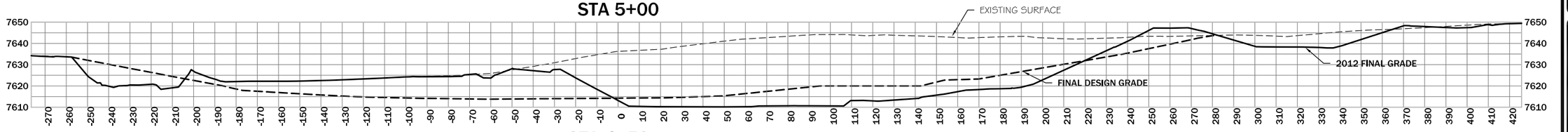

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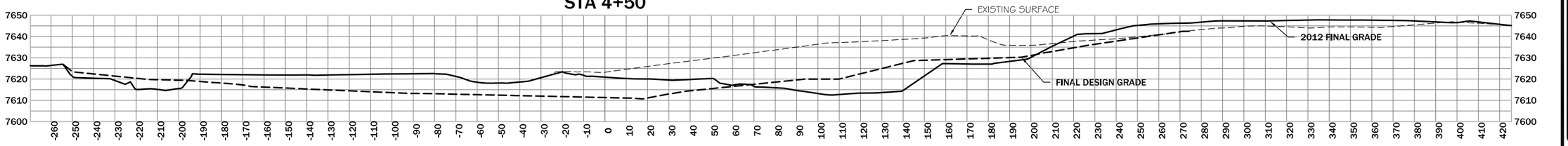

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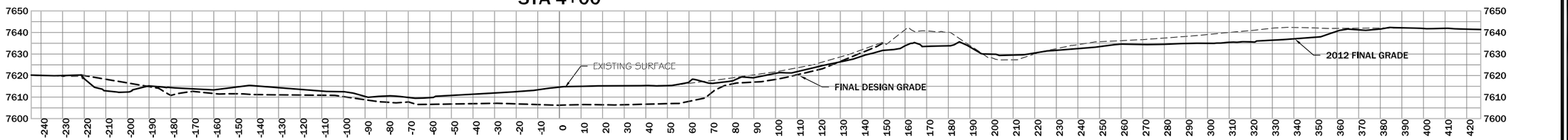

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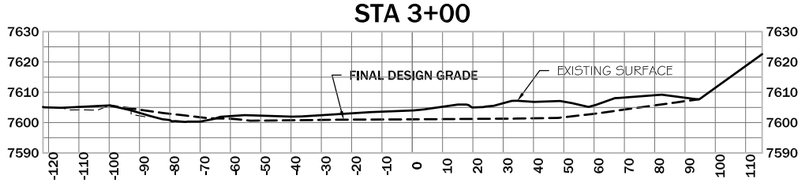

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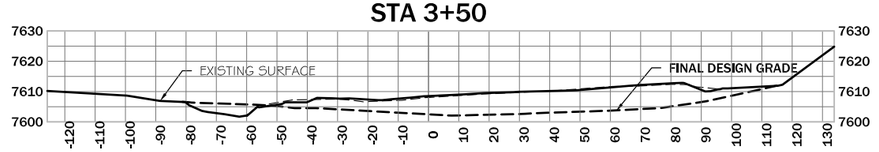
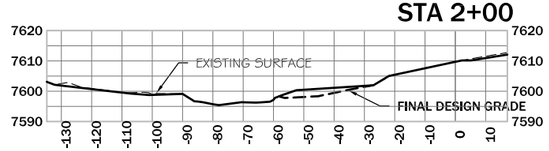
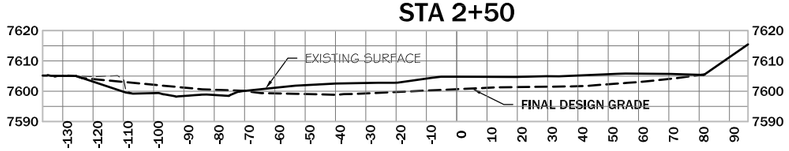


STA 2+00



STA 2+50



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DESIGNED BY: MCB
CHECKED BY: JSM
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 25 50

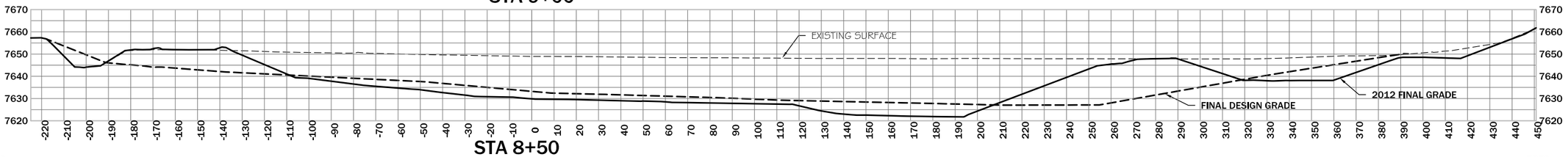
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

TAILINGS EXCAVATION CROSS SECTIONS
STA 2+00 TO 6+00

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
TE-2AB

STA 9+00



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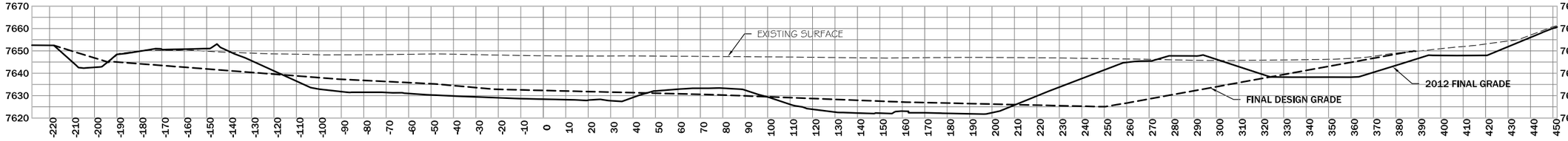

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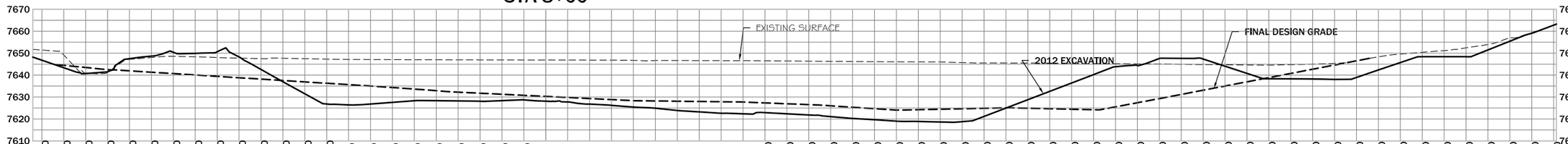

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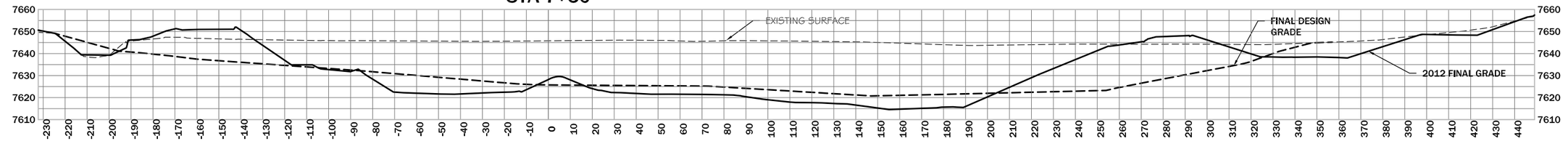

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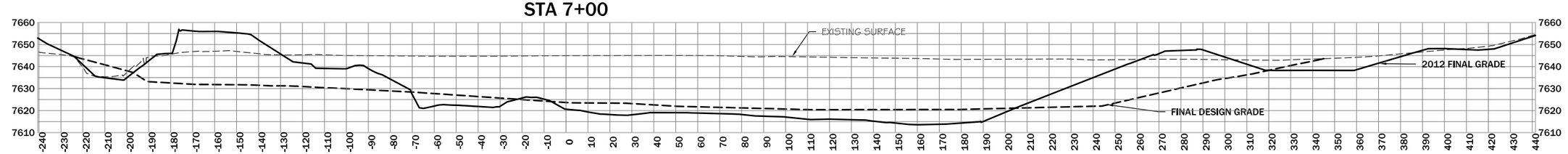

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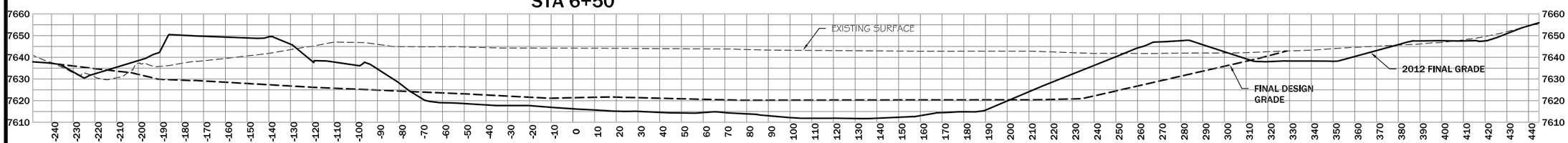

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DISPLAYED AS:
COORD SYS/ZONE: NA
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UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 25 50

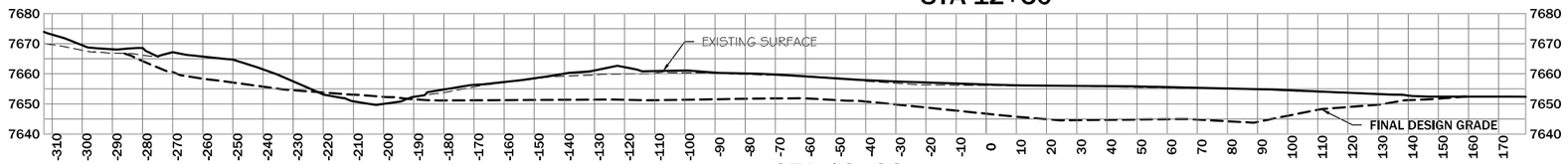
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

TAILINGS EXCAVATION CROSS SECTIONS STA 6+50 TO 9+00

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
TE-3AB

STA 12+50



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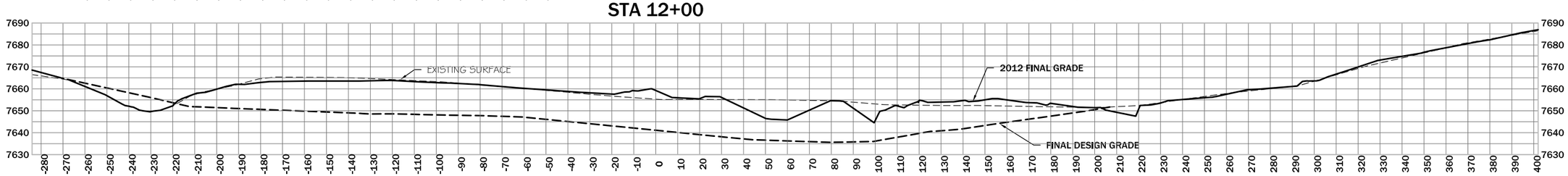

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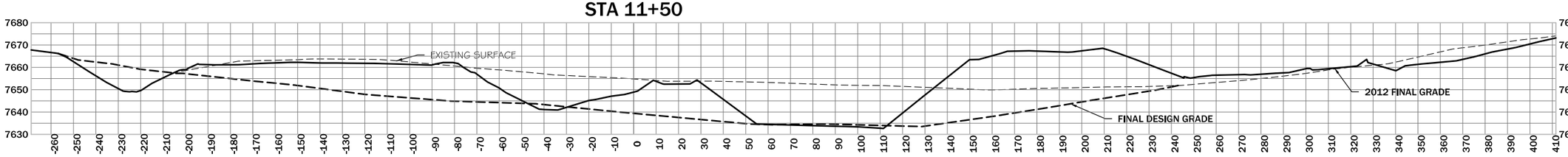

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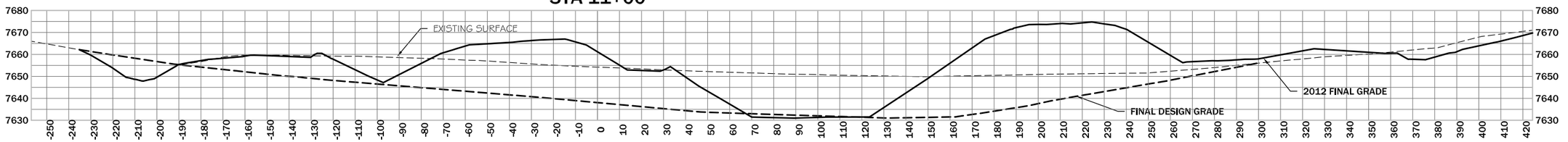

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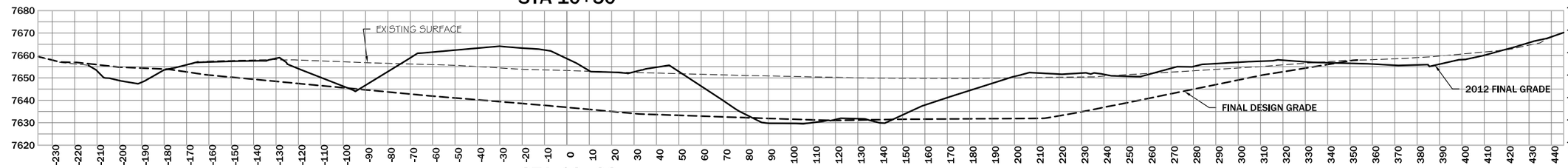

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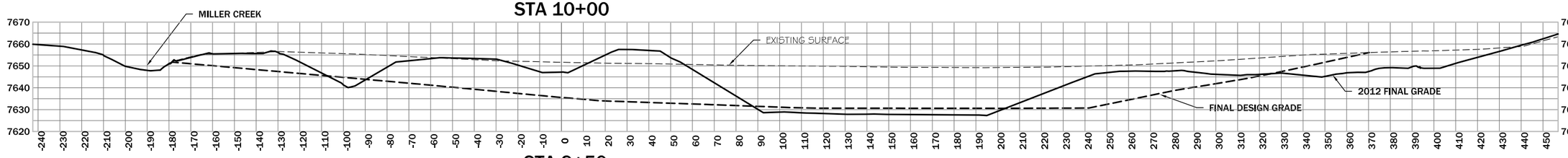

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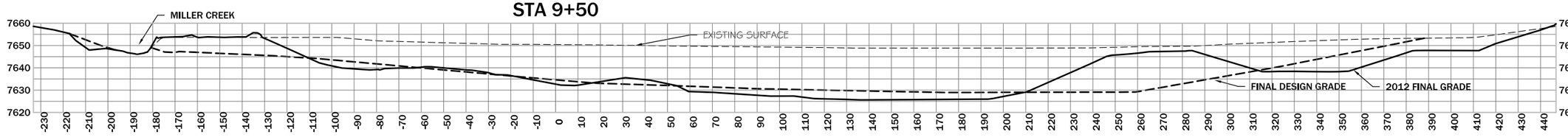

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SOURCE: PIONEER

SCALE IN FEET
0 25 50

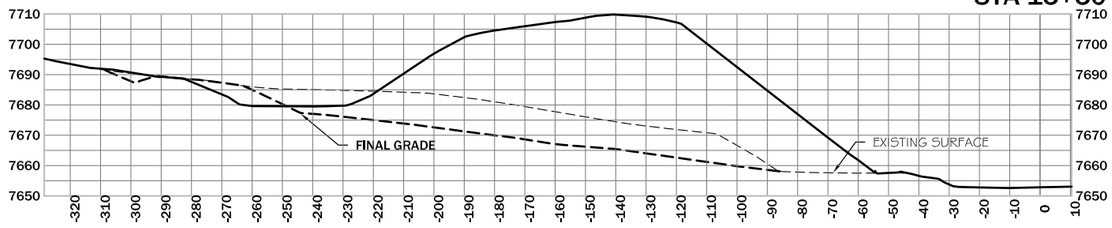
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

TAILINGS EXCAVATION
CROSS SECTIONS
STA 9+50 TO 12+50

PIONEER
TECHNICAL SERVICES, INC.
63-4/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
TE-4AB

STA 15+50



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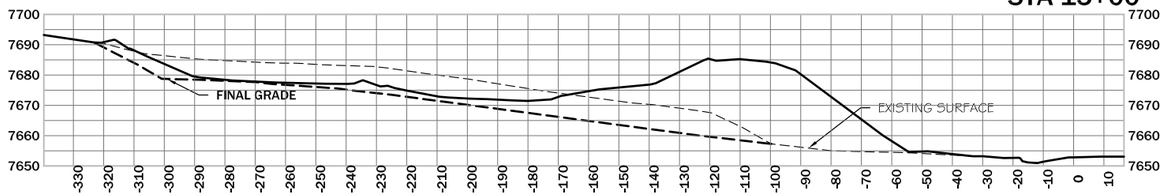

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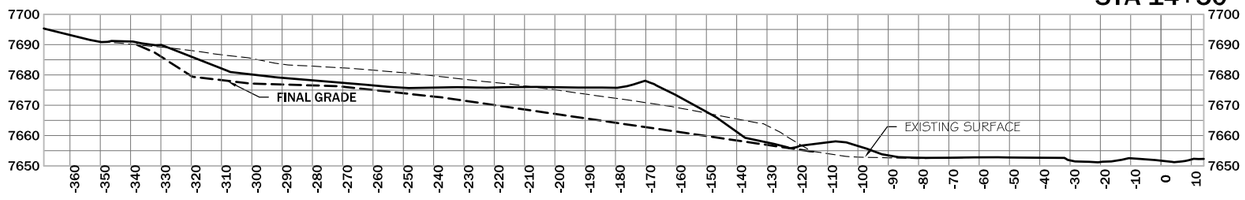

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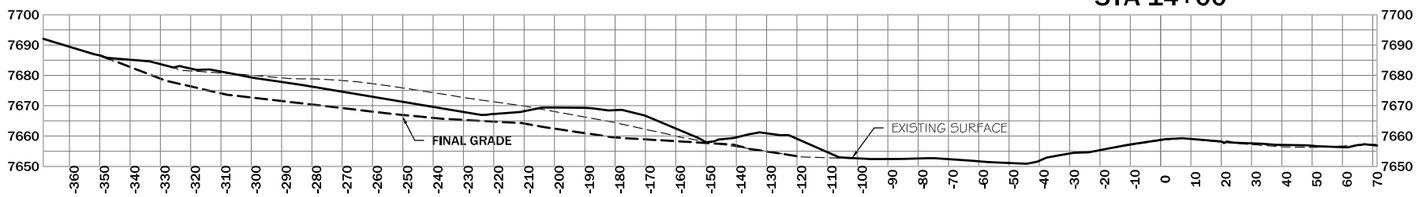

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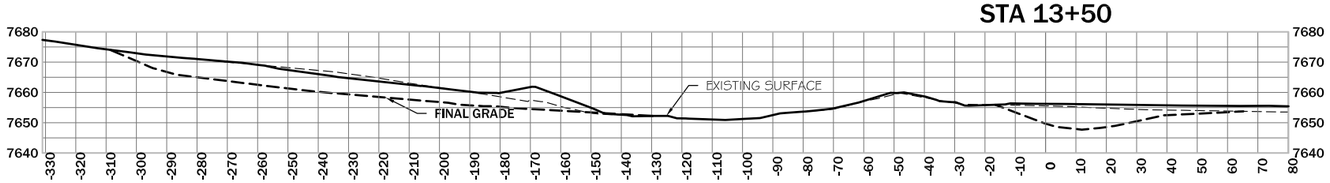
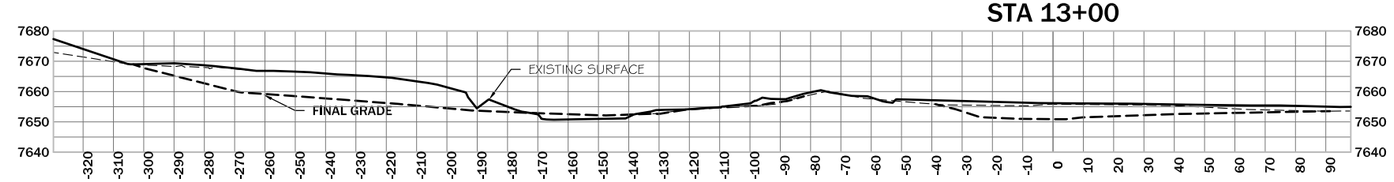


STA 13+00



REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: MCB
CHECKED BY: JSM
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

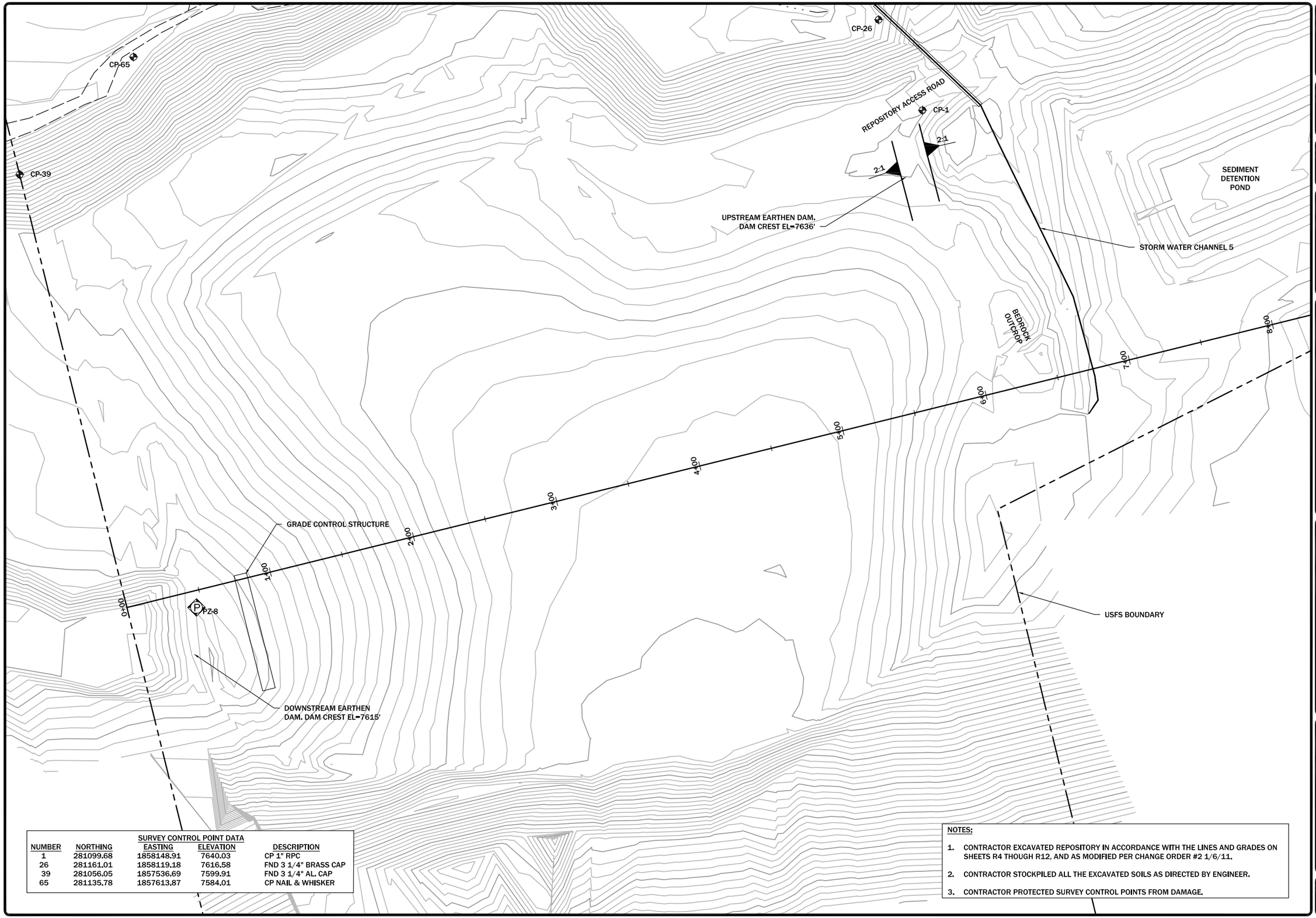
SCALE IN FEET
0 25 50

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

TAILINGS EXCAVATION CROSS SECTIONS STA 13+00 TO 15+50

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
TE-5AB



SURVEY CONTROL POINT DATA

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	281099.68	1858148.91	7640.03	CP 1" RPC
26	281161.01	1858119.18	7616.58	FND 3 1/4" BRASS CAP
39	281056.05	1857536.69	7599.91	FND 3 1/4" AL. CAP
65	281135.78	1857613.87	7584.01	CP NAIL & WHISKER

NOTES:

1. CONTRACTOR EXCAVATED REPOSITORY IN ACCORDANCE WITH THE LINES AND GRADES ON SHEETS R4 THOUGH R12, AND AS MODIFIED PER CHANGE ORDER #2 1/6/11.
2. CONTRACTOR STOCKPILED ALL THE EXCAVATED SOILS AS DIRECTED BY ENGINEER.
3. CONTRACTOR PROTECTED SURVEY CONTROL POINTS FROM DAMAGE.

REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

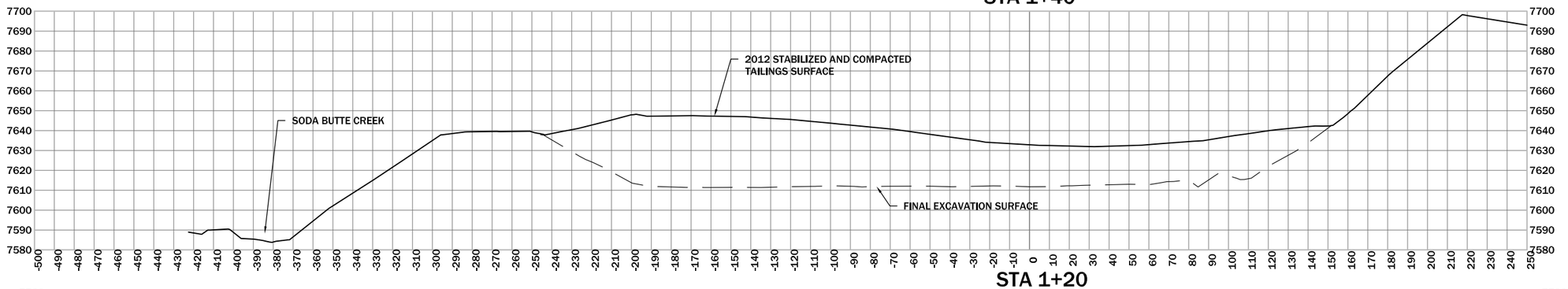
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY FINAL EXCAVATION PLAN

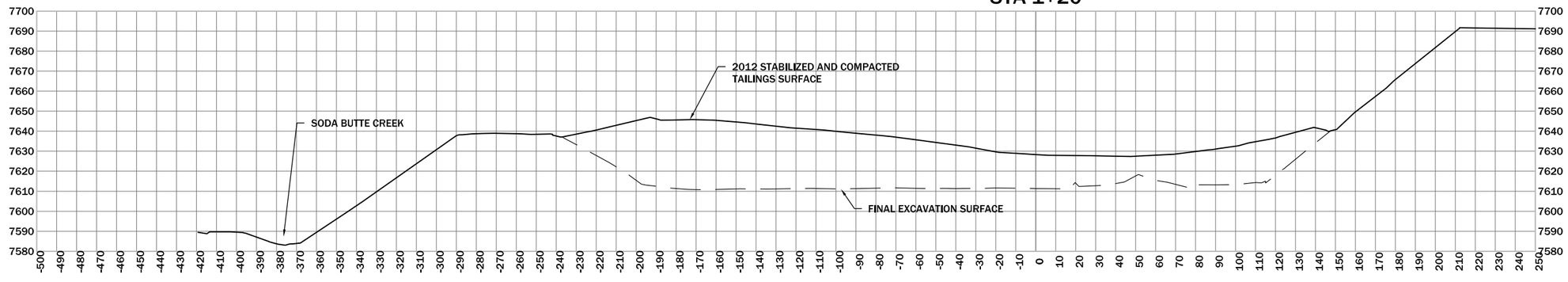
PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-2AB

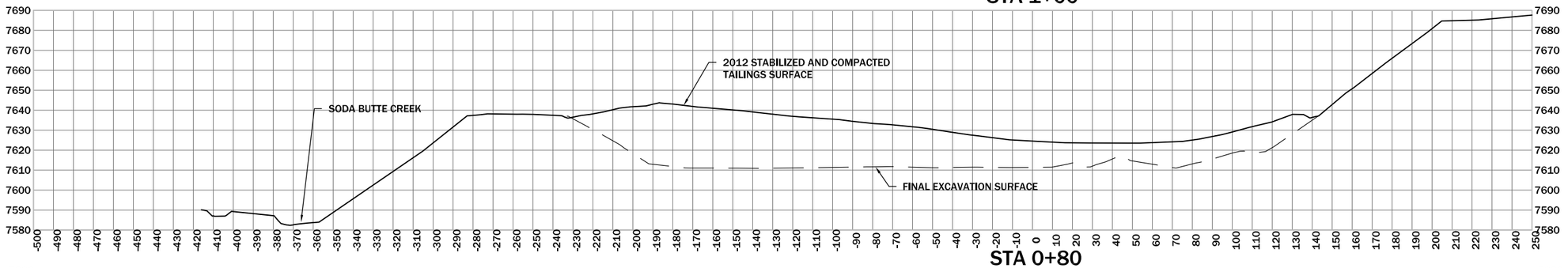
STA 1+40



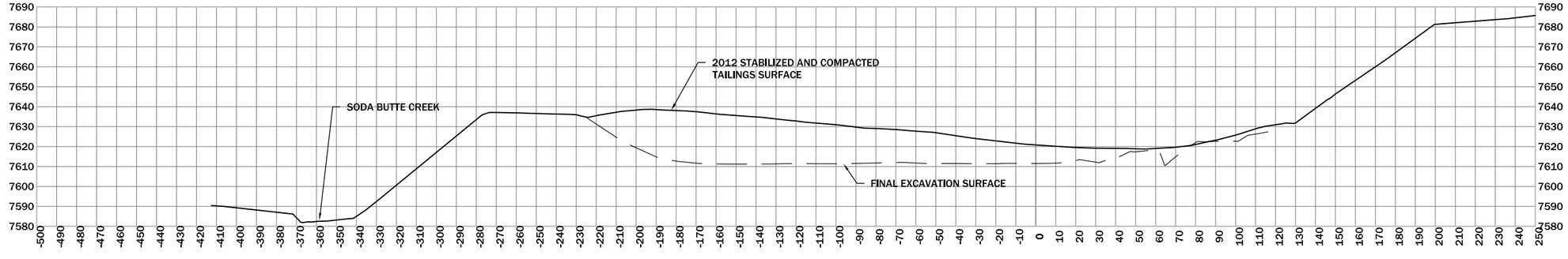
STA 1+20



STA 1+00



STA 0+80



REVISION:		
DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

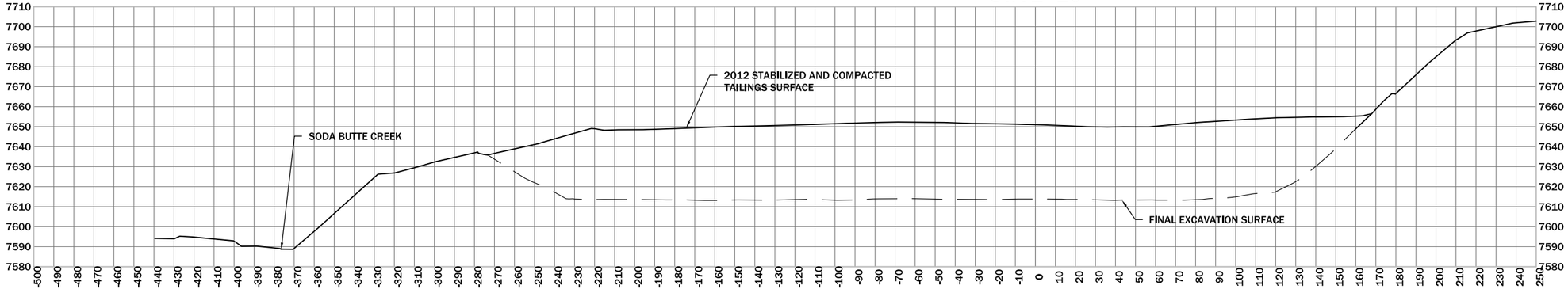
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY
CROSS
SECTIONS
STA 0+80 TO 1+40

PIONEER
TECHNICAL SERVICES, INC.
63-A 2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-5AB

STA 2+20



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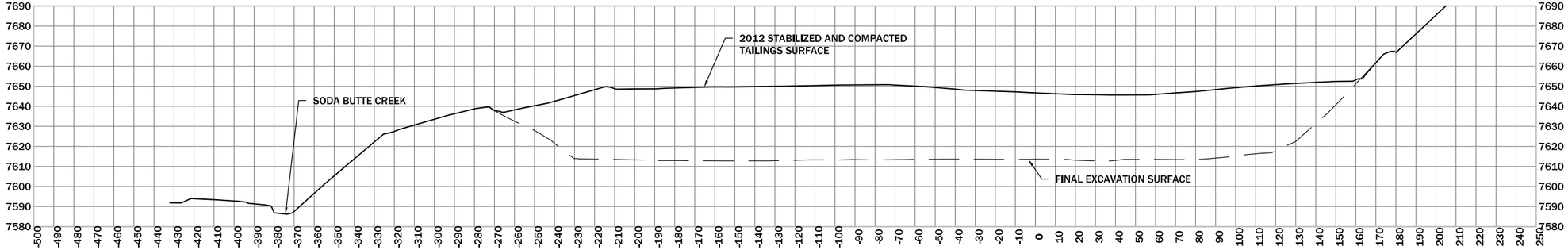
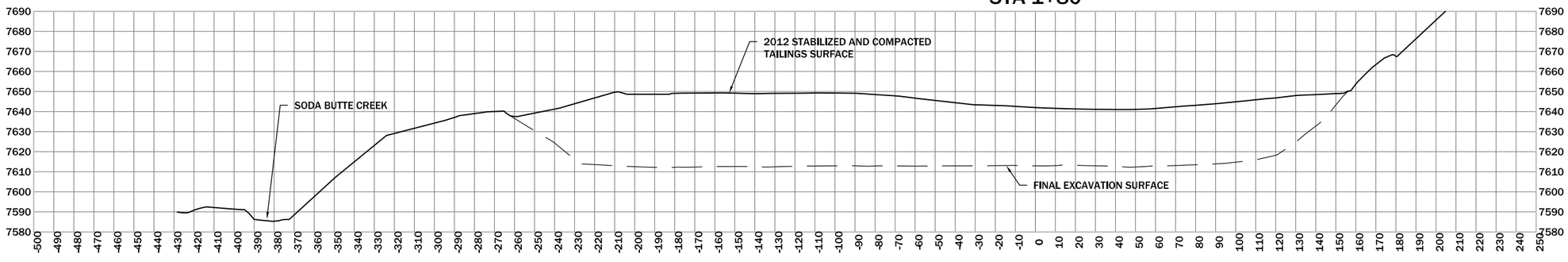
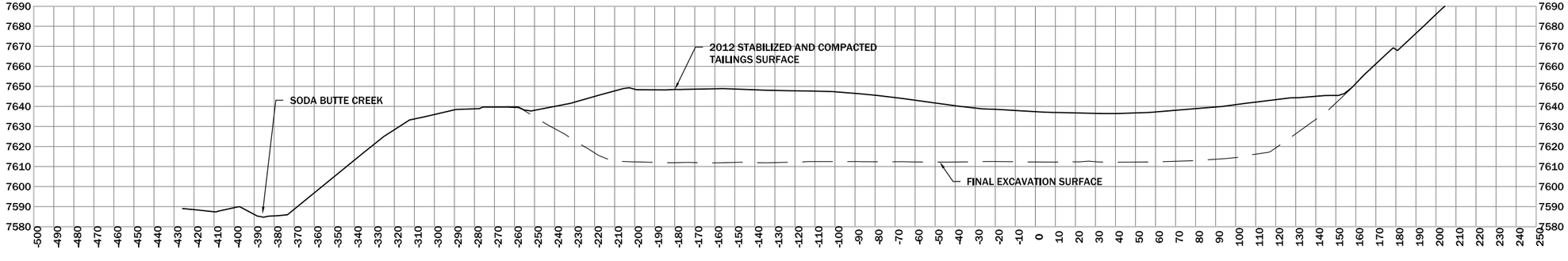


STA 1+80



STA 1+60



REVISION:

DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

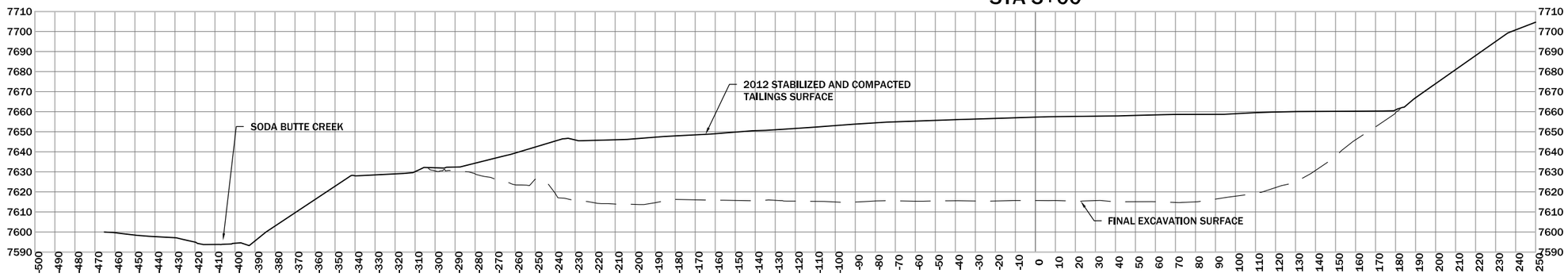
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY CROSS SECTIONS STA 1+60 TO 2+20

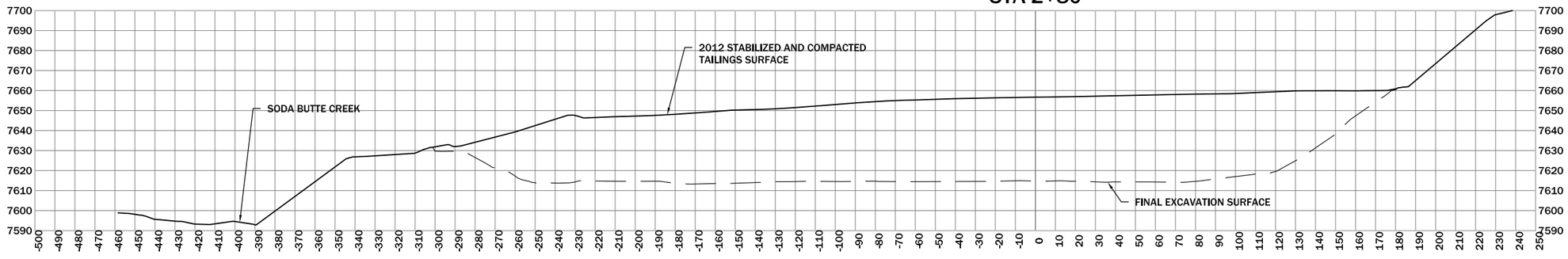
PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-6AB

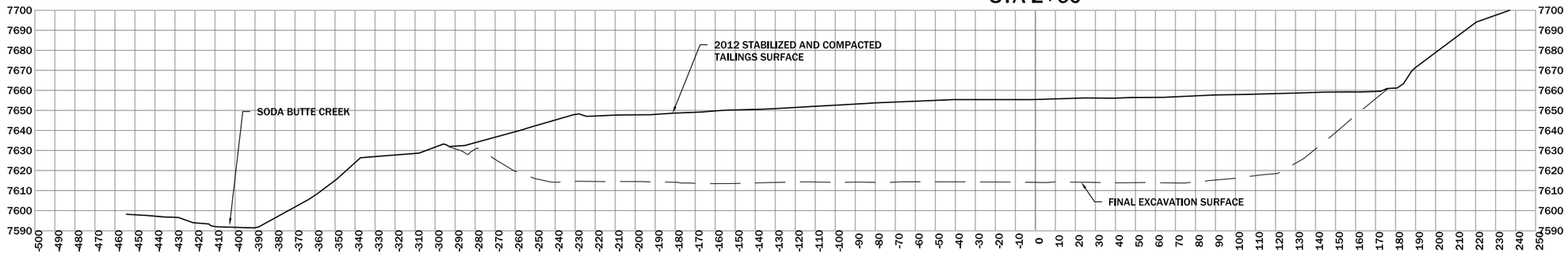
STA 3+00



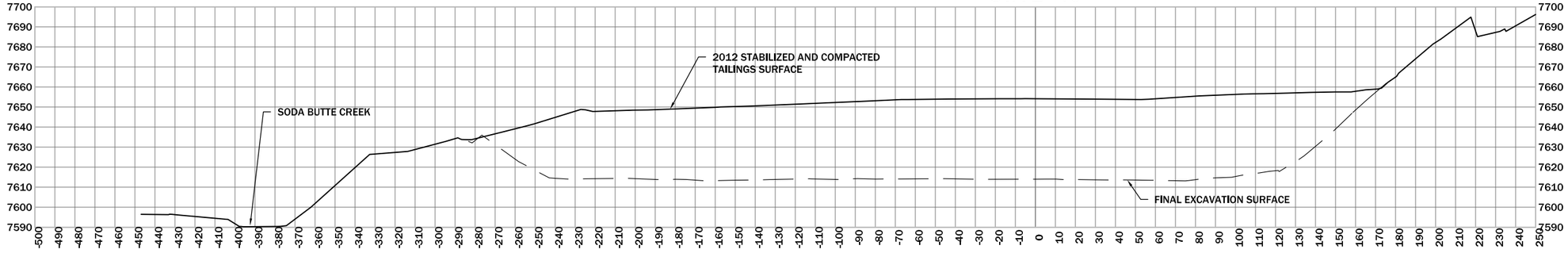
STA 2+80



STA 2+60



STA 2+40



REVISION:		
DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

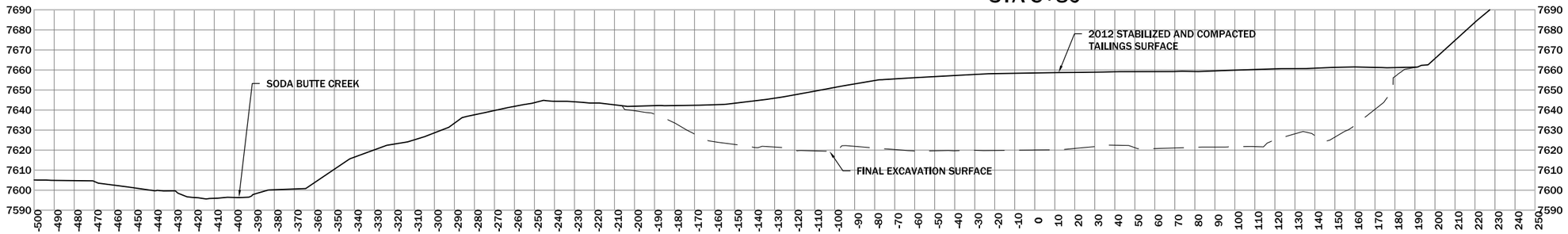
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY CROSS SECTIONS STA 2+40 TO 3+00

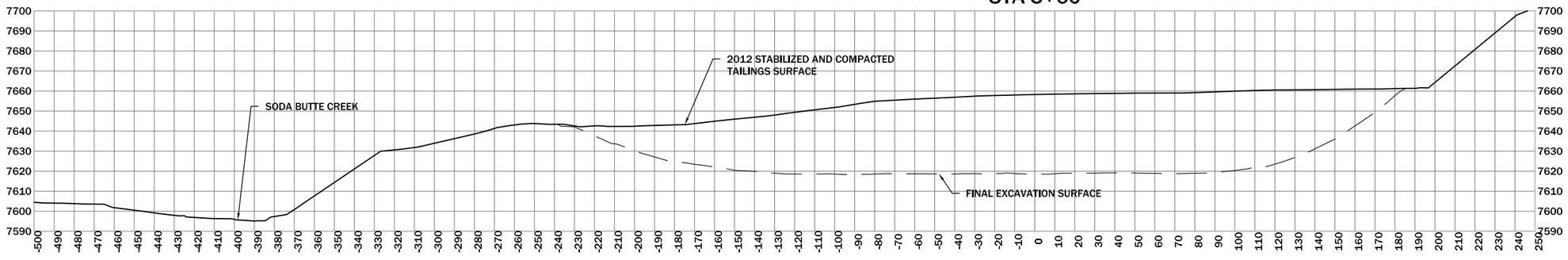
PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-7AB

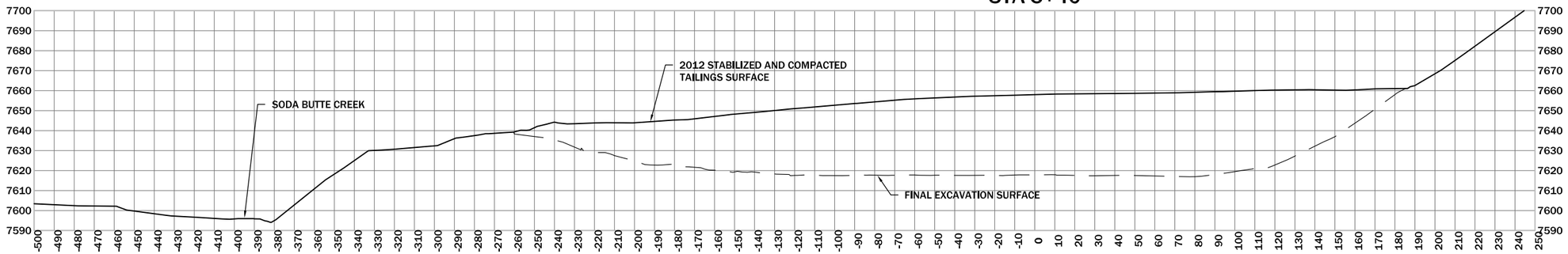
STA 3+80



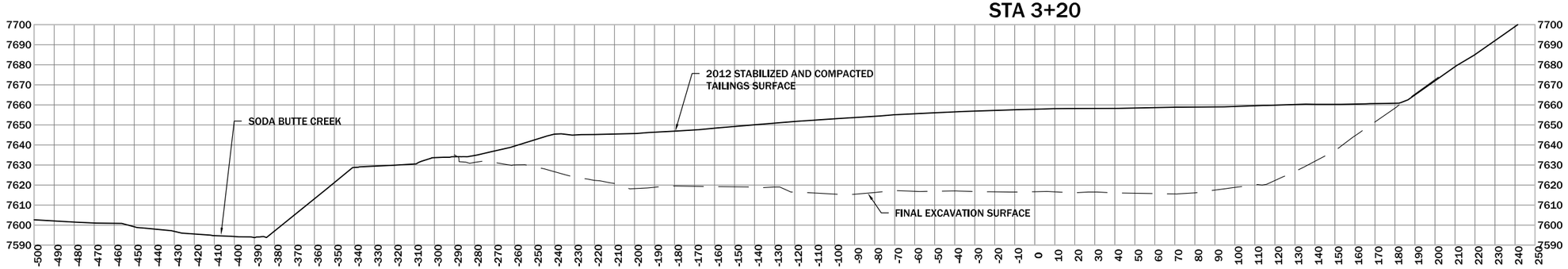
STA 3+60



STA 3+40



STA 3+20



REVISION:

DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

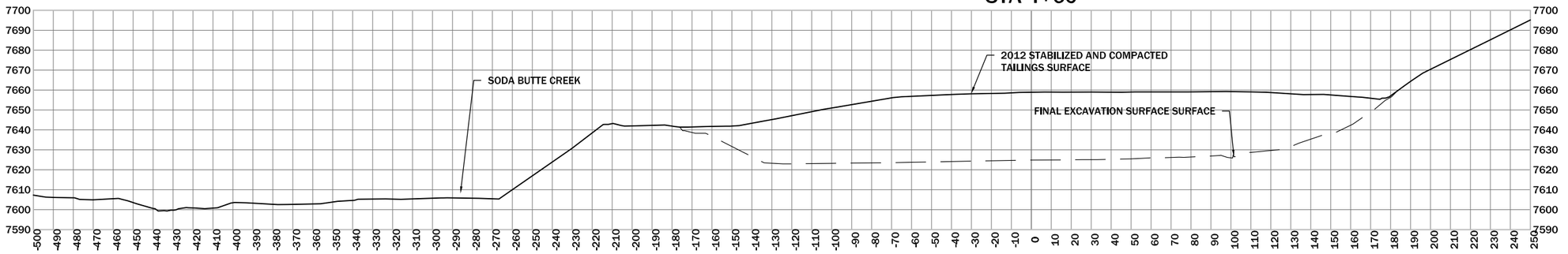
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY CROSS SECTIONS STA 3+20 TO 3+80

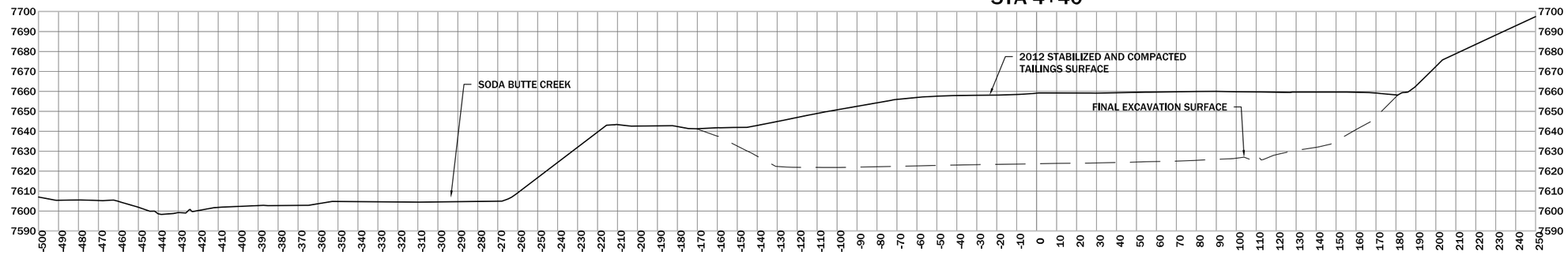
PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET R-8AB

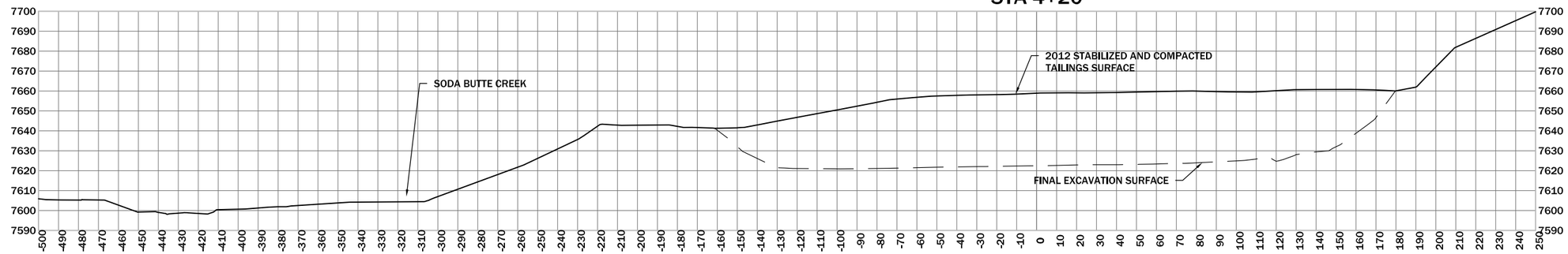
STA 4+60



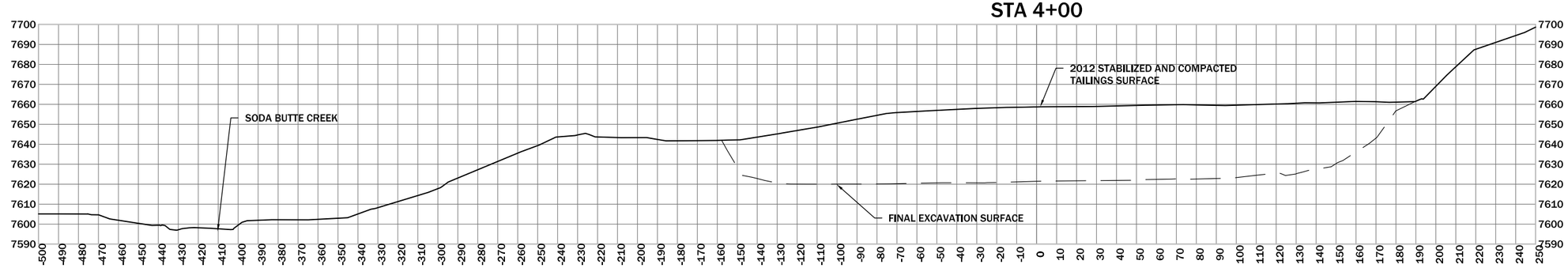
STA 4+40



STA 4+20



STA 4+00



REVISION:		
DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

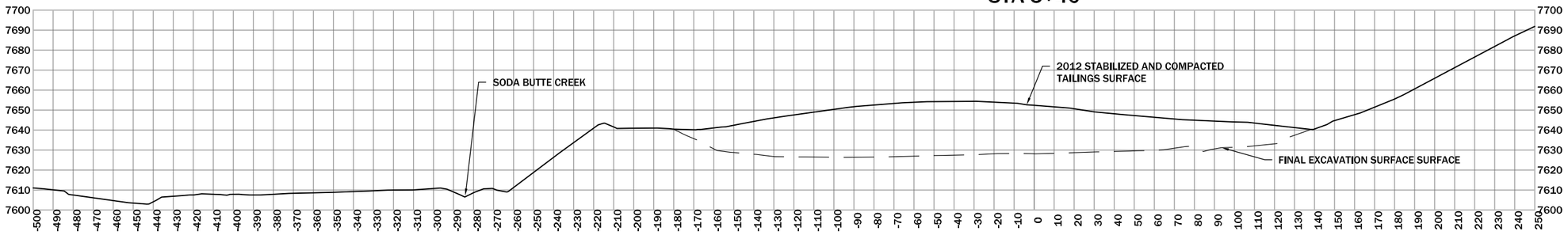
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY
CROSS
SECTIONS
STA 4+00 TO 4+60

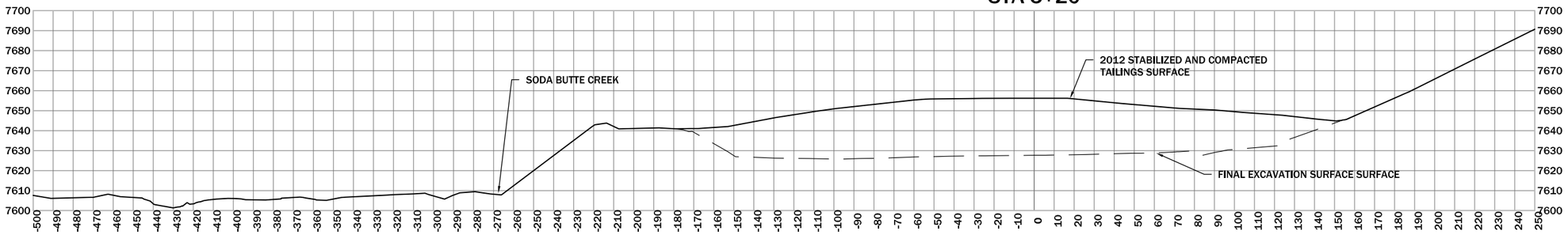
PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-9AB

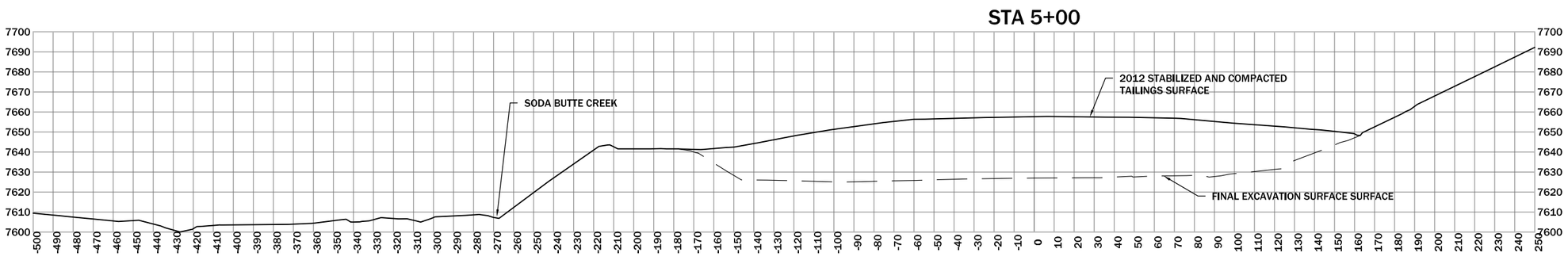
STA 5+40



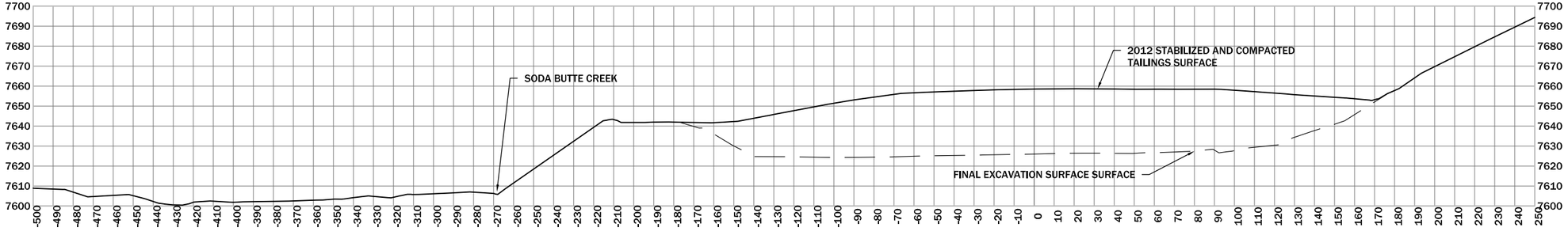
STA 5+20



STA 5+00



STA 4+80



REVISION:		
DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

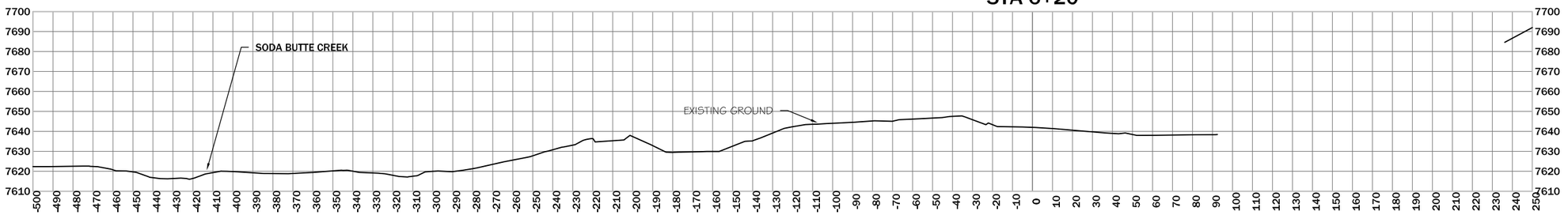
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY CROSS SECTIONS
STA 4+80 TO 5+40

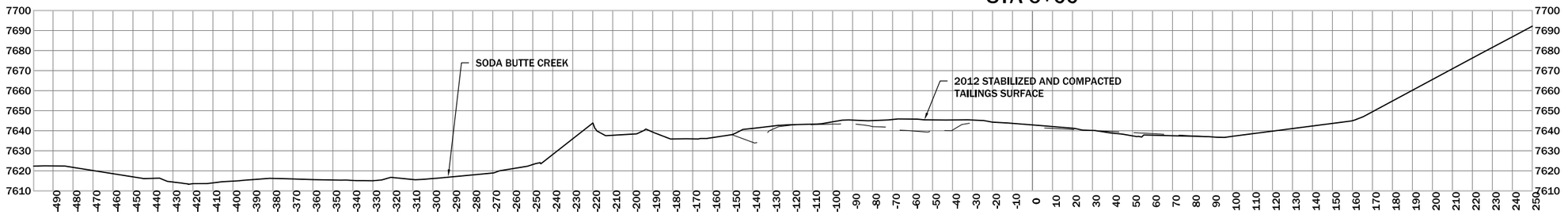
PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-10AB

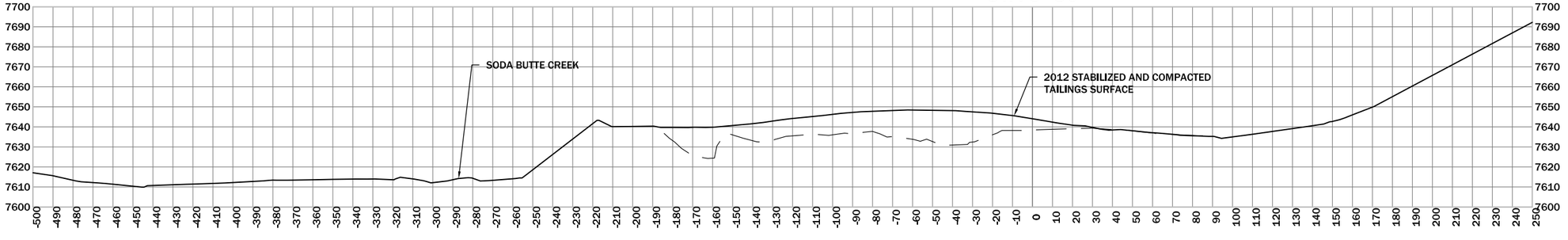
STA 6+20



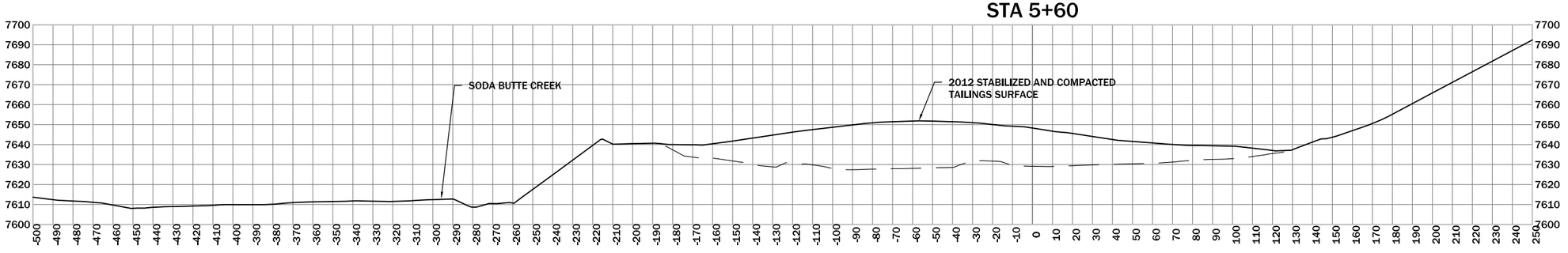
STA 6+00



STA 5+80



STA 5+60



REVISION:

DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

SCALE IN FEET
0 30 60

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY CROSS SECTIONS
STA 5+60 TO 6+20

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-11AB

TOTAL REPOSITORY EXCAVATION (bcy)			
Station	Cut Area	Cut Volume	Cumulative Cut Vol
0+00.00	17.33	0.00	0.00
0+20.00	88.58	39.23	39.23
0+40.00	606.97	257.61	296.84
0+60.00	2222.53	1047.96	1344.80
0+80.00	3701.56	2194.11	3538.91
1+00.00	4494.77	3035.68	6574.58
1+20.00	5085.85	3548.38	10122.96
1+40.00	5280.92	3839.54	13962.51
1+60.00	5800.24	4104.13	18066.64
1+80.00	6050.66	4389.22	22455.86
2+00.00	6349.62	4592.70	27048.56
2+20.00	6991.65	4941.21	31989.77
2+40.00	7465.35	5354.44	37344.21
2+60.00	8089.65	5761.11	43105.32
2+80.00	8265.80	6057.57	49162.89
3+00.00	7907.72	5990.19	55153.08
3+20.00	7007.01	5523.97	60677.06
3+40.00	6066.92	4842.19	65519.25
3+60.00	3846.98	3671.81	69191.07
3+80.00	2708.53	2427.97	71619.03
4+00.00	2239.17	1832.48	73451.51
4+20.00	2636.56	1805.83	75257.34
4+40.00	2426.37	1875.16	77132.50
4+60.00	2325.71	1760.03	78892.53
4+80.00	2137.63	1653.09	80545.61
5+00.00	2177.89	1598.34	82143.95
5+20.00	1661.95	1422.16	83566.12
5+40.00	1472.14	1160.78	84726.89
5+60.00	1340.19	1041.61	85768.50
5+80.00	276.23	598.67	86367.17
6+00.00	20.99	110.08	86477.26
6+20.00	3.51	9.07	86486.33
6+40.00	6.78	3.81	86490.14

2012 TAILINGS PLACED IN REPOSITORY		
Station	Fill Volume	Cumulative Fill Vol
0+00.00	0.00	0.00
0+20.00	127.87	127.87
0+40.00	361.61	489.48
0+60.00	988.60	1478.09
0+80.00	2426.23	3904.31
1+00.00	4099.83	8004.14
1+20.00	5489.55	13493.69
1+40.00	6604.86	20098.54
1+60.00	7686.15	27784.69
1+80.00	8743.44	36528.13
2+00.00	9630.84	46158.96
2+20.00	10473.59	56632.56
2+40.00	11186.20	67818.76
2+60.00	11654.13	79472.89
2+80.00	11924.84	91397.73
3+00.00	11819.45	103217.18
3+20.00	11235.66	114452.84
3+40.00	10444.30	124897.14
3+60.00	9674.05	134571.19
3+80.00	9038.29	143609.48
4+00.00	8490.39	152099.87
4+20.00	8011.63	160111.50
4+40.00	7621.29	167732.79
4+60.00	7234.80	174967.59
4+80.00	6778.28	181745.87
5+00.00	6252.60	187998.48
5+20.00	5603.17	193601.65
5+40.00	4207.43	197809.1
5+60.00	3270.03	201079.11
5+80.00	2179.39	203258.50
6+00.00	1350.49	204608.99
6+20.00	291.04	204900.00
6+40.00	0.00	204900.00

REVISION:

DATE:	BY:	DESC:
1/6/10	JSM	MODIFIED REPOSITORY FLOOR

DRAWN BY: CLA
DESIGNED BY: SDB
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

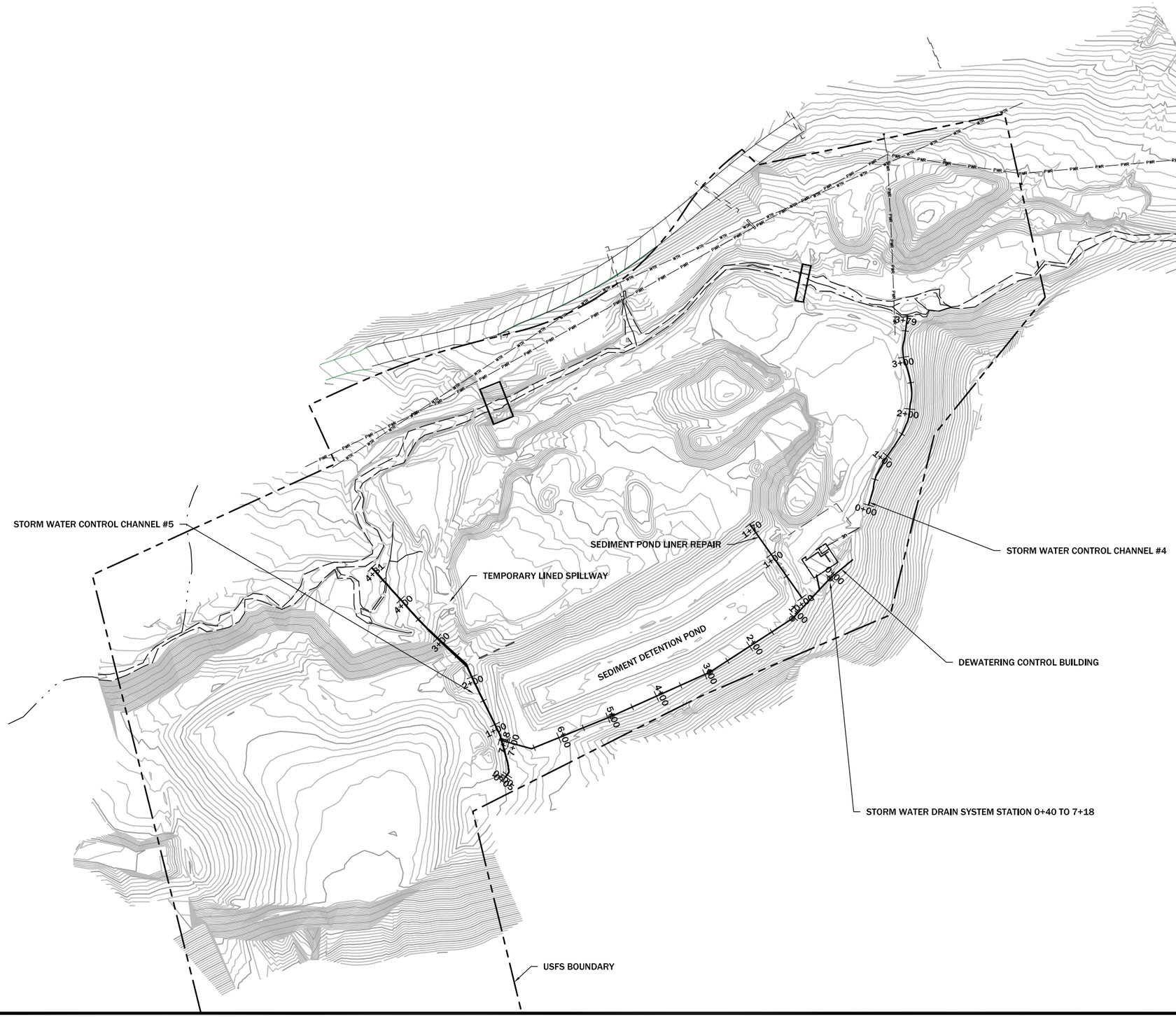
SCALE IN FEET
0 N.T.S.

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

REPOSITORY CROSS SECTION VOLUME TABLE

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
R-12AB



REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: JSM
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

N

SCALE IN FEET
0 100 200

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

STORM WATER CONTROLS PLAN VIEW

PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
SW-1AB

LEGEND

HYDRO MULCH (5.1 AC)

REVISION: DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: JSM
CHECKED BY: MCB
APPROVED BY: JSM
PROJECT NO: 10160
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAD83
UNITS: FEET
SOURCE: PIONEER

N

SCALE IN FEET
0 100 200

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

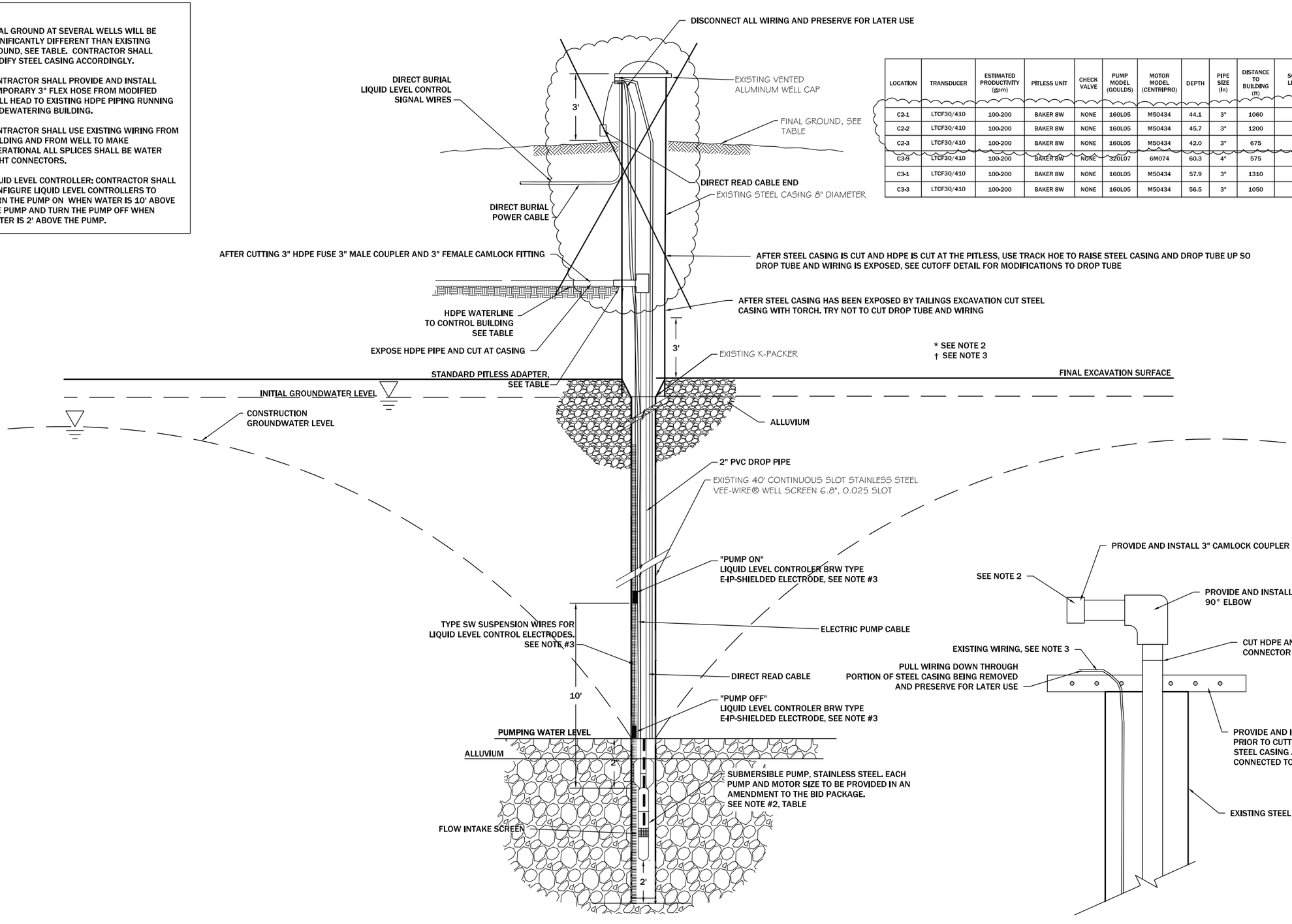
REVEGETATION PLAN

PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406)-782-5177

SHEET
C-1AB

NOTES:

1. FINAL GROUND AT SEVERAL WELLS WILL BE SIGNIFICANTLY DIFFERENT THAN EXISTING GROUND, SEE TABLE. CONTRACTOR SHALL MODIFY STEEL CASING ACCORDINGLY.
2. CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY 3" FLEX HOSE FROM MODIFIED WELL HEAD TO EXISTING HDPE PIPING RUNNING TO DEWATERING BUILDING.
3. CONTRACTOR SHALL USE EXISTING WIRING FROM BUILDING AND FROM WELL TO MAKE OPERATIONAL ALL SPLICES SHALL BE WATER TIGHT CONNECTORS.
4. LIQUID LEVEL CONTROLLER: CONTRACTOR SHALL CONFIGURE LIQUID LEVEL CONTROLLERS TO TURN THE PUMP ON WHEN WATER IS 10' ABOVE THE PUMP AND TURN THE PUMP OFF WHEN WATER IS 2' ABOVE THE PUMP.



LOCATION	TRANSDUCER	ESTIMATED PRODUCTIVITY (gpm)	PITLESS UNIT	CHECK VALVE	PUMP MODEL (GOULDS)	MOTOR MODEL (CENTRIPRO)	DEPTH	PIPE SIZE (In)	DISTANCE TO BUILDING (ft)	SCREEN LENGTH (ft)	DEPTH TO PITLESS FROM FINAL GROUND (ft)
C2-1	LTCF30/410	100-200	BAKER 8W	NONE	160L05	M50434	44.1	3"	1060	40	0
C2-2	LTCF30/410	100-200	BAKER 8W	NONE	160L05	M50434	45.7	3"	1200	40	0
C2-3	LTCF30/410	100-200	BAKER 8W	NONE	160L05	M50434	42.0	3"	675	40	0
C3-9	LTCF30/410	100-200	BAKER 8W	NONE	320L07	6M074	60.3	4"	575	40	8
C3-1	LTCF30/410	100-200	BAKER 8W	NONE	160L05	M50434	57.9	3"	1310	20	6
C3-3	LTCF30/410	100-200	BAKER 8W	NONE	160L05	M50434	56.5	3"	1050	20	6

100 TO 300 GPM WELL INSTALLATION DETAIL

GW2

N.T.S.

CUTOFF DETAIL

N.T.S.

REVISION:

DATE:	BY:	DESC:

DRAWN BY: SKL
DESIGNED BY: MWB
CHECKED BY: JSM
APPROVED BY: MWB
PROJECT NO: 101.40
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

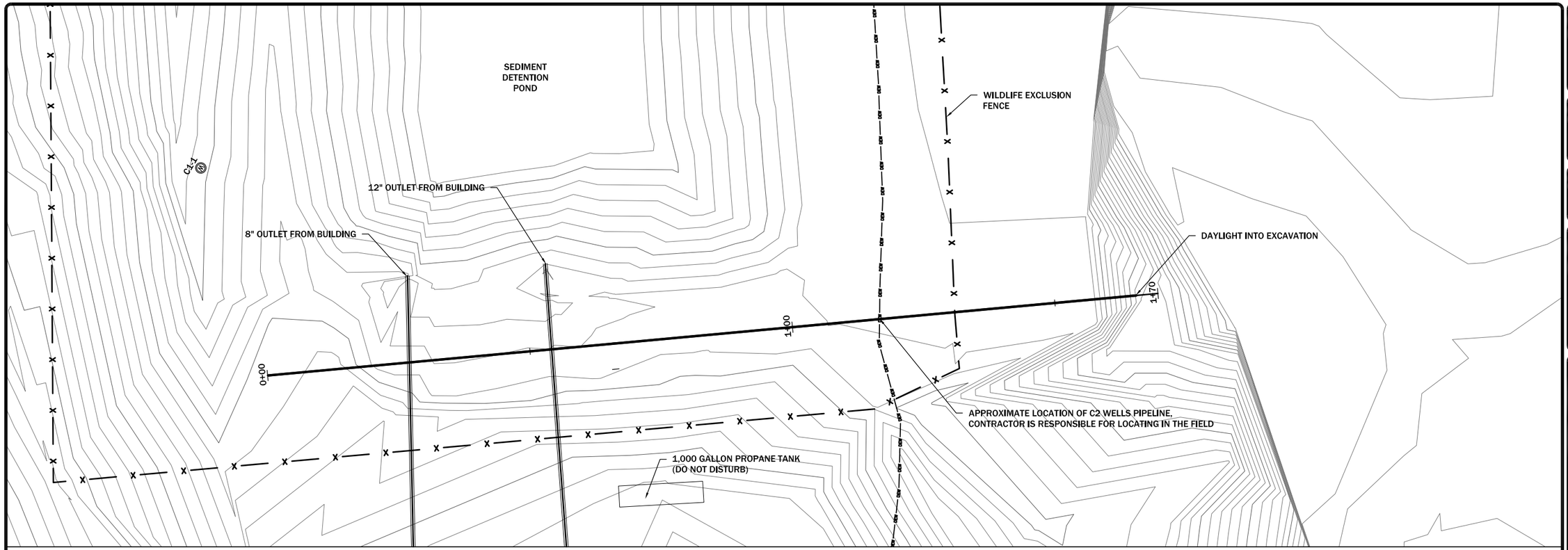
SCALE IN FEET
0 N.T.S.

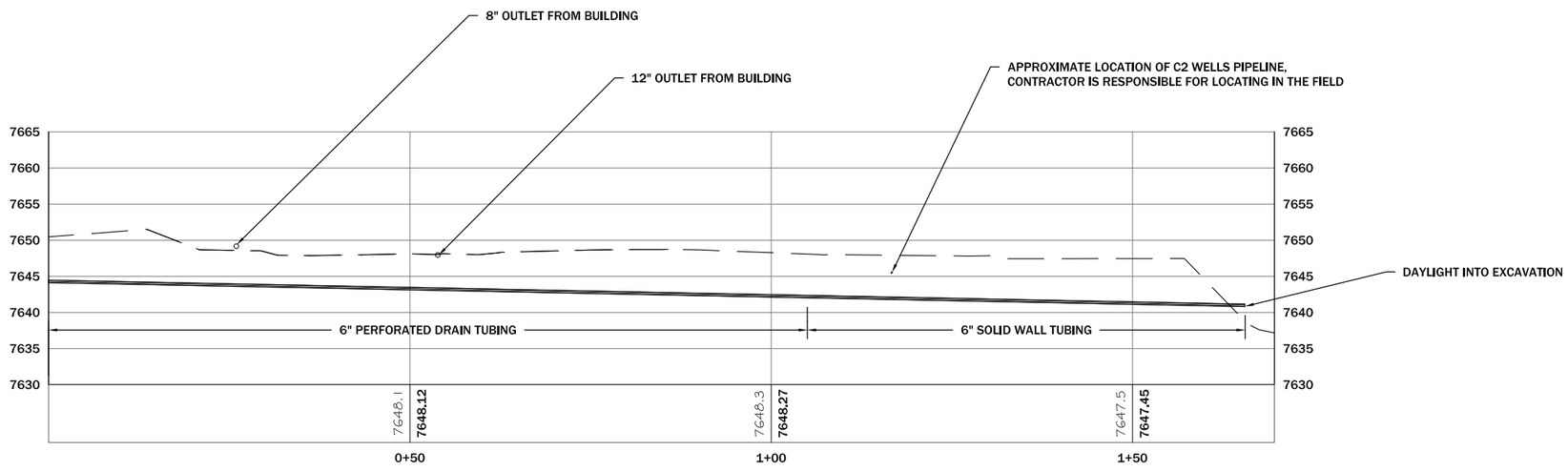
MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

C2 SERIES PUMPING WELL DETAILS

PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406) 782-5177

SHEET GWD-2AB





REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: MCB
CHECKED BY: JSM
APPROVED BY:
PROJECT NO: 10172
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: MSP
DATUM: NAVD88
UNITS: FEET
SOURCE: PIONEER

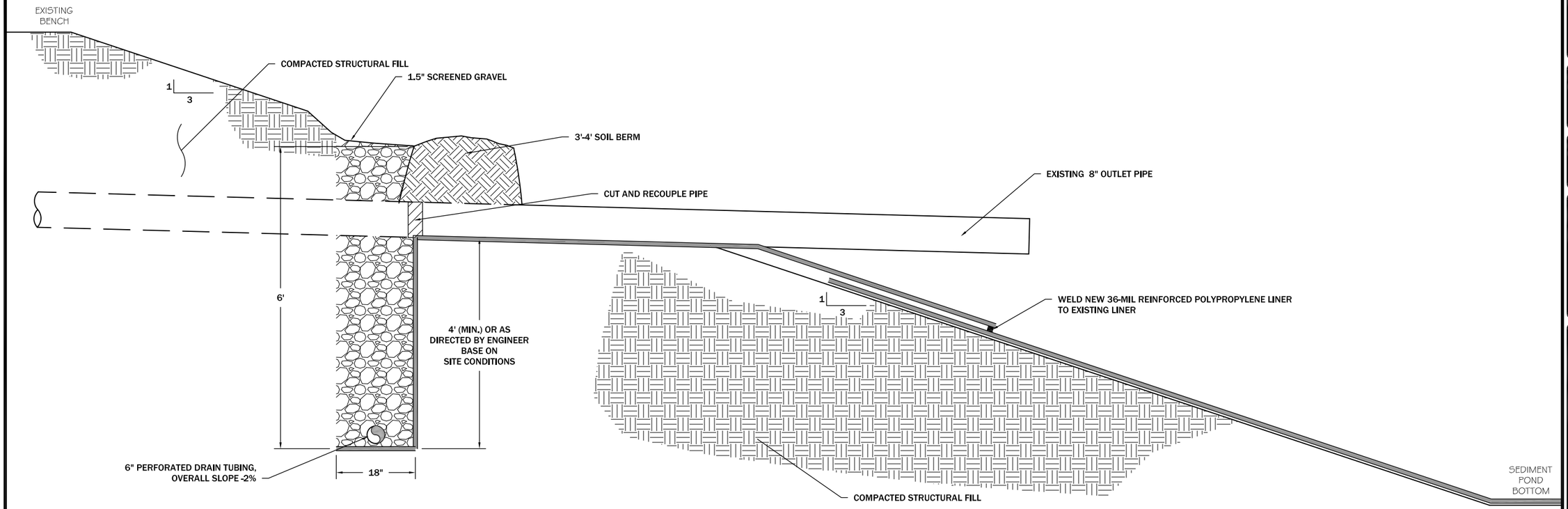
SCALE IN FEET
0 10 20

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED
MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

SEDIMENT
POND
LINER REPAIR
PLAN AND PROFILE

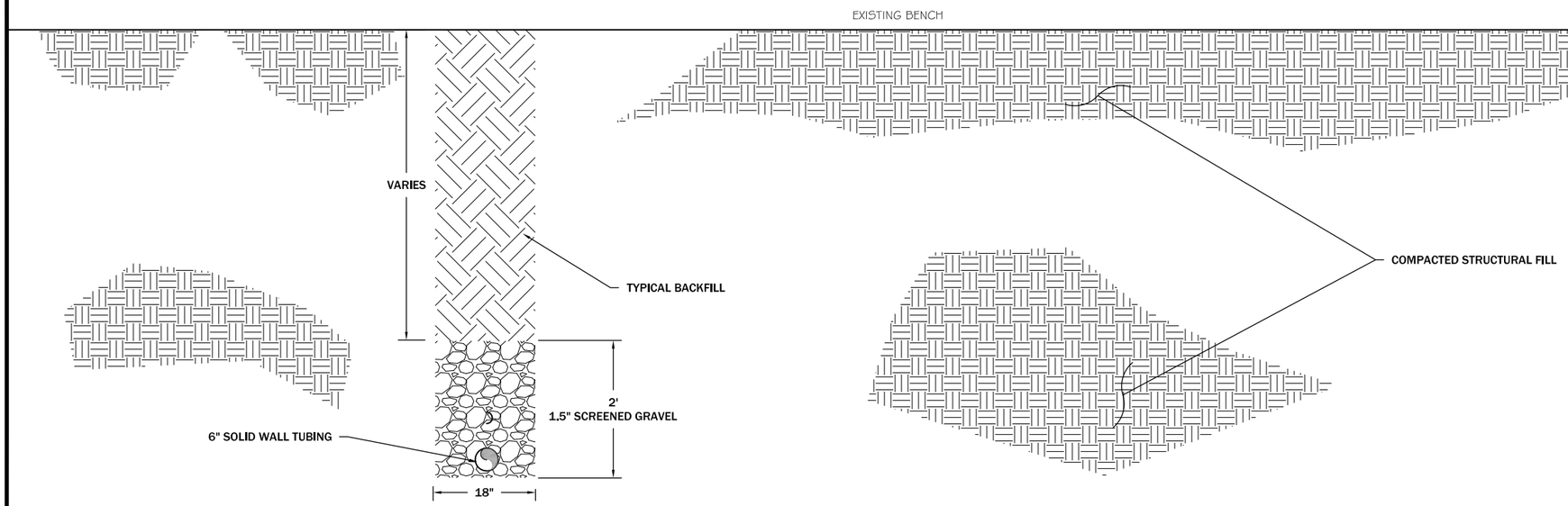
PIONEER
TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406) 782-5177

SHEET
SDP-1AB



STATION 0+00 TO 1+05

N.T.S.



STATION 1+05 TO 1+66

N.T.S.

REVISION:

DATE:	BY:	DESC:

DRAWN BY: CLA
DESIGNED BY: MCB
CHECKED BY: JSM
APPROVED BY:
PROJECT NO: 10172
DATE: 4/22/13

DISPLAYED AS:
COORD SYS/ZONE: NA
DATUM: NA
UNITS: FEET
SOURCE: PIONEER

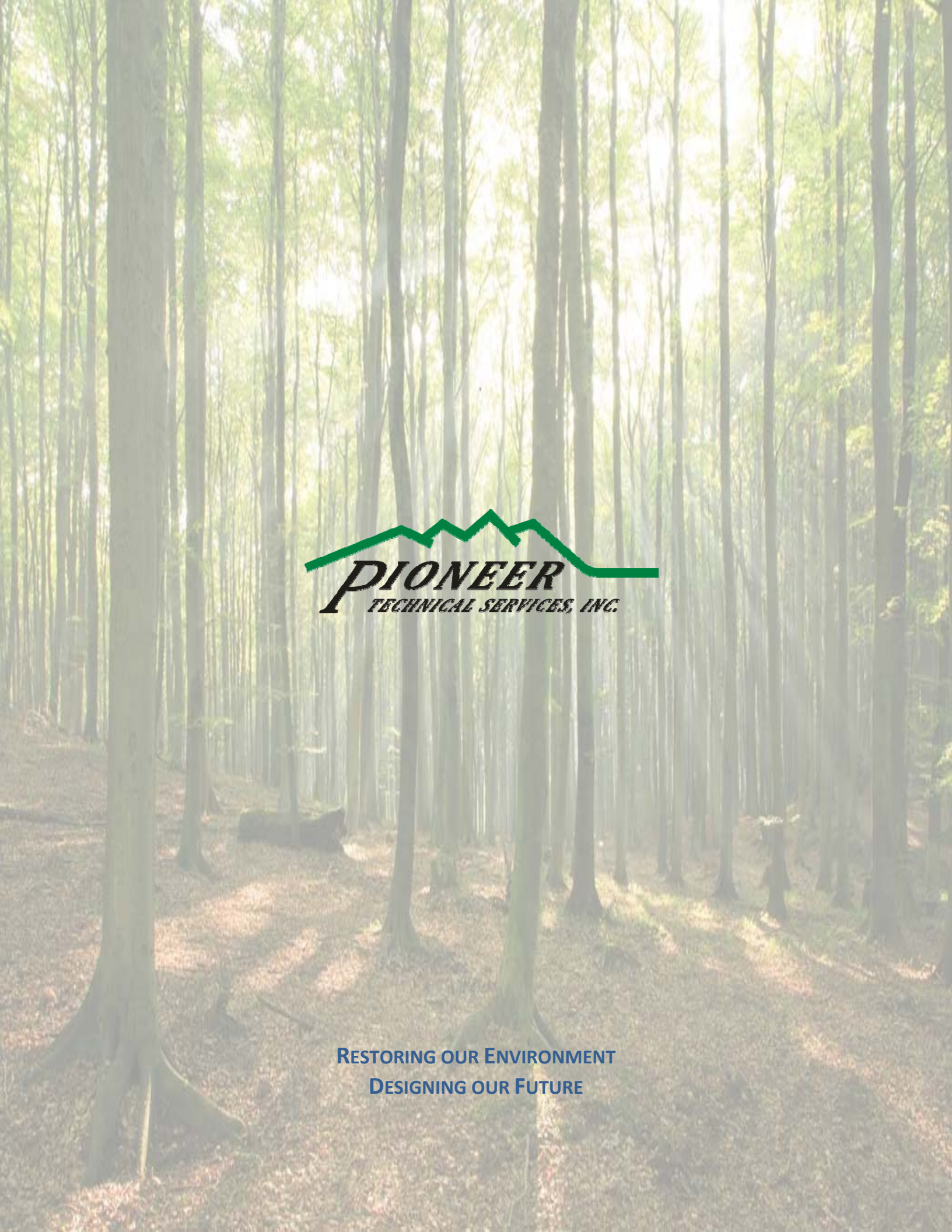
SCALE IN FEET
0 N.T.S.

MDEQ/MWCB
MCLAREN TAILINGS ABANDONED MINE SITE RECLAMATION PROJECT
2012 AS-BUILT DRAWINGS

SEDIMENT POND LINER REPAIR

PIONEER TECHNICAL SERVICES, INC.
63-1/2 WEST BROADWAY
BUTTE, MONTANA 59701
(406) 782-5177

SHEET
SDP-2AB



RESTORING OUR ENVIRONMENT
DESIGNING OUR FUTURE