APPENDIX A – PERMIT DOCUMENTS

CONTENTS

This space is reserved for recording purposes only

ENCROACHMENT PERMIT NO. L97S0891C

Permission is hereby granted to Bonner County Parks & Waterways of 1500 Highway 2, Suite 101, Sandpoint, ID, 83864, United States (USA) to install and maintain the following encroachment(s) subject to the terms and conditions of this Permit and the approved application, plans and drawings incorporated herein:

Encroachment	Description		Effective Date	Construction to be completed by
Encroachment: Breakwater	Approximately a 1500 foot long and 42 foot wide breakwater, the height of the breakwater is not to exceed an elevation of seven (7) feet above the OHWM elevation		12/10/2019	12/10/2024
Encroachment: Other Navigational	Dredging & Excavation of lake-bed materials	17,925 cubic yards	12/10/2019	12/10/2024

Located on **[Priest Lake]** in BONNER COUNTY, adjacent to:

Parcel Number	
Lot, Block, Subdivision	Subdivision: Thorofare
Section, Township, Range	T62N R04W, sec 10, Boise Meridian
Physical Addresses	
Tax/Serial Number	

Special Terms and Conditions As Per the Final Order:

1) Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed/Sheet 4 of 7 Drawing will occur prior to project completion;

2) Bonner County will submit an application for a submerged lands easement to the Idaho Department of Lands to cover the new breakwater in Priest Lake;

3) Bonner County or their contractor will obtain a Land Use Permit or other instrument approved by the Idaho Department of Lands to pay for sand and other natural lake bed materials dredged or removed from below the ordinary high water mark of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards; and

4) The species of plants selected for the breakwater must be native and as low growing as reasonably possible in order to anchor the material, yet not infringe on the viewshed

1. **General**

A. In order for this permit to be valid, Permittee must record this permit in the records of the county in which the encroachment is located and furnish proof of recordation to the Department pursuant to Idaho Code §§ 58-1305(h) and -1306(f).

B. All applicable provisions of the Lake Protection Act (Idaho Code Title 58, Chapter 13) and Rules for Regulation of Beds, Waters, and Airspace over Navigable Lakes and Streams in the State of Idaho (IDAPA 20.03.04.000 *et seq.*) are incorporated herein by reference and made a part hereof.

C. This permit does not convey the State's title to nor jurisdiction or management of lands lying below the natural or ordinary high water mark.

D. Construction must follow details and specifications shown on the approved application, plans, and drawings provided by Permittee. Should such information prove to be materially false, incomplete and/or inaccurate, this authorization may be modified, suspended, or revoked in accordance with the Administrative Procedures Act, Idaho Code Title 67, Chapter 52 and IDAPA 20.03.04.080.07. At any time, and prior to any modification to the application, plans, drawings or encroachments Permittee must consult with the Idaho Department of Lands to determine if a new permit is required.

E. Permittee shall maintain the structure or work authorized herein in a good and safe condition and in accordance with the approved application, plans and drawings. Permittee shall contact the Idaho Department of Lands 10 days prior to the planned start date of any maintenance or replacement activities.

F. Acceptance of this permit constitutes permission by Permittee for representatives of the Idaho Department of Lands to come upon Permittee's Property at all reasonable times to inspect the encroachment authorized by this permit.

G. Permittee shall indemnify, defend and save harmless the State, its officers, agents and employees from and against any and all liability, claims, damages, losses, expenses, actions, settlements, attorneys' fees, and suits whatsoever caused by, arising out of, or in connection with Permittee's acts or omissions under this permit or Permittee's failure to comply with any state or federal statute, law, regulation or rule.

H. Authorization for any activity authorized herein that is not completed on or before the completion date identified above, shall automatically terminate unless an extension was granted in writing by IDL.

I. This permit supersedes and voids any permit previously issued for this property. Unless specifically authorized in this permit, any pre-existing or abandoned portions of encroachments, whether previously permitted or not, shall be removed from below the ordinary or artificial high water mark.

J. This permit does not relieve Permittee from obtaining additional approvals or otherwise complying with other local, state, or federal laws.

K. Idaho State Water Quality Standards (IDAPA 58.01.02.000 *et seq.*) shall be maintained at all times during and after project start up.

L. This permit is issued contingent upon Permittee's continuing status as an owner or lessee of the littoral right associated with the property described on page 1 of this permit.

M. Permittee shall not assign this permit without first obtaining the written consent of IDL. Any request for approval of an assignment must be in writing, on forms provided by IDL, and accompanied by the applicable processing fee.

N. Permittee assumes all liability for damages, which may result from the exercise of this permit.

2. **Construction**

A. The Permittee or contractor shall have a copy of this permit available on site for inspection at all times during construction.

B. Permittee is responsible for all work done by any contractor. Permittee shall provide contractor with a copy of this permit. Permittee shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this permit.

C. Construction barges or other watercraft shall not be grounded on the lakebed for any reason.

D. Permittee, contractor and anyone acting on their behalf are prohibited from allowing equipment, boats, barges or associated machinery to create petroleum product sheen on the water or otherwise create a release of petroleum or petroleum products due to petroleum products handling, use or storage. The contractor shall maintain an adequate supply of petroleum absorbent pads. The Emergency Response Team phone number, 1-800-632-8000, must be readily available at all times.

E. Operation of excavation equipment will not be allowed below the ordinary or artificial high water mark without prior written authorization from IDL. Equipment may be operated only on dry land above the level of the lake at the time of operation.

F. Demolition debris and construction waste shall be removed from the lake and disposed of at an approved upland location.

G. Foam flotation shall be completely encased in a manner that will maintain the structural integrity of the foam. The encasement shall be resistant to the entry of rodents and shall be replaced if cracked, damaged, or similarly compromised.

H. It is illegal to possess or transport Quagga or Zebra mussels into or through Idaho, and to launch infested watercraft. Used boat lifts shall be inspected for invasive species and determined to be free from such species prior to installation. Permittee shall provide IDL with proof of inspection by an authorized inspector prior to installing the boat lift and/or placing it in the water. Prior to installation call 877-336-8676 for decontamination.

I. Piles and pylons shall be driven with noise reduction devices.

J. Construction materials shall be natural or pressure treated utilizing only those preservative chemicals registered for the specific uses by the U.S. Environmental Protection Agency (EPA). All treated wood materials shall be produced in compliance with "Best Management Practices (BMPs) For the Use of Treated Wood in Aquatic and other Sensitive Environments" issued by the Western Wood Preservers Institute (WWPI) 2012. Treated materials not in contact with the water shall be completely dry before use near navigable waters. Use of Chromated Copper Arsenate (CCA) treated wood shall adhere to the EPA recommendations regarding use of arsenate treated wood. Contact Idaho Department of Environmental Quality for information on acceptable treatment methods and materials.

K. All construction material including maintenance material must be stockpiled landward of the ordinary or artifical high water mark

L. No trees or vegetation shall be removed below the ordinary high water mark without written approval of the Idaho Department of Lands.

M. The disturbed portion of the lakebed shall be shaped to its original contour upon completion of the project.

N. Any vegetation located below the ordinary high water mark disturbed by construction activity shall be replanted with native plants, unless otherwise agreed to in writing by IDL.

O. All construction shall meet the standards of the Uniform Building and International Fire Codes. Permittee shall contact the appropriate body of jurisdiction concerning these codes prior to installation.

P. A silt curtain, fence, or other appropriate Best Management Practice (BMP) shall be installed waterward of the project site. It must remain in place and functional until the turbidity level inside the curtain, fence or BMP equals the turbidity outside the curtain, or until all disturbed sediment has been removed from the BMP and stabilized in an upland location.

Q. If any excavation or pile driving occurs the operator must comply with the provisions of the Underground Facilities Damage Prevention Law (Idaho Code Title 55, Chapter 22). The one-call locator service number is 811.

3. **Submerged Land Leases and Easements**

A. This permit is issued contingent upon Permittee's agreement to enter into a submerged land lease or easement when notified by the IDL director that a lease or easement is necessary to occupy state-owned lake or riverbeds pursuant to IDAPA 20.03.04.055. In the event the submerged lands lease or easement is terminated, Permittee shall be solely responsible for removal of the encroachment.

B. This permit is issued contingent upon the Permittee's agreement to obtain a submerged land easement pursuant to IDAPA 20.03.04.055. In the event the easement is terminated, the Permittee may be solely responsible for removal of the encroachment.

4. **Dredging**

A. Excavated material not replaced shall be removed to an area above the ordinary or artificial high water mark and in a position such that it will not reenter the lake.

B. Mechanized excavation is authorized between the ordinary high water mark and Low Water Level per the approved application, plans, and drawings. During excavation, BMPs must be incorporated to prevent sediment or sediment laden water from reentering the lake. BMPs must remain in place until the risk of sediment reentering the lake has been fully mitigated. Sediment mitigation BMPs must be removed prior to or designed to withstand any rise in lake water level which might cause an unplanned release of trapped sediment.

ON BEHALF OF THE DIRECTOR

By: _____ 12/10/19

Trevor Anderson, Senior Resource Specialist
Public Trust – Priest Lake Office

Date

STATE OF IDAHO)
) **ss**
BONNER COUNTY)

On December 10, 2019 personally appeared before me Trevor Anderson, whose identity is personally known to me and who by me duly affirmed that he is the Senior Resource Specialist, Public Trust Priest Lake Office of the Idaho Department of Lands, and acknowledged that the foregoing document was signed by him on behalf of said state agency by authority of a Resolution of the State Land Board.

RONALD L DURHAM
NOTARY PUBLIC - STATE OF IDAHO
COMMISSION NUMBER 60065
MY COMMISSION EXPIRES 8-3-2024

Notary Public for Idaho Department of Lands
My commission expires on 8/3/2024

JOINT APPLICATION FOR PERMITS

U.S. ARMY CORPS OF ENGINEERS - IDAHO DEPARTMENT OF WATER RESOURCES - IDAHO DEPARTMENT OF LANDS

Authorities: The Department of Army Corps of Engineers (Corps), Idaho Department of Water Resources (IDWR), and Idaho Department of Lands (IDL) established a joint process for activities impacting jurisdictional waterways that require review and/or approval of both the Corps and State of Idaho. Department of Army permits are required by Section 10 of the Rivers & Harbors Act of 1899 for any structure(s) or work in or affecting navigable waters of the United States and by Section 404 of the Clean Water Act for the discharge of dredged or fill materials into waters of the United States, including adjacent wetlands. State permits are required under the State of Idaho, Stream Protection Act (Title 42, Chapter 38, Idaho Code and Lake Protection Act (Section 58, Chapter 13 et seq., Idaho Code). In addition the information will be used to determine compliance with Section 401 of the Clean Water Act by the appropriate State, Tribal or Federal entity.

Joint Application: Information provided on this application will be used in evaluating the proposed activities. Disclosure of requested information is voluntary. Failure to supply the requested information may delay processing and issuance of the appropriate permit or authorization. **Applicant will need to send a completed application, along with one (1) set of legible, black and white (8½"x11"), reproducible drawings that illustrate the location and character of the proposed project / activities to both the Corps and the State of Idaho.**

See Instruction Guide for assistance with Application. Accurate submission of requested information can prevent delays in reviewing and permitting your application. Drawings including vicinity maps, plan-view and section-view drawings must be submitted on 8-1/2 x 11 papers.

Do not start work until you have received all required permits from both the Corps and the State of Idaho

FOR AGENCY USE ONLY			
USACE NWW-	Date Received: Idaho Department of Lands Received	☐ Incomplete Application Returned	Date Returned:
Idaho Department of Water Resources No.	Date Received: APR 16 2019	☐ Fee Received DATE:	Receipt No.:
Idaho Department of Lands No.	Date Received: Priest Lake Supervisory Area	☐ Fee Received DATE:	Receipt No.:

INCOMPLETE APPLICANTS MAY NOT BE PROCESSED

1. CONTACT INFORMATION - APPLICANT Required:			2. CONTACT INFORMATION - AGENT:		
Name: Steve Klatt			Name: Jason Scott		
Company: Bonner County			Company: GeoEngineers, Inc.		
Mailing Address: 1500 Highway 2, Suite 101			Mailing Address: 523 East Second Avenue		
City: Sandpoint	State: ID	Zip Code: 83864	City: Spokane	State: WA	Zip Code: 99202
Phone Number *(include area code)*: 208-255-5681, ext. 1	E-mail: steve.klatt@bonnercountyid.gov		Phone Number *(include area code)*: (509) 209-2816	E-mail: jscott@geoengineers.com	

3. PROJECT NAME or TITLE: Priest Lake Thorofare Improvements			4. PROJECT STREET ADDRESS: N/A		
5. PROJECT COUNTY: Bonner	6. PROJECT CITY: Coolin		7. PROJECT ZIP CODE: 83821		8. NEAREST WATERWAY/WATERBODY: Priest Lake
9. TAX PARCEL ID#: RP62N04W105550A	10. LATITUDE: 48°44'23.21"N LONGITUDE: -116°50'51.19"W		11a. 1/4: SW	11b. 1/4: NW	11c. SECTION: 10
11d. TOWNSHIP: 62 N	11e. RANGE: 4 W				
12a. ESTIMATED START DATE: Oct 1, 2020	12b. ESTIMATED END DATE: Mar 15, 2021		13a. IS PROJECT LOCATED WITHIN ESTABLISHED TRIBAL RESERVATION BOUNDARIES? ☒ NO ☐ YES Tribe:		
13b. IS PROJECT LOCATED IN LISTED ESA AREA? ☐ NO ☒ YES			13c. IS PROJECT LOCATED ON/NEAR HISTORICAL SITE? ☒ NO ☐ YES		

14. DIRECTIONS TO PROJECT SITE: Include vicinity map with legible crossroads, street numbers, names, landmarks.

Access to the site will be accomplished by land and/or water: 1) Land access to the project would occur from the north on Sandpiper Shores Road. The Thorofare would be forded from an empty lot during low water (after November 1) to access the breakwater. 2) Access via water could be accomplished from the Lionhead boat ramp at Priest Lake Park. Equipment and materials would be loaded on flexi-float pontoons to be transported to the site.

15. PURPOSE and NEED: ☐ Commercial ☐ Industrial ☒ Public ☐ Private ☐ Other

Describe the reason or purpose of your project; include a brief description of the overall project. Continue to Block 16 to detail each work activity and overall project.

The purpose of this project is to provide navigable access from Priest Lake into the Thorofare during the recreational season. The overall objective of the project is to develop sustainable modifications to improve Thorofare access and navigability with channel deepening and replacement of the derelict breakwater. This project is supported by the Idaho Water Resources Board, Bonner County, Priest Lake businesses and numerous private stakeholders.

16. DETAILED DESCRIPTION OF EACH ACTIVITY WITHIN OVERALL PROJECT. Specifically indicate portions that take place within waters of the United States, including wetlands: Include dimensions; equipment, construction, methods; erosion, sediment and turbidity controls; hydrological changes: general stream/surface water flows, estimated winter/summer flows; borrow sources, disposal locations etc.:

Figures 1-3 and attached design plans illustrate the project. A solid breakwater will be installed along a slightly rotated alignment, with extension further into the lake. Thorofare dredging to the -2.0 ft Lake Datum will provide a 5-foot depth for navigation.
The western end of the breakwater would first be breached, to funnel flow into a remnant channel, providing a temporary migratory channel for fish. This would allow dredging, timber breakwater removal, and construction to occur in isolated conditions.
The footprint of the breakwater and western extension will require removal of 5,725 cubic yards (cy) of sediment to meet planned elevations. Approximately 10,374 cy of stone, gravel, and cobble would then be hauled to the project area to build up the breakwater. The final breakwater will be about 1,300 feet long, and 42 feet wide. A 225-foot western extension of the breakwater will also be constructed to mitigate wave erosion risk and protect this section from bank erosion during high flow. It will consist of 660 cy of geobags and 492 cy of gravel/cobble built around the existing timber piles. About 12,200 cy of sediment will be dredged for the channel. Of this, 11,418 cy of dredge spoils will be re-used and placed on the lake side (south) of the breakwater and extension as beach fill. These spoils will be graded at a 10:1 slope from the top of the breakwater to the lake. Native plants (e.g., willow) will be planted in the sandy spoils. The remainder of the dredge spoils (782 cy) would be hauled to an upland disposal site. The final dredge channel will be approximately 50 feet wide, and the dredge prism will cover roughly 3.5 acres.
A temporary haul road may be needed to ford the Thorofare at low water. 444 cy of gravel would be used, which would be removed after construction. Access may also be completed from the Lionhead Boat Launch, requiring 200 cy of temporary fill and 115 cy for Ecology block stabilization in the lake.
A temporary erosion and sedimentation control (TESC) plan will be developed and implemented by the contractor. Silt fences will be installed along the perimeter of the work areas to confine sediment and runoff. Straw bales staked straw wattles, or similar measures will be added to the silt fencing. Sediment release from the initial breakwater breach, breakwater removal, breakwater construction, and re-watering may result in temporary, localized increases in suspended sediment and turbidity. However, this impact is expected to be brief and minimal. Please refer to the design memo for additional information.

17. DESCRIBE ALTERNATIVES CONSIDERED to AVOID or MEASURES TAKEN to MINIMIZE and/ or COMPENSATE for IMPACTS to WATERS of the UNITED STATES, INCLUDING WETLANDS: See Instruction Guide for specific details.

Several options were originally screened, and ultimately three alternatives were assessed (new bio-engineered, rubblemound, and sheet pile structures) for Thorofare improvements (see attached alternatives analysis. A bio-engineered structure would require a larger footprint in the lake, and highest maintenance costs, and was thus eliminated from consideration. The sheet pile option provides high constructibility, but no opportunity for habitat enhancement, and pile driving can be disruptive to fish. The rubblemound structure can provide additional habitat, can be constructed in isolated conditions, and does not have the high underwater noise levels, Thus, it was selected. The attached figures provide additional information regarding the details of the alternatives analysis.

Temporary minor impacts are anticipated from breach of the existing breakwater. However, this alternative enables continued fish migration and work to be completed in relatively dry conditions on the remainder of the breakwater. As such, this method allows work that would otherwise be completed in shallow water to be conducted in the dry, where sediment can be contained with erosion control features, and incidental emergency spills or fuel releases can be isolated without impacts to the lake. No wetlands will be impacted as a result of the proposed action.

Fish exclusion measures such as block nets or bubble curtains would be used to prevent impacts during disruptive construction activities.

18. PROPOSED MITIGATION STATEMENT or PLAN: If you believe a mitigation plan is not needed, provide a statement and your reasoning why a mitigation plan is NOT required. Or, attach a copy of your proposed mitigation plan.

Following development of the new breakwater, the sandy material on the lake (south) side will be planted with native vegetation (e.g., willow). Flow will be returned to the original Thorofare channel. Due to the deeper (5-foot) channel, fish migration should be improved between Priest Lake and the Thorofare. Upon completion of the project, temporary fill will be removed at the Lionhead boat ramp and the area will be restored. Other project areas will be returned to pre-disturbance conditions. No other mitigation measures are anticipated at this time because all impacts are considered temporary.

19. TYPE and QUANTITY of MATERIAL(S) to be discharged below the ordinary high water mark and/or wetlands:

Dirt or Topsoil:		cubic yards
Dredged Material:	11,418	cubic yards
Clean Sand:		cubic yards
Clay:		cubic yards
Gravel, Rock, or Stone:	10,866	cubic yards
Concrete:		cubic yards
Other (describe): Geobags	660	cubic yards
Other (describe: Temp gravel for ford and	644	cubic yards
TOTAL:	23,588	cubic yards

20. TYPE and QUANTITY of impacts to waters of the United States, including wetlands:

Filling:	8.42	acres	366,900	sq ft.	23,388	cubic yards
Backfill & Bedding:		acres		sq ft.		cubic yards
Land Clearing:		acres		sq ft.		cubic yards
Dredging:	3.5	acres	152,460	sq ft.	12,200	cubic yards
Flooding:		acres		sq ft.		cubic yards
Excavation:	1.45	acres	63,000	sq ft.	5,725	cubic yards
Draining:		acres		sq ft.		cubic yards
Other: Temp fill for boat ac	0.02	acres	1,070	sq ft.	315	cubic yards
TOTALS:	13.39	acres	583,430	sq ft.	41,628	cubic yards

Addendum, (Page 2, Box 16)

Regarding how much of the breakwater and western extension excavation (5,725 cubic yards) will be disposed of at an upland site:

- Breakwater excavation total is 3,625 cubic yards
- Western extension excavation is 2,100 cubic yards
- Total excavation for both of those elements is 5,725 cubic yards
- Of the 5,725 cubic yards:
    - 1,718 will be hauled off site and disposed of in an upland location
    - 4,007 will be reused at the site.

21. HAVE ANY WORK ACTIVITIES STARTED ON THIS PROJECT? ☒ NO ☐ YES If yes, describe ALL work that has occurred including dates.

22. LIST ALL PREVIOUSLY ISSUED PERMIT AUTHORIZATIONS:

23. ☒ YES, Alteration(s) are located on Public Trust Lands, Administered by Idaho Department of Lands

24. SIZE AND FLOW CAPACITY OF BRIDGE/CULVERT and DRAINAGE AREA SERVED: 600 Square Miles

25. IS PROJECT LOCATED IN A MAPPED FLOODWAY? ☒ NO ☐ YES If yes, contact the floodplain administrator in the local government jsrisdiction in which the project is located. A Floodplain Development permit and a No-rise Certification may be required.

26a WATER QUALITY CERTIFICATION: Pursuant to the Clean Water Act, anyone who wishes to discharge dredge or fill material into the waters of the United States, either on private or public property, must obtain a Section 401 Water Quality Certification (WQC) from the appropriate water quality certifying government entity.
See Instruction Guide for further clarification and all contact information.

The following information is requested by IDEQ and/or EPA concerning the proposed impacts to water quality and anti-degradation:

☐ NO ☒ YES Is applicant willing to assume that the affected waterbody is high quality?
☐ NO ☒ YES Does applicant have water quality data relevant to determining whether the affected waterbody is high quality or not?
☒ NO ☐ YES Is the applicant willing to collect the data needed to determine whether the affected waterbody is high quality or not?

26b. BEST MANAGEMENT PRACTICTES (BMP's): List the Best Management Practices and describe these practices that you will use to minimize impacts on water quality and anti-degradation of water quality. All feasible alternatives should be considered - treatment or otherwise. Select an alternative which will minimize degrading water quality

BMPs will be incorporated into all project work as required, to minimize impacts to water quality, wildlife and habitat in the immediate area. The contractor will comply with all specific mitigation measures required on this project listed in the project environmental permits, and additional measures that may be required by applicable local, state, and federal laws, orders, regulations, and water quality standards.
Thorofare flows will be managed to allow the majority of the construction to occur in near dry or isolated groundwater conditions to minimize the work areas exposed directly to open lake surface waters. This will require the installation of temporary berm to isolate work areas and diversion of existing flow channels around the active work areas. Temporary sand berms may be constructed with on-site sand and limited imported materials to divert water through an existing remnant channel upstream of the primary breakwater structure, such that most construction and dredging can be executed in the dry or at the lowest possible water level. The footprint of a berm to divert flow is approximately 225 feet long by 40 feet wide. Work sites will be restored to pre-project conditions after the completion of construction.
The Contractor will be responsible for the preparation of an SPCC plan; Dredging and Dredge Material Hauling Plan; and comply with pre-dredge meetings with IDWR, IWRB, and other regulatory agencies to discuss their work plan The contractor will limit turbidity by strategic location of equipment; for example, by working within isolated areas rather than instream wherever possible. In general, the contractor should meet State of Idaho (IDAPA 58.01.02.250.02.e) DEQ turbidity criterion for water quality standards as follows: (1) Turbidity, below any applicable mixing zone set by DEQ shall not exceed background turbidity by more than 50 NTUs instantaneously or more than 25 NTUs for more than 10 consecutive days and/or for up to 3 continuous hours; (2) If 50 NTUs above background levels are detected, the contractor shall cease instream work; and (3) Activities will be allowed to proceed once the readings return to background levels or 10 NTUs. It should be noted, authorization of a mixing zone for dilution of pollutants in a discharge is not guaranteed and DEQ maintains the right to determine necessity and size.

Through the 401 Certification process, water quality certification will stipulate minimum management practices needed to prevent degradation.

27. LIST EACH IMPACT to stream, river, lake, reservoir, including shoreline: Attach site map with each impact location.

Activity	Name of Water Body	Intermittent Perennial	Description of Impact and Dimensions	Impact Length Linear Feet
Breakwater breach/removal	Priest Lake/Thorofare	Perennial	Minor, temporary increase in turbidity (24,000 square feet)	1,525
Breakwater construction	Breakwater construction	Perennial	Gravel, cobble, stone, beach sand fill (366,900 square feet)	1,525
Water re-entry	Priest Lake/Thorofare	Perennial	Dredged channel (152,460 square feet)	1,500
Temp fill for boat access	Priest Lake (Lionhead Boat Launch)	Perrenial	Temporary fill and stabilization for boat access (1,070 sf)	40
			TOTAL STREAM IMPACTS (Linear Feet):	4,590

28. LIST EACH WETLAND IMPACT Include mechanized clearing, fill, excavation, flood, drainage, etc. Attach site map with each impact location.

Activity	Wetland Type: Emergent, Forested, Scrub/Shrub	Distance to Water Body (linear ft)	Description of Impact Purpose: road crossing, compound, culvert, etc.	Impact Length (acres, square ft linear ft
			TOTAL WETLAND IMPACTS (Square Feet):	

29. ADJACENT PROPERTY OWNERS NOTIFICATION REQUIREM: Provide contact information of ALL adjacent property owners below.

Name: Hungate, et al. (West) Mailing Address: 428 Beaver Creek Lane City: Nordman State: ID Zip Code: 83848 Phone Number (Include area code): Not Available E-mail:	Name: Hungate, R & MJ Trust (West) Mailing Address: 429 Beaver Creek Lane City: Nordman State: ID Zip Code: 83848 Phone Number (Include area code): Not Available E-mail:
Name: Nelson, Todd M & Tara M 50%; Ncf Corporation 50% (North) Mailing Address: Not Available City: State: Zip Code: Phone Number (Include area code): Not Available E-mail:	Name: Elliott, Brian D & Roseann K (North) Mailing Address: 875 Sandpiper Shores City: Coolin State: ID Zip Code: 83821 Phone Number (Include area code): Not Available E-mail:
Name: Ramey, Randall T & Lola C (North) Mailing Address: 887 Sandpiper Shores City: Coolin State: ID Zip Code: 83821 Phone Number (Include area code): Not Available E-mail:	Name: Beck, Larry C (North) Mailing Address: 907 Sandpiper Shores City: Coolin State: ID Zip Code: 83821 Phone Number (Include area code): Not Available E-mail:
Name: Aden, Mark D & Stephanie H (North) Mailing Address: 927 Sandpiper Shores City: Coolin State: ID Zip Code: 83821 Phone Number (Include area code): Not Available E-mail:	Name: Petersen, Carl S & Peggy B (North) Mailing Address: Not Available City: State: Zip Code: Phone Number (Include area code): Not Available E-mail:

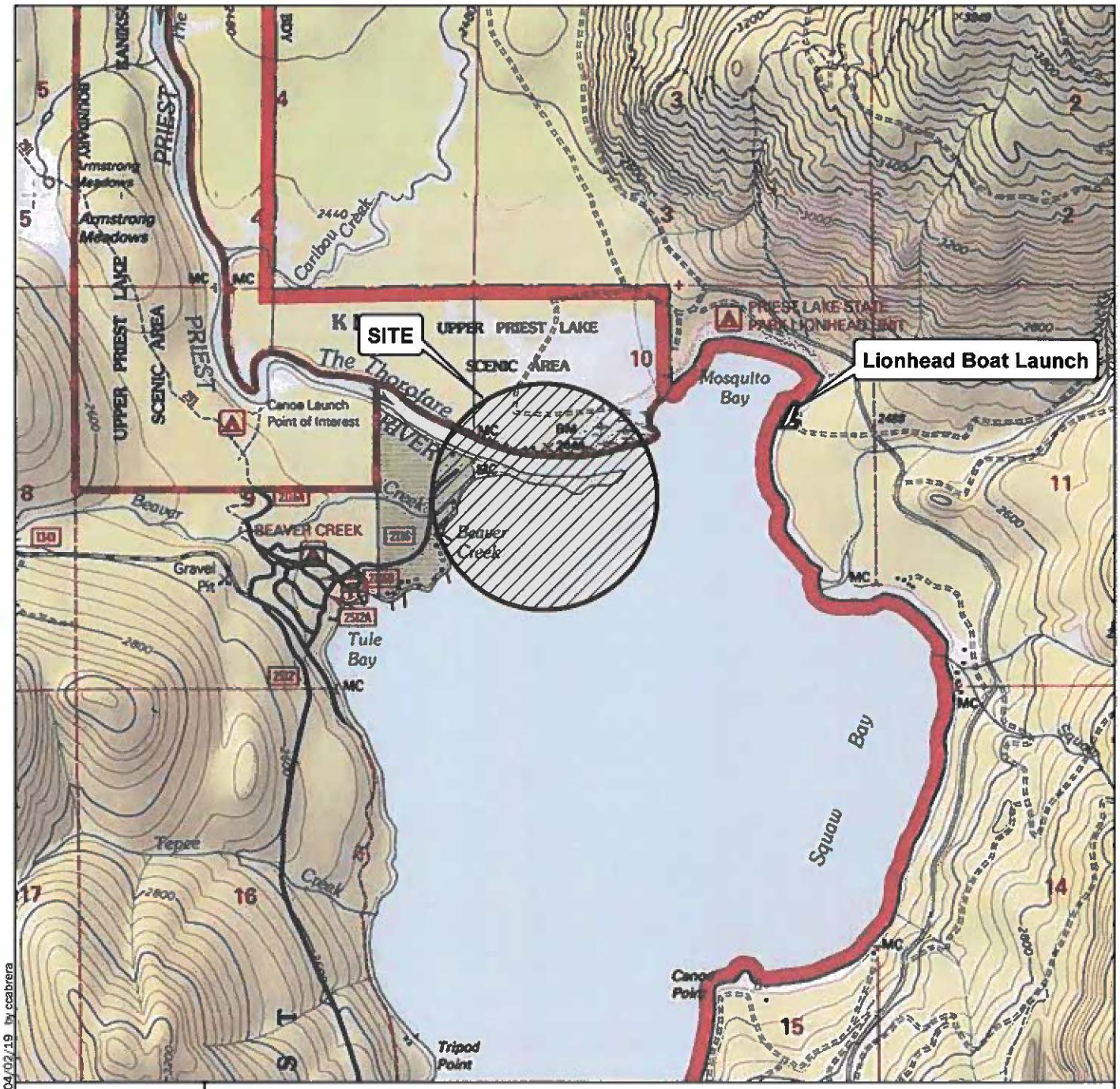
30. SIGNATURES: STATEMENT OF AUTHORIAZATION / CERTIFICATION OF AGENT / ACCESS

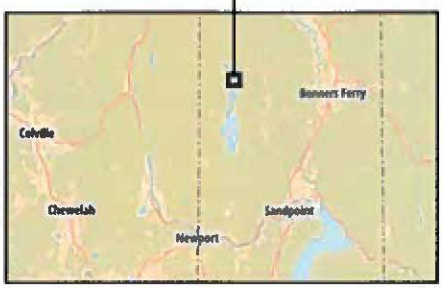
Application is hereby made for permit, or permits, to authorize the work described in this application and all supporting documentation. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein; or am acting as the duly authorized agent of the applicant (Block 2). I hereby grant the agencies to which this application is made, the right to access/come upon the above-described location(s) to inspect the proposed and completed work/activities.

Signature of Applicant: Steve Klatt *Date:* Apr 11th 19

Signature of Agent: [signature] *Date:* 4/3/2019

This application must be signed by the person who desires to undertake the proposed activity AND signed by a duly authorized agent (see Block 1, 2, 30). Further, 18 USC Section 1001 provides that: "*Whoever, in any manner within the jurisdiction of any department of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both*".





N
W E
S

2,000 0 2,000

Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 11N

Vicinity Map

Priest Lake Outlet Dam
Bonner County, Idaho

GeoEngineers

Figure 1

P:\22\22593001\GIS\MXD\22593001_F01_VM_PLTBA.mxd Date Exported: 04/02/19 by ccabrera

Legend

- Action Area
- Proposed Rubble Mound Breakwater
- Thorofare Channel Dredge Area
- Proposed Geobags Rock Scour Protection
- Proposed Dredge Spoils
- Temporary Stockpiling & Staging Area
- Temporary Access Road
- Temporary Sand Berm
- Potential East Access from Lionhead
- Potential North Access Corridor

400 0 400

Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 11N

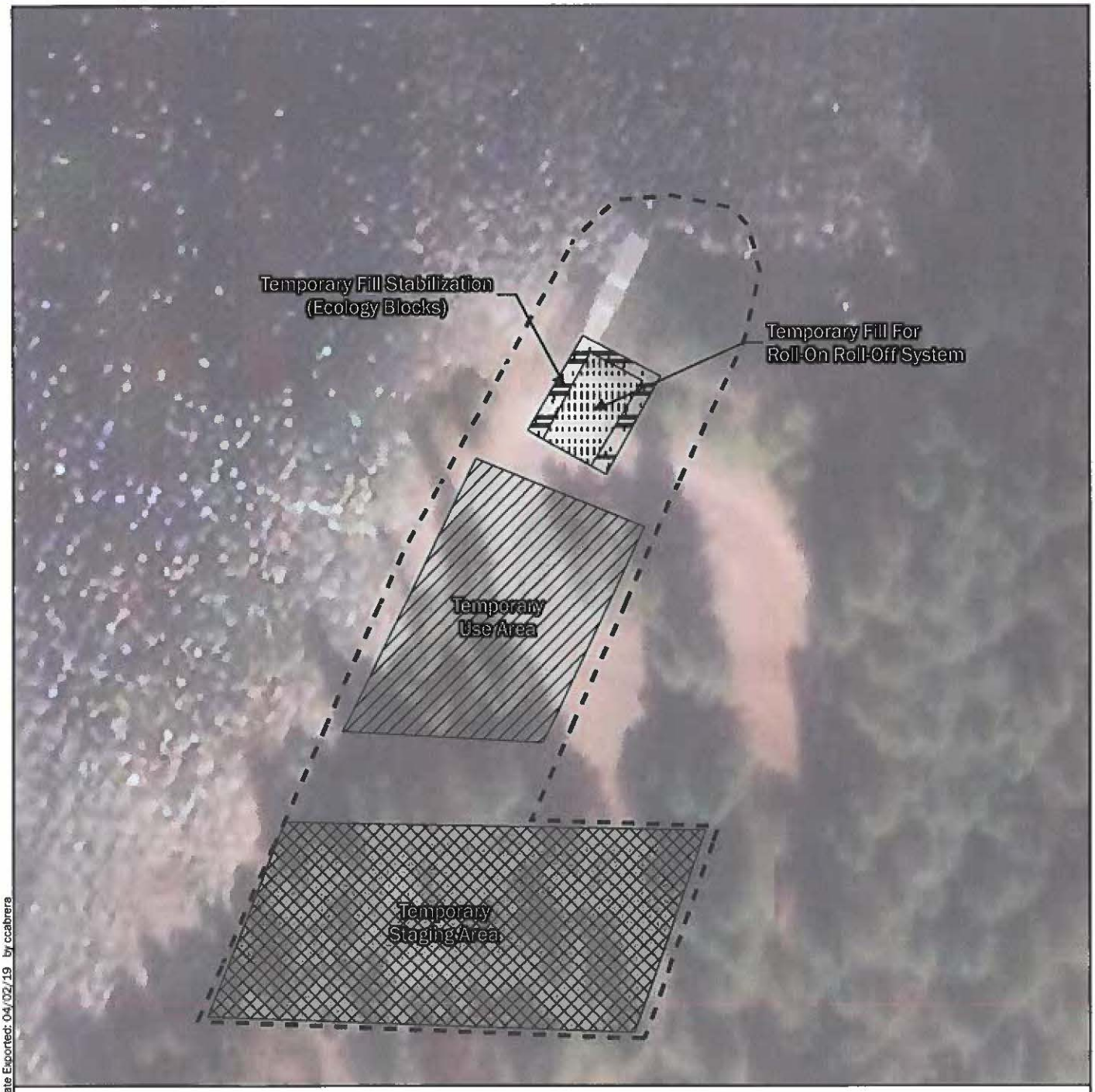
Action Area

Priest Lake Outlet Dam
Bonner County, Idaho

GeoEngineers

Figure 2a

P:\22\22593001\GIS\MXD\2259300101_F02A_AA_PLTBA.mxd Date Exported: 04/01/19 by ccabrera



Legend

- Action Area
- Temporary Fill For Roll-On Roll-Off System
- Temporary Fill Stabilization (Ecology Blocks)
- Temporary Staging Area
- Temporary Use Area

N
W E
S

60 0 60
Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 11N

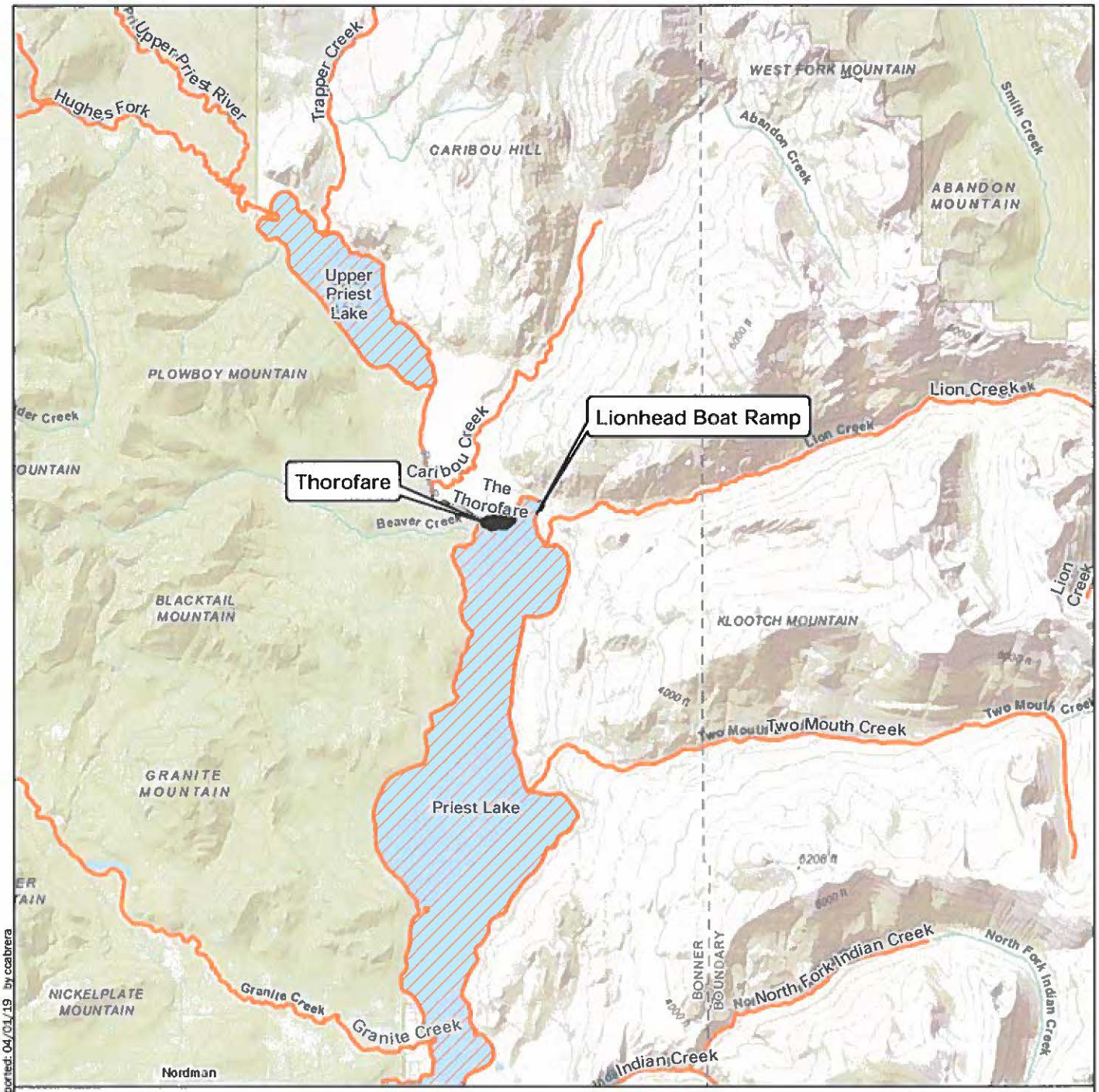
Action Area -
Lionhead Boat Launch

Priest Lake Outlet Dam
Bonner County, Idaho

GeoEngineers

Figure 2b

P:\22\22593001\GIS\MXD\2259300101_F02B_AA_PLTBA_Lionheart.mxd Date Exported: 04/02/19 by ccabrera



Legend

Bull Trout Critical Habitat

2 0 2

Miles

N

W E

S

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI. Bull Trout Critical habitat data fromo USFWS, https://www.fws.gov/pacific/bulltrout/.

Projection: NAD 1983 UTM Zone 11N

Critical Habitat for Bull Trout

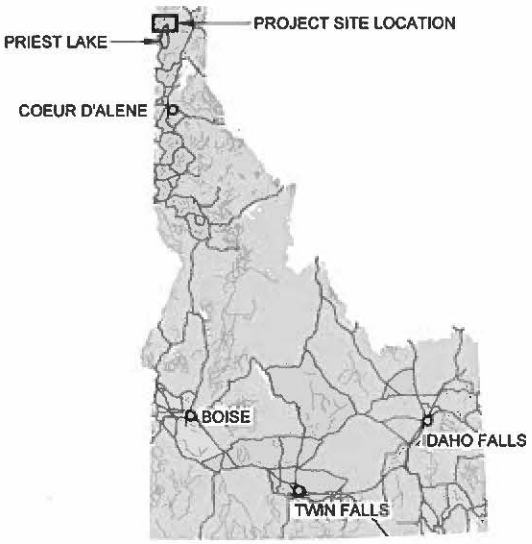
Priest Lake Outlet Dam
Bonner County, Idaho

GeoEngineers

Figure 3

P:\22\22593001\GIS\MXD\22593001_F03_BullTrout_PLTBA.mxd Date Exported: 04/01/19 by ccabrera

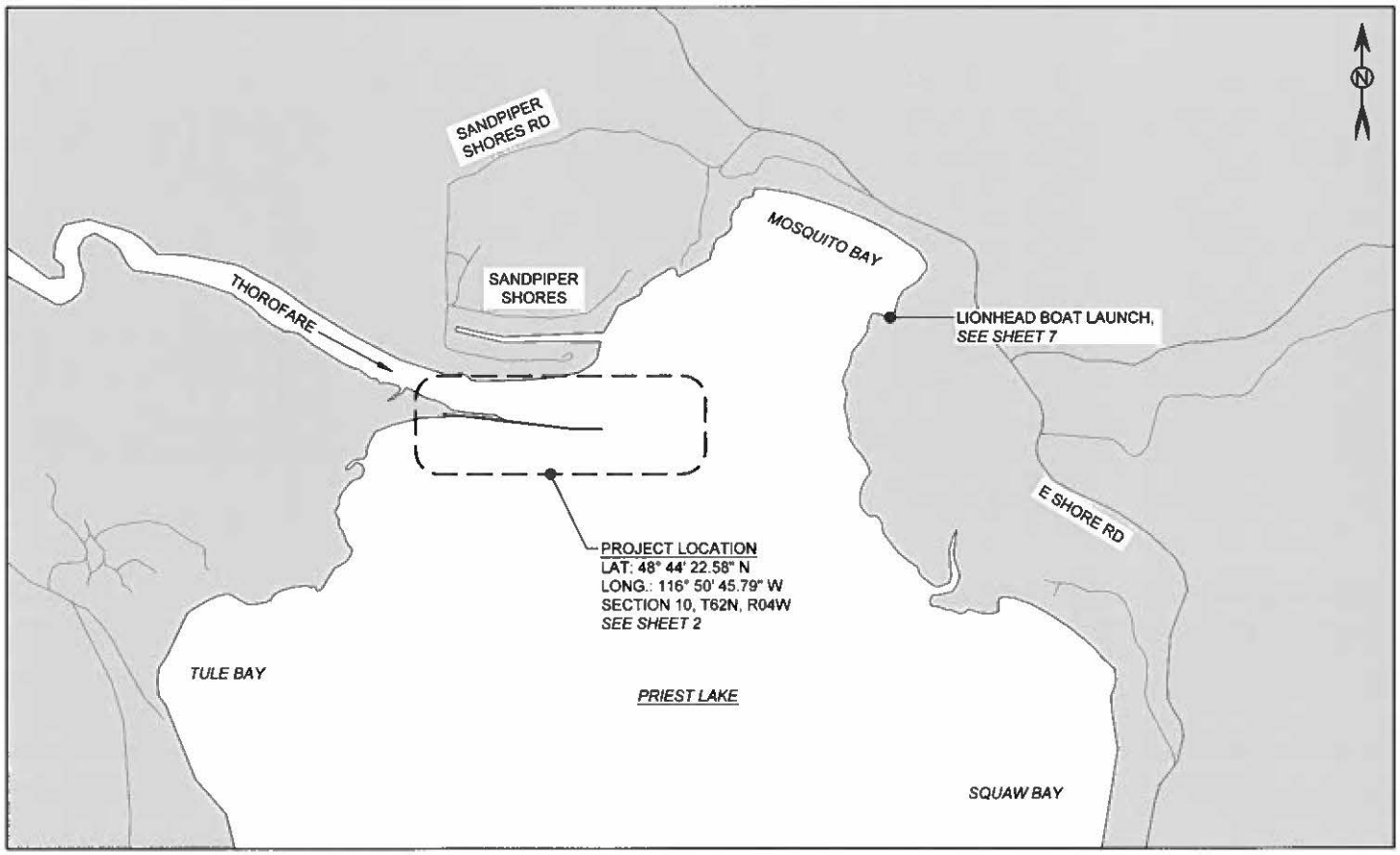
S10 T62N R04W



IDAHO KEY MAP

SHEET INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	SITE PLAN - EXISTING
3	SITE PLAN - TEMP STAGING & WATER DIVERSION
4	SITE PLAN - PROPOSED
5	SECTIONS 1
6	SECTIONS 2
7	PLAN - TEMPORARY STRUCTURES



LOCATION MAP

0 800 1,600

SCALE IN FEET

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:

1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

COVER SHEET

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER

IN: THOROFARE

AT: PRIEST LAKE

COUNTY: BONNER

SHEET 1 OF 7

DATE: 3/13/19

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:

1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

SITE PLAN - EXISTING

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER

IN: THOROFARE

AT: PRIEST LAKE

COUNTY: BONNER

SHEET 2 OF 7

DATE: 3/13/19

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:

1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

SITE PLAN - TEMP STAGING & WATER DIVERSION

APPLICATION BY:

IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER

IN: THOROFARE

AT: PRIEST LAKE

COUNTY: BONNER

SHEET 3 OF 7

DATE: 3/13/19

LEGEND

- NAVIGATION AID BUOYS
- CURRENT DIRECTION
- PROPERTY BOUNDARY (APPROXIMATE)
- ORDINARY HIGH WATER (OHW)
- LIMIT OF CONSTRUCTION
- ACCESS CORRIDOR
- STAGING AREA

NOTES:

1. BATHYMETRY SOURCE: MAY 2017 DATA COLLECTION. DEPTHS IN FEET ON LAKE DATUM.
2. HORIZONTAL DATUM: NAD83, IDAHO STATE PLANE WEST ZONE, FEET
3. UNIT AND VERTICAL DATUM: LAKE DATUM, FEET, REFERENCED TO USGS GAGE 12393000. DATUM OF USGS GAGE 2,434.64 FEET ABOVE NGVD29. SUMMER LAKE LEVEL = 3.0' (2441.69' NAVD88).
4. AERIAL SOURCE: GOOGLE EARTH, IMAGERY DATE JULY 11, 2014
5. BERM TO BE CONSTRUCTED FROM DREDGED / EXCAVATED MATERIAL AND IMPACTED GRAVEL.
6. TEMPORARY FEATURES TO BE LABELED REMOVED AND SHALL BE RESTORED AFTER CONSTRUCTION.

SITE PLAN

EXISTING CONDITIONS

0 125 250

SCALE IN FEET

A

SECTION

TEMPORARY SAND BERM

0 10 20

SCALE: 1" = 10'

S10 T62N R04W

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:

1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

SITE PLAN - PROPOSED

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER

IN: THOROFARE

AT: PRIEST LAKE

COUNTY: BONNER

SHEET 4 OF 7

DATE: 3/13/19

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:
1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

SECTIONS 1

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER

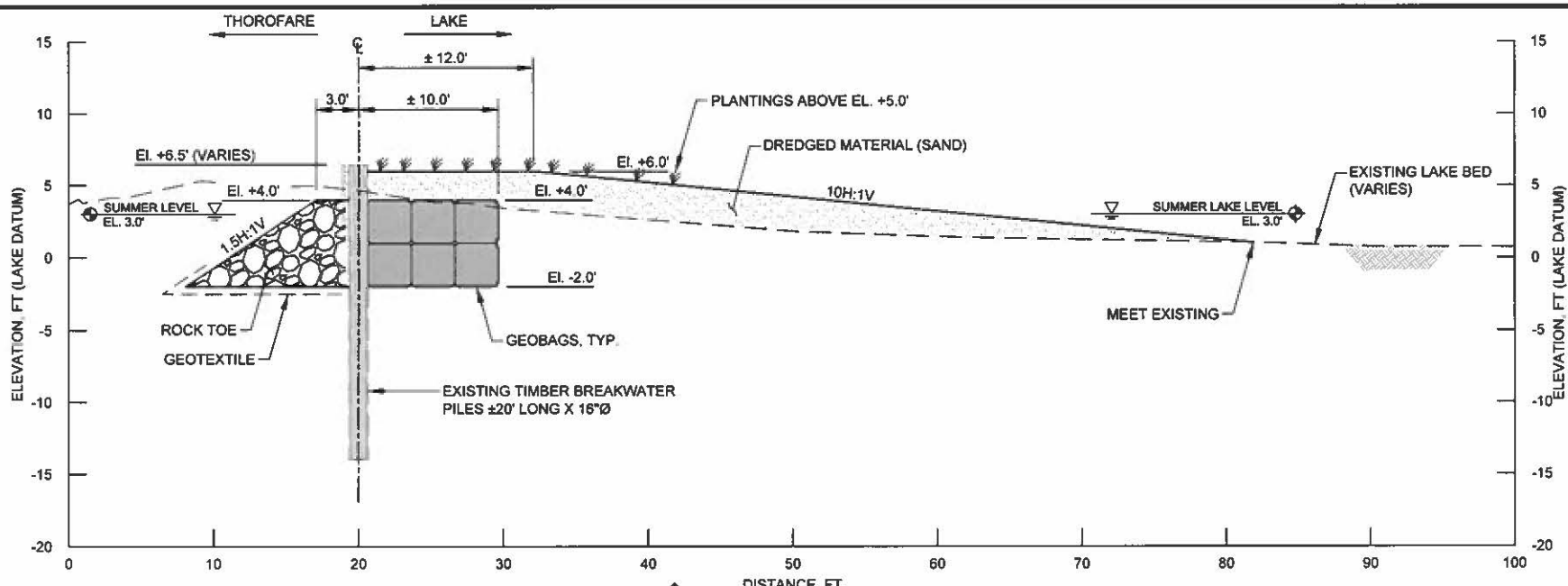
IN: THOROFARE

AT: PRIEST LAKE

COUNTY: BONNER

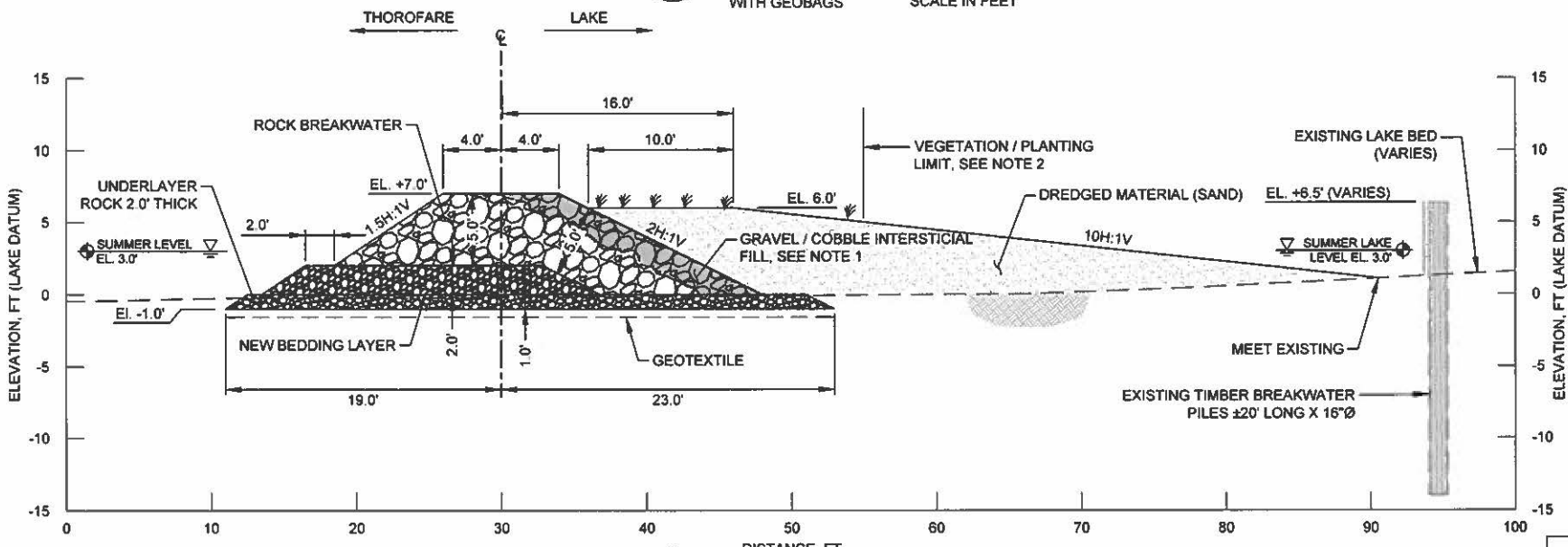
SHEET 5 OF 7

DATE: 3/13/19



A 4 5 SECTION
WEST END WITH GEOBAGS

0 6 12
SCALE IN FEET



B 4 5 SECTION
ROCK BREAKWATER

0 6 12
SCALE IN FEET

LEGEND

- SAND (DREDGED MATERIAL)
- ARMOR ROCK
- UNDERLAYER ROCK
- BEDDING ROCK
- GRAVEL / COBBLE FILL IN VOIDS
- VEGETATION / PLANTING

NOTES

1. PLACE GRAVEL / COBBLE IN VOIDS OF ARMOR ROCK SURFACE.
2. PLANTINGS SHALL BE LOW HEIGHT (LESS THAN 3.0' HIGH). NATIVE SPECIES TO BE DETERMINED.
3. PLANTINGS TO BE INSTALLED ALONG THE WESTERN 1/3 OF BREAKWATER ALIGNMENT.

S10 T62N R04W

S10 T62N R04W

LEGEND

DREDGE AREA

NOTES

1. DREDGE TO EL. -2.0' AND PLACE MATERIAL ON SOUTH SIDE OF ROCK BREAKWATER AND PER PERMITS.

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:

1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

SECTIONS 2

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER

IN: THOROFARE

AT: PRIEST LAKE

COUNTY: BONNER

SHEET 6 OF 7

DATE: 3/13/19

PURPOSE: DREDGING AND NEW BREAKWATER

DATUM: LAKE DATUM

ADJACENT PROPERTY OWNERS:
1. SANDPIPER SHORES HOMEOWNERS
2. STATE OF IDAHO
3. FEDERAL GOVERNMENT
4. BEAVER CREEK CAMP HOMEOWNERS

Priest Lake Water Management Thorofare Breakwater & Dredging

PLAN - TEMPORARY STRUCTURES

APPLICATION BY:
IDAHO DEPARTMENT OF WATER RESOURCES

PROPOSED: DREDGING AND NEW BREAKWATER
IN:
AT: THOROFARE
COUNTY: PRIEST LAKE
BONNER

SHEET 7 OF 7

DATE: 3/13/19

PRIEST LAKE

EXISTING FLOAT & GANGWAY, SEE NOTE 4

EXISTING SHORELINE WALL

TEMPORARY FILL STABILIZATION STABILIZATION (ECOLOGY BLOCKS)

4.0'

24.0'

40.0'

TEMPORARY FILL FOR ROLL-ON ROLL-OFF SYSTEM, SEE NOTE 5

TEMPORARY USE AREA

ACCESS ROUTE

TEMPORARY STAGING AREA

PRIEST LAKE STATE PARK LIONHEAD UNIT

SITE PLAN
TEMPORARY STRUCTURES AT LION HEAD BOAT RAMP

0 30 60
SCALE IN FEET

LEGEND

PROPERTY BOUNDARY (APPROX.)

TEMPORARY USE AREA

TEMPORARY STAGING AREA

NOTES:

1. BATHYMETRY SOURCE: MAY 2017 DATA COLLECTION, DEPTHS IN FEET ON LAKE DATUM.
2. HORIZONTAL DATUM: NAD83, IDAHO STATE PLANE WEST ZONE, FEET.
3. UNIT AND VERTICAL DATUM: LAKE DATUM, FEET, REFERENCED TO USGS GAGE 12393000. DATUM OF USGS GAGE 2,434.64 FEET ABOVE NGVD29.
4. AERIAL SOURCE: GOOGLE EARTH, IMAGERY DATE JULY 11, 2014. EXISTING BOAT RAMP WAS CONSTRUCTED IN 2015, SO NOT SHOWN ON AERIAL IMAGE.
5. TEMPORARY FILL AND ECOLOGY BLOCKS SHALL BE REMOVED AND THE SITE RESTORED AFTER CONSTRUCTION.

C SECTION
TEMPORARY STRUCTURE

0 10 20
SCALE IN FEET

S10 T62N R04W

BEFORE THE STATE BOARD OF LAND COMMISSIONERS
STATE OF IDAHO

In the Matter of:	)	Case No. PH-2019-PUB-10-001
	)	
Encroachment Permit Application No. L-97-S-0891C	)	**FINAL ORDER**
	)	
Bonner County, Applicant.	)	
	)	

I. NATURE OF PROCEEDINGS/ISSUES

Encroachments, including breakwaters, placed in, on or above the beds of navigable lake, and channel deepening, require a permit issued by the Idaho Department of Lands ("IDL") pursuant to the requirements of the Lake Protection Act, Title 58, Chapter 13, Idaho Code, and the corresponding administrative rules promulgated by the State Board of Land Commissioners, IDAPA 20.03.04.000 *et seq.*, Rules for the Regulation of Beds, Waters and Airspace over Navigable Lakes in the State of Idaho.

Bonner County ("Applicant"), applied for Encroachment Permit No. L-97-S-0891C on April 16, 2019 ("Application"), followed by an Addendum on June 19, 2019. According to the Application,

> The purpose of this project is to provide navigable access from Priest Lake into the Thorofare during the recreational season. The overall objective of the project is to develop sustainable modifications to improve Thorofare access and navigability with channel deepening and replacement of the derelict breakwater.

Application, p. 1.

On June 17, 2019, I issued a Notice of Appointment of Hearing Coordinator and Hearing, in which I appointed Chris Bromley as Hearing Coordinator. The document also provided notice

of a public hearing to be held on August 13, 2019 at 6:00 p.m. Pacific Daylight Time in Priest River, Idaho.

The Hearing Coordinator issued his Preliminary Order on August 28, 2019. My responsibility is to render a decision pursuant to Idaho Code § 58-1306(c) and IDAPA 20.03.04.030.07 on the behalf of the State Board of Land Commissioners based on the record and applicable law. In making this determination I have relied on the record for this matter. Specifically,

- I have reviewed the record, including the Application and all documents and exhibits thereto; all written comments received prior to the close of the August 13, 2019 hearing; and all documents and exhibits.
- I have examined the Hearing Coordinator's Preliminary Order in light of the record and the applicable law.

II. FINDINGS OF FACT

I adopt Paragraphs 1 – 31 of the Factual and Procedural Background of the Preliminary Order as my Findings of Fact.

III. CONCLUSIONS OF LAW

A. I adopt Paragraphs 1-15 of the Conclusions of Law of the Preliminary Order ("Conclusions of Law"). I specifically conclude that the Application meets the procedural requirements of Idaho Code § 58-1306 and IDAPA 20.03.04.000 *et seq.* and that the Department possesses the authority to regulate encroachments in, on or above the bed of Priest Lake.

B. I adopt Paragraphs 16-21 of the Conclusions of Law.

C. I have chosen not to adopt the first sentence of Paragraph 22 of the Conclusions of Law as written, and instead substitute the following:

> 22. Idaho Code § 58-1301 requires that the "lake values" of "the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration . . . ." I.C. § 58-1301. *See also KEA* at 629, 671 P.2d at 1092 ("[t]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce should be reviewed."

I adopt the remainder of Paragraph 22, beginning with "[b]ecause no road exists, . . ."

D. I have chosen not to adopt the first sentence of Paragraph 23 of the Conclusions of Law as written, and instead substitute the following:

> 23. Under Idaho Code § 58-1301, the "lake values" must be "given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment." *See also KEA* at 629, 671 P.2d at 1092 (a proposed encroachment should be "examined cumulatively with existing impediments to the full use of the public trust resource.")

I adopt the remainder of Paragraph 23, beginning with "Furthermore, 'the impact of the individual project . . . ."

E. I have chosen not to adopt the first sentence of Paragraph 24 of the Conclusions of Law as written, and instead substitute the following:

> 24. The balancing of factors required in Idaho Code § 58-1301 requires consideration of a proposed encroachment's purpose. *See also KEA* at 630, 671 P.2d at 1093 (a proposed encroachment such as the breakwater should be examined "in light of the primary purpose for which the resource is situated, i.e., commerce, navigation, fishing or recreation . . . .")

I adopt the remainder of Paragraph 24, beginning with ""'A primary purpose of Priest Lake . . . ."

F. I have chosen not to adopt the first sentence of Paragraph 25 of the Conclusions of Law as written, and instead substitute the following:

25. Idaho Code § 58-1301 requires a balancing of lake values with the justification for or benefit of a proposed encroachment. *See also KEA* at 630, 671 P.2d at 1093 (consideration should be given to "the degree to which broad public uses are set aside in favor of more limited or private uses.").

I adopt the remainder of Paragraph 25, beginning with "The breakwater is for private use. . . ."

G. I hereby adopt Paragraphs 26 – 46 of the Conclusions of Law.

IV. FINAL ORDER

Having reviewed the record and Preliminary Order, I adopt the Preliminary Order as my decision in this matter, and it is incorporated by reference herein, except as explicitly set forth above. The Preliminary Order is attached to this Final Order. The Applicant is qualified to make application for the encroachments and activities discussed herein, and the proposed encroachment is in conformance with the applicable standards.

It is hereby ORDERED that the Application for Encroachment Permit No. L-97-S-0891C is APPROVED subject to the following four conditions:

1. **Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed Sheet 4 of 7 Drawing will occur prior to project completion;**

2. **Bonner County will submit an application for a submerged lands easement to the Idaho Department of Lands to cover the new breakwater in Priest Lake;**

3. **Bonner County or its contractor(s) will obtain a Land Use Permit or other instrument approved by the Idaho Department of Lands to compensate the State/IDL for sand and other natural lake bed materials dredged or removed from below the ordinary high water mark of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards; and**

4. **The species of plants selected for the breakwater must be native and as low growing as reasonably possible in order to anchor the material, yet not infringe on the viewshed.**

This is a final order of the agency. Pursuant to Idaho Code § 58-1306(c) and IDAPA 20.30.04.030.09, the Applicant or any aggrieved party who appeared at the hearing shall have the

right to have the proceedings and Final Order reviewed by the district court in the county in which the encroachment is proposed by filing a notice of appeal within thirty (30) days from the date of this Final Order. Because this Order is for approval of a permit, any party appealing this Final Order must file a bond with the district court in accordance with Idaho Code § 58-1306(c). The amount of the bond will be set by the district court, in an amount not less than $500.

DATED 12th day of September, 2019

Dustin T. Miller

DUSTIN T. MILLER
Director, Department of Lands

CERTIFICATE OF MAILING

I hereby certify that on this 12th day of September, 2019. I caused to be served a true and correct copy of the foregoing by the method indicated below, and addressed to the following:

Jason Scott
GeoEngineers, Inc.
523 East Second Avenue
Spokane, WA 99202

☒ U.S. Mail, postage prepaid
☐ Hand Delivery
☒ Email:
jscott@geoengineers.com

Steve Klatt
Bonner County
1500 Highway 2, Suite 101
Sandpoint, ID 83864

☒ U.S. Mail, postage prepaid
☐ Hand Delivery
☒ Email:
steve.klatt@bonnercountyid.gov

Joy Vega
P.O. Box 83720
Boise, ID 83720-0010

☒ Statehouse Mail
☐ Hand Delivery
☒ Email: joy.vega@ag.idaho.gov

Idaho Department of Lands
c/o Andrew Smyth, Public Trust Program Manager
300 N 6th Street, Suite 103
Boise, ID 83702-0050

☐ U.S. Mail, postage prepaid
☒ Hand Delivery
☒ Email: asmyth@idl.idaho.gov

Courtesy copy via email only:
Shane Slate – shane.p.slate@usace.army.mil
Jeremy Deforge – Jeremy@4seasonslandscape.net
John & Lydia Hungate – jell60@hotmail.com
Rick Collingwood – rick.collingwood@idwr.idaho.gov
Randy Ramey – randy@predevinc.com
Eleanor Jones – ejjones3@gmail.com
Anne Ashburn – ashburn@nwrain.com
Jon Miller – jrmecon@uidaho.edu
Neeley Miller – neeley.miller@idwr.idaho.gov
Ken Hagman – ken@copperbayconstruction.com
Fred Cox – fredcox@sisna.com
Craig Hill – craighill@hillsresort.com

Kartney Romine
Kourtney Romine, Administrative Assistant

BEFORE THE DEPARTMENT OF LANDS

OF THE STATE OF IDAHO

In the Matter of: Encroachment Permit Application No. L-97-S-0891C Bonner County, Applicant.	Case No. PH-2019-PUB-10-001 **PRELIMINARY ORDER**

FACTUAL AND PROCEDURAL BACKGROUND

A. The Application

1. On April 16, 2019, Bonner County filed a *Joint Application for Permits* ("Application") with the Idaho Department of Lands ("Department" or "IDL") for a breakwater at the north end of Priest Lake to replace an existing timber breakwater. *Application* at 2, line 16. Figures 1 and 3 to the Application show the general location of the proposed breakwater in relation to Priest Lake. Figure 2a to the Application is a closer view of the proposed breakwater in relation to the existing breakwater. Sheet 4 of 7 to the Application is a more detailed site plan of the proposed breakwater itself.

2. On May 2, 2019, the Department emailed Bonner County regarding an incomplete detail in the Application concerning the disposal of sediment. A subsequent email was sent to Bonner County on May 29, 2019, again requesting the additional information. On May 31, 2019, a consultant for Bonner County responded to IDL's question.

3. On June 5, 2019, the Department, in an email to Bonner County, deemed the Application complete, through the addition of an *Addendum*, discussing "how much of the

breakwater and western excavation (5,725 cubic yards) will be disposed of at an upland site." *See also Testimony of Mike Ahmer and Trevor Anderson.* The *Addendum* states it modifies page 2, box 16 to the Application.

4. According to the Application: "The purpose of this project is to provide navigable access from Priest Lake into the Thorofare during the recreational season. The overall objective of the project is to develop sustainable modifications to improve Thorofare access and navigability with channel deepening and replacement of the derelict breakwater. The project is supported by the Idaho Water Resources Board, Bonner County, Priest Lake businesses and numerous private stakeholders." *Application* at 1, line 15. In line 15, page 1 of the Application, the box "Public" is checked defining the purpose and need for the navigational encroachment.

5. Attached to the Application are various maps, aerial images, site plans, construction elevations, engineering drawings, and a PowerPoint entitled, *Priest Lake Water Management Report: Thorofare Preliminary Engineering – Progress Report*, dated November 5, 2018, prepared by Mott MacDonald for the Idaho Department of Water Resources and the Idaho Water Resource Board ("IWRB PowerPoint"). The Application shows it was mailed to adjacent property owners.

6. The Application explains:

> A solid breakwater will be installed along a slightly rotated alignment, with extension further into the lake. Thorofare dredging to the -2.0 Lake Datum will provide a 5-foot depth for navigation.
>
> The western end of the breakwater would first be breached, to funnel flow into a remnant channel, providing a temporary migratory channel for fish. This would allow dredging, timber breakwater removal, and construction to occur in isolated conditions.
>
> The footprint of the breakwater and western extension will require removal of 5,725 cubic yards (cy) of sediment to meet planned elevations. Approximately 10,374 cy of stone, gravel, and cobble would then be hauled to the project area to build up the

breakwater. The final breakwater will be about 1,300 feet long, and 42 feet wide. A 225-foot western extension of the breakwater will also be constructed to mitigate wave erosion risk and protect this section from bank erosion during high flow. It will consist of 660 cy of geobags and 492 cy of gravel/cobble built around the existing timber piles. About 12,200 cy of sediment will be dredged for the channel. Of this, 11,418 cy of dredge spoils will be re-used and place on the lake side (south) of the breakwater and extension as beach fill. These spoils will be graded at a 10:1 slope from the top of the breakwater to the lake. Native plants (e.g., willow) will be planted in the sandy spoils. The remainder of the dredge spoils (782 cy) would be hauled to an upland disposal site. The final dredged channel will be approximately 50 feet wide, and the dredge prism will cover roughly 3.5 acres.

A temporary haul road may be needed to ford the Thorofare at low water. 444 cy of gravel would be used, which would be removed after construction. Access may also be completed from the Lionhead Boat Launch, requiring 200 cy of temporary fill and 115 cy for Ecology block stabilization in the lake. A temporary erosion and sedimentation control (TESC) plan will be developed and implemented by the contractor. Silt fences will be installed along the perimeter of the work areas to confine sediment and runoff. Straw bales[,] stake straw wattles, or similar measures will be added to the silt fencing. Sediment release from the initial breakwater beach, breakwater removal, breakwater construction, and re-watering may result in temporary, localized increases in suspended sediment and turbidity. However, this impact is expected to be brief and minimal.

Id. at 2, line 16. As stated above, page 2, paragraph 16 was modified by the *Addendum*.

7. The Application discusses alternatives:

Several options were originally screened, and ultimately three alternatives were assessed (new bio-engineered, rubblemound, and sheet pile structures) for Thorofare improvements (see attached alternatives analysis[])]. A bio-engineered structure would require a larger footprint in the lake, and highest maintenance costs, and was thus eliminated from consideration. The sheet pile option provides high constructability, but no opportunity for habitat enhancement, and pile driving can be disruptive to fish. The rubblemound structure can provide additional habitat, can be constructed in isolated conditions, and does not have the high underwater noise levels, [t]hus, is was selected.

Id. at 2, line 17.

8. The Application discusses mitigation:

Following development of the new breakwater, the sandy material on the lake (south) side will be planted with native vegetation (e.g., willow). Flow will be returned to the original Thorofare channel. Due to the deeper (5-foot) channel, fish migration should be improved between Priest Lake and the Thorofare. Upon

> completion of the project, temporary fill will be removed at the Lionhead boat ramp and the area will be restored. Other project areas will be returned to pre-disturbance conditions. No other mitigation measures are anticipated at this time because all impacts are considered temporary.

Id. at 2, line 18.

9. The Application discusses best management practices:

> Thorofare flows will be managed to allow the majority of the construction to occur in near dry or isolated groundwater conditions to minimize the work areas exposed directly to open lake surface waters. This will require the installation of temporary berm to isolate work areas and diversion of existing flow channels around the active work areas. Temporary sand berms may be constructed with on-site sand and limited imported materials to divert water through an existing remnant channel upstream of the primary breakwater structure, such that most construction and dredging can be executed in the dry or at the lowest possible water level. The footprint of a berm to divert flow is approximately 225 feet long by 40 feet wide. Work sites will be restored to pre-project conditions after the completion of construction.

Id. at 3, line 26b.

B. Notice of the Application and Comments Received

10. On June 6, 2019, the Department prepared a *Memorandum* to be sent to various local, state, and federal entities, as well as the Idaho Conservation League and adjacent neighbors, giving notice of the Application to those who received the *Memorandum* and soliciting comments, recommendations, or objections by July 6, 2019.

11. On June 10, 2019, and June 12, 2019, IDL mailed courtesy notification letters to landowners in the area, informing them of the Application and the ability to comment.

12. On June 11, 2019, the United States Army Corps of Engineers ("USACE") stated it was working on finalizing its public notice for the breakwater.

13. On June 17, 2019, Dustin T. Miller, Director, appointed Chris M. Bromley as "'Hearing Coordinator' to conduct a hearing in the above-captioned matter. The hearing will be conducted pursuant to Idaho Code § 58-1306(c). The Hearing Coordinator has the scope of

authority delineated by IDAPA 20.01.01.413.01 and by IDAPA 20.03.04.05." *Notice of Appointment of Hearing Coordinator and Hearing* at 1. The Director "delegate[d] initial decision-making authority to the Hearing Coordinator pursuant to Idaho Code § 67-5245." *Id.* "Notice is hereby given that a public hearing in the above-captioned matter will be conducted in accordance with IDAPA 20.01.01.000 *et seq.* on Tuesday, August 13, 2019 at 6:00 p.m. Pacific Daylight Time at the Priest River Auditorium located at 1020 US-2, Priest River, Idaho." *Id.* at 2. "The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty days after the conclusion of the hearing." *Id.* at 1.

14. On June 26, 2019, IDL mailed letters to other landowners regarding the Application, the ability to comment, and the time and place for the hearing.

15. On June 27, 2019, an *Affidavit of Publication* was signed by a bookkeeper with the *Bonner County Daily Bee*, a newspaper of general publication in Bonner County, Idaho, stating notice of the Application and notice of the hearing "was published in the regular and entire issue of the Bonner County Daily Bee for a period of 2 consecutive weeks, commencing on the 19 day of June 2019, and ending on the 26 day of June, 2019."

16. During the months of June, July, and August, 2019, written comments were received by IDL concerning the Application. Some written comments agreed with the Application. Other written comments questioned the process, the greater height of the proposed breakwater relative to the current breakwater, exacerbation of sand build-up, deposition of dredged material, whether current infrastructure could handle construction, construction methods, and the impact to private property values. The written comments did not question the need to take some action as to the current state of the breakwater.

17. On August 5, 2019, IDL received an email from the Idaho Department of Environmental Quality stating: "DEQ will be developing a Water Quality Certificate for the Thoroghfare Project. We will start on it soon."

18. On August 12, 2019, IDL received a letter from the applicant, Bonner County. The letter discussed the efforts taken by Bonner County since 2016, beginning with "the feasibility study" to keep the project "in the public eye. We accepted dozens of comments throughout that period, which were accommodated in the final design. . . . . We have been reviewing comments that have been posted to the Idaho Department of Lands (IDL) website and addressing questions and concerns because it is important for this project to maximize the intended benefits and minimize impacts to the extent possible. . . . . As a project intended to provide benefits to the entire Priest Lake community (residential, business, and recreational), we will continue to maintain an open door to address comments and make sure voices are heard throughout the final design and construction phases of the project."

C. The August 13, 2019 Hearing

19. On August 13, 2019, a hearing took place at the Priest River Auditorium in Priest River, Idaho, starting at just after 6:00 p.m. The order of testimony was established by the hearing coordinator as follows: (1) testimony from Bonner County; (2) testimony from public agencies other than IDL; (3) testimony from IDL; (4) testimony from the public; and (5) any reply from Bonner County.

20. Testimony on behalf of the applicant was given by Steve Klatt, Bonner County, Department of Parks & Waterways. To aid his testimony, Mr. Klatt presented with a PowerPoint, entitled *Priest Lake Thorofare Improvement Project* (hereinafter "PowerPoint"). Mr. Klatt explained the breakwater has been present since approximately 1917, with aerial

photography supporting its existence since 1935. *Testimony of Steve Klatt*; *PowerPoint* at 2, 4. Mr. Klatt discussed the history of the breakwater, showing aerial photographs comparing the historic breakwater with the current breakwater. As part of the PowerPoint, Mr. Klatt superimposed a red outline over an aerial image showing where the 1935 breakwater stood in relation to the 2015 breakwater. *PowerPoint* at 4. Using the PowerPoint, Mr. Klatt explained how deposition of sediment has impacted the north end of Priest Lake and navigation, with different colors showing the depth of sediment. *Id.* at 6. Mr. Klatt also showed a slide with computer modeling that was done to understand waves and current. *Id.* at 7. Mr. Klatt discussed the need for improvements to the breakwater, the number of years the topic has been discussed in public forums, with creation of a steering committee made up of private and public stakeholders, and how the engineering firm, Mott MacDonald, was chosen for the project.

21. Shane Phillips, project manager and engineer with Mott MacDonald, also with aid of the PowerPoint, discussed the creation of a steering committee and public input that led to the consideration of improvement alternatives to the breakwater, ultimately leading to the contents of the Application. *Testimony of Shane Phillips*; *PowerPoint* at 5, 9. According to Mr. Phillips, the current breakwater was built with porous wood slats that allows currents and sediment to move through the breakwater, resulting in sediment deposition that reduces depth and impacts navigation. *Testimony of Shane Phillips*; *PowerPoint* at 5, 12. Mr. Phillips explained the proposed breakwater will be built from stone and will be rotated approximately 15 degrees from the existing timber breakwater, *PowerPoint* at 11-14, resulting in a "permanent repair to an existing structure," *Testimony of Shane Phillips*; *PowerPoint* at 16.

22. Mike Ahmer, Resource Supervisor – Public Trust, Department of Lands, next testified, reading his written comments into the record ("IDL Comment"). The IDL Comment

was made part of the record at the hearing.[1] The IDL Comment explains the Application proposes a public, navigational encroachment in and above the bed of Priest Lake. *IDL Comment* at 2-3; *see also Application* at 1, line 15. While past permitting was not made part of the record, the IDL Comment states: "IDL has issued encroachment permits for work on the Thorofare in the past." *Id.* at 2. "The Thorofare is the main access route to Upper Priest Lake because no road access exists. Potential impacts to the fisheries and water quality have been addressed in the proposed design and construction methods. Item 17 on page 2 of the application lists some of the measures proposed to prevent impacts to fisheries." *Id.* at 3. "The height of the breakwater is needed to withstand the effects of waves and ice." *Id.* "Protection of public trust resources such as fisheries and habitat helped lead to the selected design." *Id.* The IDL Comment concludes the Application for a navigational encroachment is approvable, subject to certain modifications and conditions. *Id.* at 4.

23. After Mr. Ahmer's comments, a representative with USACE explained a separate process exists for federal approval related to the Clean Water Act, with separate notice.

24. Jeff Connolly, Bonner County Commissioner, next testified in support of the project.

25. Eleanor Travis, a Priest Lake property owner, next testified concerning the lack of notice and consultation. Ms. Travis had concerns as to how the proposed breakwater would respond to ice and movement of rock. Ms. Travis read a passage from a 1981 book, entitled *North of the Narrows*, and concluded her testimony with a question as to whether the Thorofare in the future would resemble a canal.

[1] The IDL Comment received by the hearing coordinator bears a "Draft" watermark on pages 2 and 4. The IDL Comment shows it was electronically signed by Mr. Ahmer, but does not show his actual signature. The IDL Comment was read into the record by Mr. Ahmer and accepted into the record by the hearing coordinator.

26. Randy Ramey, a thirty-year owner from the Sandpiper Shores subdivision, next testified. Mr. Ramey explained he has been involved with the Thorofare discussion since 2004 through various committees, and that his property is located at "ground zero" for the Thorofare project. Mr. Ramey supported the Application, testifying no project will be perfect, but this project will lead to sustainable navigation. After testifying, but before the close of the hearing, Mr. Ramey supplemented his testimony with a document entitled *Last Chance to Save Upper Priest Lake*, which appears to be a transcript of a discussion in the United States Senate involving Senator Frank Church and the efforts to preserve Upper Priest Lake. One passage of that document states: "There is neither road nor trail to the lake but the approach is easy and scenic, via the Thoroughfare, a lazily meandering stream just deep enough for most outboard motorboats and wide enough to permit one boat to pass another." *Last Chance to Save Upper Priest Lake* at 3-4.

27. Ken Hagman, a member of the Steering Committee, next testified in favor of the Application.

28. John Hungate, property owner just north of the Thorofare, next testified as to his concerns that by rotating the breakwater and increasing the depth of the channel it will increase the velocity of water, moving more sand in front of his property, reducing the use and enjoyment of his property, as well as his property's value. Mr. Hungate explained it used to be possible to dive from his dock into Priest Lake, but that is no longer possible because of sand deposition.

29. After the public testimony, a reply was given by Bonner County. Mr. Klatt testified as to the impacts boats can have on shorelines. Mr. Klatt explained the area in and around the breakwater and Thorofare has been managed as a no wake zone.

30. Mr. Phillips, in reply for Bonner County, addressed the question of ice and rock. Mr. Phillips explained the subjects have been researched, with breakwaters used extensively in very cold places, such as the Great Lakes and the northern slope of Alaska. Mr. Phillips also addressed the question of sand movement and sedimentation. Using the "Navigation/Bathymetry" slide to the PowerPoint, Mr. Phillips explained the solid breakwater structure will move sand farther out into Priest Lake. Mr. Phillips testified he has personally visited Priest Lake and the Thorofare, in order to aid in the assessment and engineering of the project.

31. The hearing concluded around 7:30 p.m., and the record was closed.

CONCLUSIONS OF LAW

1. The Hearing Coordinator was tasked by the Department to issue a preliminary order. Idaho Code § 67-5245 governs preliminary orders and states as follows:

> (1) A preliminary order shall include:
>
> (a) A statement that the order will become a final order without further notice; and
>
> (b) The actions necessary to obtain administrative review of the preliminary order.
>
> (2) The agency head, upon his own motion may, or, upon motion by any party shall, review a preliminary order, except to the extent that:
>
> (a) Another statute precludes or limits agency review of the preliminary order; or
>
> (b) The agency head has delegated his authority to review preliminary orders to one (1) or more persons.
>
> (3) A petition for review of a preliminary order must be filed with the agency head, or with any person designated for this purpose by rule of the agency, within fourteen (14) days after the service date of the preliminary order unless a different time is required by other provision of law. If the agency head on his own motion decides to review a preliminary order, the agency head shall give written notice within fourteen (14) days after the issuance of the preliminary order unless a different time is required by other provisions of law. The fourteen (14) day period for filing of notice is tolled by the filing of a petition for reconsideration under section 67-5243(3), Idaho Code.

(4) The basis for review must be stated on the petition. If the agency head on his own motion gives notice of his intent to review a preliminary order, the agency head shall identify the issues he intends to review.
(5) The agency head shall allow all parties to file exceptions to the preliminary order, to present briefs on the issues, and may allow all parties to participate in oral argument.
(6) The agency head shall:
(a) Issue a final order in writing, within fifty-six (56) days of the receipt of the final briefs or oral argument, whichever is later, unless the period is waived or extended with the written consent of all parties, or for good cause shown;
(b) Remand the matter for additional hearings; or
(c) Hold additional hearings.
(7) The head of the agency or his designee for the review of preliminary orders shall exercise all of the decision-making power that he would have had if the agency head had presided over the hearing.

Idaho Code § 67-5245.

2. According to the *Notice of Appointment of Hearing Coordinator and Hearing*:

The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty (30) days after the conclusion of the hearing. As provided in Idaho Code § 67-5240, the contested case provisions of the Administrative Procedures Act do not apply where the legislature has directed the use of alternative procedures. Because the legislature has enacted specific alternative procedures in Idaho Code § 58-1306 that require a final order to be issued within 30 days of the hearing, and leave insufficient time to consider petitions for review of the preliminary order, the procedures of Idaho Code § 67-5245 addressing petitions for review of preliminary orders are not applicable.

Notice of Appointment of Hearing Coordinator and Hearing at 1-2 (emphasis added).

All such hearings shall be public and held under rules promulgated by the board under the provisions of chapter 52, title 67 of the Idaho Code. The board shall render a decision within thirty (30) days following conclusion of the hearing and a copy of the board's decision shall be mailed to the applicant and to each person or agency appearing at the hearing and giving testimony in support of or in opposition to the proposed encroachment. Any applicant or other aggrieved party so appearing at a hearing shall have the right to have the proceedings and decision of the board reviewed by the district court in the county where the encroachment is proposed by filing notice of appeal within thirty (30) days from the date of the board's decision.

Idaho Code § 58-1306(c).

3. The hearing in this matter concluded at approximately 7:30 p.m. on August 13, 2019, with the matter before the hearing coordinator to issue a preliminary order.

4. All testimony was considered by the hearing coordinator. All written comments and documents received before the hearing was closed were considered by the hearing coordinator.

A. The Applicant Bears the Burden of Persuasion

5. As the applicant, Bonner County bears the burden of persuasion. "The customary common law rule that the moving party has the burden of proof – including not only the burden of going forward but also the burden of persuasion – is generally observed in administrative hearings." *Intermountain Health Care, Inc. v. Bd. of County Comm'rs of Blaine County*, 107 Idaho 248, 251, 688 P.2d 260, 263 (Ct. App. 1984) *rev'd on other grounds* 109 Idaho 299, 707 P.2d 410 (1985).

6. Under Idaho law, "preponderance of the evidence" is generally the applicable standard for administrative proceedings, unless the Idaho Supreme Court or legislature has said otherwise. *N. Frontiers, Inc. v. State ex rel. Cade*, 129 Idaho 437, 439, 926 P.2d 213, 215 (Ct. App. 1996). "Absent an allegation of fraud or a statute or court rule requiring a higher standard, administrative hearings are governed by a preponderance of the evidence standard." *Id. citing* 2 Am. Jur. 2d *Administrative Law* § 363 (1994). In civil cases, the well-settled principle is that the burden of proof is preponderance of the evidence. *Nield v. Pocatello Health Services, Inc.*, 156 Idaho 802, 848, 332 P.3d 714, 760 (2014). "In most hearings the burden of persuasion is met by the usual civil case standard or preponderance of evidence." *Intermountain* at 251, 688 P.2d at 263 "A preponderance of the evidence means that when weighing all of the evidence in the

record, the evidence on which the finder of fact relies is more probably true than not." *Oxley v. Medicine Rock Specialties, Inc.*, 139 Idaho 476, 481, 80 P.3d 1077, 1082 (2003).

B. The Application Meets the Procedural Requirements of Idaho Code § 58-1306 and IDAPA 20.03.04

7. Certain requirements, contained in Idaho Code § 58-1306 and IDAPA 20.03.04, must be met for an application to be considered by IDL.

8. First, "Applications for construction, enlargement or replacement of a nonnavigational encroachment, a commercial navigational encroachment, a community navigational encroachment, or for a navigational encroachment extending beyond the line of navigability shall be submitted upon forms to be furnished by the board and accompanied by plans of the proposed encroachment containing information required by section 58-1302(k)." Idaho Code § 58-1306(a); *see also* IDAPA 20.03.04.020.07. Plans are defined as meaning, "maps, sketches, engineering drawings, aerial and other photographs, word descriptions, and specifications sufficient to describe the extent, nature and approximate location of the proposed encroachment and the proposed method of accomplishing the same." Idaho Code § 58-1302(k); *see also* IDAPA 20.03.04.020.07. Here, the Application was submitted on the *Joint Application for Permits* form, approved for use by the Department. Through maps, aerial images, site plans, engineering drawings, and construction elevations, the County describes the work that will occur. Therefore, the Application meets the requirements of Idaho Code § 58-1306(a), Idaho Code § 58-1302(k), and IDAPA 20.03.04.020.07.

9. Second, "Applications for noncommercial encroachments intended to improve waterways for navigation, wildlife habitat and other recreational uses by members of the public must be filed by a municipality, county, state, or federal agency, or other entity empowered to make such improvements. Application fees are not required for these encroachments." IDAPA

20.03.04.07.d. Here, the Application is for a public, navigational encroachment. *Application* at 1, line 15; *IDL Comment* at 3. The Application was filed by Bonner County. *Application* at 1. As a governmental entity, and in accordance with IDAPA 20.03.04.07.d, Bonner County was authorized to file this type of application.

10. Third, "Within ten (10) days of receipt of an application . . . the board shall cause to be published . . . once a week for two (2) consecutive weeks, a notice advertising of the application and describing the proposed encroachment and general location thereof." Idaho Code § 58-1306(b); *see also* IDAPA 20.03.04.030.01. Here, the Application was initially received on April 16, 2019. The Application was deemed complete by the Department on June 5, 2019, following submittal of the *Addendum* discussing "how much of the breakwater and western excavation (5,725 cubic yards) will be disposed of at an upland site." On June 6, 2019, the Department prepared a *Memorandum* that it sent to various local, state, and federal entities, as well as the Idaho Conservation League and adjacent neighbors. On June 10, 2019 and June 12, 2019, IDL mailed courtesy notification letters to landowners in the area, informing them of the Application and the ability to comment. Notice of the Application was published in the *Bonner County Daily Bee* for a period of two consecutive weeks, commencing on June 19, 2019 and ending June 26, 2019. *Affidavit of Publication*. Therefore, the Application was timely published in accordance with Idaho Code § 58-1306(b) and IDAPA 20.03.04.030.01.

11. Fourth, "Any resident of the state of Idaho, or a nonresident owner or lessee of real property adjacent to the lake, or any state or federal agency may, within thirty (30) days of the first date of publication, file with the board an objection to the proposed encroachment and a request for a hearing on the application." Idaho Code § 58-1306(c); *see also* IDAPA 20.03.04.030.04. The first notice of the Application was published on June 19, 2019, with the

last notice published on June 26, 2019. The first written comment was received by the Department on June 17, 2019, with the last written comment received on August 11, 2019. While comments must have been received "within thirty (30) days after the first appearance of this notice," which was June 19, 2019, the Department continued to take written comments up until the close of the hearing on August 13, 2019. All written comments were considered by the hearing coordinator. Therefore, the Department provided more than the statutorily required period of thirty days for receiving comments.

12. Fifth, a hearing may be held if an objection requesting a hearing is made, or upon the Department's own discretion. Idaho Code § 58-1306(c); *see also* IDAPA 20.03.04.030.05. Here, the Director ordered a hearing be held, noticing the same through publication in the *Bonner County Daily Bee*. Therefore, the hearing requirement of Idaho Code § 58-1306(c) and IDAPA 20.03.04.030.05 is satisfied. All oral comments and associated documents given to the hearing coordinator at the hearing were considered.

C. The Department Possess the Authority to Regulate Priest Lake

13. The Department is vested with the authority, in the interest of "public health, interest, safety and welfare [to regulate] all encroachments upon, in or above the beds of waters of navigable lakes of the state . . . in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment." Idaho Code § 58-1301.

14. The County proposes to work in the bed of Priest Lake in order to construct a navigational encroachment. *Application* at 1, line 15; *IDL Comment* at 3. The work is discussed

in the Application, drawings, and aerial images. Priest Lake is a navigable body of water that is regulated by the Department. *State of Idaho v. Hudson*, 162 Idaho 888, 407 P.3d 202 (2017).

15. "Priest Lake has been a navigable lake since Idaho became a state in 1890. In approximately 1950, the State of Idaho constructed a dam on Priest Lake, which has stabilized the lake elevation at approximately 2437.64 feet from July to September since 1951." *Id.* at 889, 407 P.3d at 203. "Idaho law provides that 'a riparian owner (on a navigable river or stream) or a littoral owner (on a navigable lake) takes title down to the natural high water mark.' The State of Idaho then owns, 'in trust for the public title to the bed of the navigable water below the OHWM as it existed at the time the State was admitted into the Union.' The Idaho legislature enacted the LPA, which is codified as Idaho Code 58, chapter 13, to regulate encroachments and activities that occur in, on, or above navigable lakes in the State of Idaho." *Id.* at 893, 407 P.3d at 207. The presence of the dam on Priest Lake and the water level the dam creates is not a material fact in determining the ordinary high water mark ("OHWM"). *Id.*

D. The Public Trust Doctrine

16. "The board of land commissioners shall regulate, control and may permit encroachments in aid of navigation or not in aid of navigation on, in or above the beds or waters of navigable lakes . . . ." Idaho Code § 58-1303.

17. Consideration of an application for encroachment requires the balancing of interests:

> The legislature of the state of Idaho hereby declares that the public health, interest, safety and welfare requires that all encroachments upon, in or above the beds or waters of navigable lakes of the state be regulated in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment. No encroachment on, in or above the beds or waters

> of any navigable lake in the state shall hereafter be made unless approval therefor has been given as provided in this act.

Idaho Code § 58-1301.

18. The public trust doctrine is "a limitation on the power of the state to alienate or encumber title to the beds of navigable waters as defined in this chapter." Idaho Code § 58-1203(1). As explained by the Idaho Supreme Court, the following factors should be considered in evaluating an application for encroachment:

> [T]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce; the impact of the individual project on the public trust resource; the impact of the individual project when examined cumulatively with existing impediments to full use of the public trust resource, i.e. in this instance the proportion of the lake taken up by docks, moorings or other impediments; the impact of the project on the public trust resource when that resource is examined in light of the primary purpose for which the resource is suited, i.e. commerce, navigation, fishing or recreation; and the degree to which broad public uses are set aside in favor of more limited or private ones

Kootenai Env. Alliance, Inc. v. Panhandle Yacht Club, Inc., 105 Idaho 622, 629-30, 671 P.2d 1085, 1092-93 (1983) (hereinafter "KEA").

19. According to Department rule: "Breakwaters built upon the lake for use in aid of navigation will not be authorized below the normal low water without an extraordinary showing of need, provided, however, that this shall not apply to floating breakwaters secured by piling and used to protect private property from recurring wind, wave, or ice damage, or used to control traffic in busy areas of the lakes. The breakwater shall be designed to counter wave actions of known wave heights and wave lengths." IDAPA 20.03.04.015.06.

20. In evaluating the factors set forth in Idaho Code § 58-1301 and *KEA*, and as will be explained below, the Application, is approved, subject to certain conditions set forth in sections E, F, and G in this preliminary order.

21. The Application is for a breakwater in aid of navigation. *Application* at 1, line 15. By rule, a "breakwater" is defined as an "Encroachment in Aid of Navigation." IDAPA 20.03.04.010.15. "The term 'encroachments in aid of navigation' may be used interchangeably herein with the term 'navigational encroachments.'" *Id.*

22. According to *KEA*, the "[t]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce" should be reviewed. *KEA* at 629, 671 P.2d at 1092. Because no road exists, the Thorofare is the main access route to Upper Priest Lake, *Application* at 3; *see also Last Chance to Save Upper Priest Lake* at 3-4, with the breakwater helping maintain access to the Thorofare. Without a replaced breakwater, navigational access to Upper Priest Lake will be hindered, which will negatively impact recreation and commerce. By deepening the channel to 5 feet, and maintaining the no wake zone to reduce the movement of sediment, the replaced breakwater should improve navigation and recreation opportunities. Reducing deposition of sediment near the breakwater, Thorofare, and shoreline is a project goal, was a public comment, and was testified to at the hearing. While fish, fisheries, and fish migration were discussed in the Application and other written materials, fishing was not.

23. According to *KEA*, the replaced breakwater should be "examined cumulatively with existing impediments to full use of the public trust resource . . . ." *KEA* at 629, 671 P.2d at 1092. Furthermore, "the impact of the individual project on the public trust resource" should be examined. *Id.* It is important that the breakwater is a historic structure, present since approximately 1917, with aerial photography from as early as 1935 showing its presence in much the same area as it exists today and as discussed in the Application. *Testimony of Steve Klatt*; *PowerPoint*. Comments in the record and testimony at the hearing did not dispute the need for a breakwater, with consensus that something needs to be done. When examined

cumulatively, the breakwater and Thorofare are important features in Priest Lake that have been present for a century and aid in full use of the public trust resource.

24. According to *KEA*, the proposed breakwater should be examined "in light of the primary purpose for which the resource is situated, i.e. commerce, navigation, fishing or recreation . . . ." *KEA* at 630, 671 P.2d at 1093. A primary purpose of Priest Lake was not discussed. That said, the record supports a conclusion that the breakwater aids in navigation, recreation, and commerce in and around that area of Priest Lake.

25. According to *KEA*, the proposed breakwater should be examined in light of "the degree to which broad public uses are set aside in favor of more limited or private uses." *KEA* at 630, 671 P.2d at 1093. The breakwater is for public use, allowing the public to better use the Thorofare, which is the navigational access to Upper Priest Lake. *Application* at 3; *see also Last Chance to Save Upper Priest Lake* at 3-4.

26. Specifically discussed was the height of the proposed breakwater relative to the existing timber breakwater, the materials chosen for the proposed breakwater, the lack of vegetation on the timber breakwater relative to the proposed breakwater, the alignment and porosity of the proposed breakwater, ice, and waves were discussion points in the record.

27. As to height, the existing breakwater varies, with the evidence showing it is approximately "+6.5 feet." *Application, Sheet 5 of 7 (Sections 1)*; *IWRB PowerPoint at 9*. The proposed breakwater will be "+7.0 feet." *Application, Sheet 5 of 7 (Sections 1)*. The height of the breakwater is important because a structure that is unreasonably taller than the existing breakwater will impact views from the northern end of Priest Lake and the overall aesthetic. While the proposed breakwater is not identical in height, and will be approximately six inches

higher than the existing breakwater, increasing the height of the breakwater by six inches is reasonable in light of the public benefits the breakwater will provide.

28. As to materials, the existing breakwater is timber driven into the bed of Priest Lake, while the proposed breakwater will consist of sand, gravel, cobble, and stone. *Application, Sheet 5 of 7 (Sections 1)*. An alternative considered was construction of a vertical breakwater made from steel sheetpile. *Application* at 2, line 17; *IWRB PowerPoint* at 5, 35-36. "The sheet pile option provides high constructability, but no opportunity for habitat enhancement, and pile driving can be disruptive to fish." *Application* at 2, line 17. Additional concerns raised with this alternative were: aesthetics ("galvanized or bare steel not a natural material"); wave and wake action; scour at the toe of the wall; and that it would be less compatible with dredged material reuse. *IWRB PowerPoint* at 36. From a cost standpoint, the vertical steel breakwater would cost significantly more than the sloped rock breakwater. *Id.* at 39-40. "A Rock Breakwater is recommended – It is the best material type for project site conditions (ice, access, hydrodynamics), locally available materials, and lower maintenance requirements." *IWRB PowerPoint at 42*. "The rubblemound structure can provide additional habitat, can be constructed in isolated conditions, and does not have the high underwater noise levels, [t]hus, it was selected." *Application* at 2, line 17. Local quarries will be used to source the rock for the breakwater. *IWRB PowerPoint* at 16-17. A concern raised at the hearing was whether the proposed breakwater would chip or break, resulting in material other than sand washing ashore. This is possible. That said, and as discussed at the hearing by the project engineer, the stone is local, is good quality, and is predicted to last for 75-100 years. The natural construction materials that will be used in construction of the stone breakwater are reasonable in light of the public benefit the breakwater will provide, and is reasonable in light of the proposed alternatives.

29. As to vegetation, a concern is the existing vertical breakwater has no vegetation growing on it, while the proposed breakwater is designed with vegetation on the Priest Lake side of the structure. *Application, Sheet 5 of 7 (Sections 1)*. Vegetation is likely necessary to help anchor the gravel, cobble, and rock. The Application proposes "native species to be determined" that will be planted above the OHWM and stop one-foot short of the crest of the breakwater. *Id.* Because vegetation grows, it could impact the viewshed. *Comment of Mark Aden* ("No one wants a highly obtrusive structure that obscures the lake or the Thorofare any more than possible."); *Comment of Brian and RoseAnn Elliott* ("We would expect that no vegetation would be planted where there currently is no vegetation. We purchased this property because of the unobstructed view looking south down the lake. We expect the same view in perpetuity."). That vegetation should not unreasonably impact the viewshed was contemplated by Bonner County: "Plantings ok; needs to be lower growing shrubs and not large trees that would impact viewshed for property owners at Sand Piper Shores." *IWRB PowerPoint* at 14. The species of plants to be selected should be native and as low growing as possible to accomplish their purpose, yet not infringe on the viewshed. While not required, Bonner County is encouraged to continue the good public outreach it has done in the past to select vegetation that will accomplish these goals.

30. As to alignment, the proposed breakwater is rotated approximately 15 degrees differently from the existing breakwater. *Application, Figure 2a*; *PowerPoint* at 11; *IWRB PowerPoint* at 11, 28. As to porosity, the proposed breakwater will be solid, whereas the existing breakwater is not. *Application* at 2. "A rotated alignment is recommended, to further confine the flow, and is consistent with the first breakwater constructed." *IWRB PowerPoint* at 41. Deposition of sediment along the shore was discussed at the hearing as a concern. The rotated alignment and nonporous nature of the proposed breakwater was supported by computer

modeling and is predicted to improve sediment travel through the Thorofare, allowing sand to move into the deeper portions of Priest Lake. *Testimony of Shane Phillips*; *PowerPoint* at 12. The rotated alignment and nonporous construction is reasonable in light of the public benefits the breakwater will provide.

31. As to ice, Priest Lake does freeze, *IWRB PowerPoint* at 9, 12, 40, and ice could build up on the breakwater, damaging it. Ice was raised as a concern at the hearing relative to the proposed breakwater. Ice was addressed in the record. *Id.* Ice was addressed at the hearing by Mr. Phillips, who explained the design accounted for it. Mr. Phillips also stated breakwaters are extensively used in very cold environments such as the Great Lakes and the northern slope of Alaska. The proposed breakwater, which is sloped, will better withstand ice than a vertical breakwater. *IWRB PowerPoint* at 40. The proposed breakwater accounts for ice and is reasonable in light of the public benefit it will provide.

32. According to Department rule: "The breakwater shall be designed to counter wave actions of known wave heights and wave lengths." IDAPA 20.03.04.015.06. Waves and water levels were discussed in the record and accounted for in the design of the proposed breakwater. *IWRB PowerPoint* at 9. Waves were discussed in the record and were accounted for in the proposed breakwater. *Id.* at 10. The Application meets the criteria of IDAPA 20.03.04.015.06.

E. Unused Timber Breakwater

33. As discussed at the hearing, certain portions of the existing timber breakwater will be used during construction, while other portions will not.

34. According to IDL rule: "Pilings, anchors, old docks, and other structures or waste at the site of the installation or reinstallation and not used as a part of the encroachment shall be

removed from the water and lakebed at the time of the installation or reinstallation to a point above normal flood water levels . . . ." IDAPA 20.03.04.060.02.a.

35. As to the existing timber breakwater, the Department commented as follows: "Section 16 on page 2 of the application form briefly mentions removal of the existing timber breakwater on line 4. No further details are given. The existing timber breakwater will be used to support the western end of the proposed breakwater from STA 0+00 to STA 3+00 as shown in Sheet 4 of 7 and Sheet 5 of 7 on pages 13 and 14 of the application. The rest of the existing breakwater from STA 3+00 eastward should be removed during the project." *IDL Comment* at 3.

36. Consistent with its comment, IDL requests any encroachment permit that issues include the following language: "Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed/Sheet 4 of 7 Drawing will occur prior to project completion." *IDL Comment* at 4.

37. The Department's request that Bonner County remove the unused timber breakwater from the bed of Priest Lake is grounded in rule, IDAPA 20.03.04.055, and is approved by the hearing coordinator.

F. Submerged Land Easement

38. According to IDL rule: "Breakwaters . . . on or over state-owned beds, designed primarily to create additional land surface, will be authorized, if at all, by an encroachment permit and submerged land lease or easement, upon determination by the department to be an appropriate use of submerged lands." IDAPA 20.03.04.055.02. "As a condition of the encroachment permit, the department may require a submerged land lease or easement for use of any part of the state-owned bed of the lake where such lease or easement is required . . . . A lease or easement may be required for uses including, but not limited to, commercial uses.

Construction of an encroachment authorized by permit without first obtaining the required lease or easement shall constitute a trespass upon state-owned public trust lands. This rule is intended to grant the state recompense for the use of the state-owned bed of a navigable lake where reasonable and it is not intended that the department withhold or refuse to grant such lease or easement if in all other respects the proposed encroachment would be permitted." IDAPA 20.03.04.055.

39. According to the Department, "The proposed breakwater will be a permanent addition to the bed of Priest Lake, and will essentially create a peninsula above the ordinary high water mark (OHWM) of Priest Lake. Permanent features such as this placed on state-owned navigable waters normally require a submerged lands lease or submerged lands easement. Due to the noncommercial use of the breakwater, IDL believes a submerged lands easement would be more appropriate in this instance. An easement will also document the location of the ordinary high water mark and ensure that no claim can be made for upland ownership of the breakwater. Even though the breakwater will extend above the OHWM, it is still impressed with the public trust due to the underlying state-owned lake bed." *IDL Comment* at 3. As a result, IDL requests any encroachment permit that issues include the following language: "Bonner County will submit an application for a submerged lands easement to cover the new breakwater in Priest Lake." *IDL Comment* at 4.

40. Bonner County anticipated the possibility that an easement might be needed from the Department. *IWRB PowerPoint* at 13 ("may require an 'easement' type permit").

41. The Department's request that Bonner County obtain a submerged lands easement is grounded in rule, IDAPA 20.03.04.055, was anticipated by the applicant, and is approved by the hearing coordinator.

G. Dredged or Excavated Materials

42. According to the Department, "Most of the dredged or excavated material removed from the OWHM will be used in the project and left on the state owned bed of Priest Lake. An estimated 1,718 cubic yards of this material is planned to be hauled off site and disposed of in an upland location. A royalty on this material must be paid to IDL. For a project of limited duration and scope such as this proposal, a Land Use Permit is typically used by IDL to recover administrative costs and royalties associated with mineral removal from state lands." *IDL Comment* at 3-4.

43. In the *Addendum* to the Application, Bonner County states of the 5,725 cubic yards of excavation, 4,007 cubic yards will be reused at the site, and 1,718 cubic yards will be hauled off site and disposed of in an upland location.

44. Idaho Code § 47-717 states: "It shall be unlawful for any person, association, firm or corporation to remove in commercial quantities any ores, minerals, or deposits from state lands before securing a lease for said lands from the state board of land commissioners. Any person, association, firm or corporation who so removes ores, minerals or deposits shall be liable to the state for treble damages in a civil action."

45. In accordance with Idaho Code § 47-717, the Department requests any encroachment permit that issues include the following language: "Bonner County or their contractor will obtain a Land Use Permit or other instrument approved by IDL to pay for sand and other natural lake bed materials dredged or removed from below the OHWM of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards." *IDL Comment* at 4.

46. The Department's request that Bonner County obtain a Land Use Permit or other instrument to pay for sand and other natural lake bed materials dredged or removed from below the OHWM of Priest Lake and used or disposed of outside the confines of the state-owned lake bed is grounded in statute, Idaho Code § 47-717, and is approved by the hearing coordinator.

ORDER

Based on the foregoing findings of fact and conclusions of law, IT IS HEREBY ORDERED that Encroachment Permit Application No. L-97-S-0891C is APPROVED, subject to the following four conditions, as well as any other conditions imposed by the Director of the Idaho Department of Lands:

1. Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed/Sheet 4 of 7 Drawing will occur prior to project completion;

2. Bonner County will submit an application for a submerged lands easement to the Idaho Department of Lands to cover the new breakwater in Priest Lake;

3. Bonner County or their contractor will obtain a Land Use Permit or other instrument approved by the Idaho Department of Lands to pay for sand and other natural lake bed materials dredged or removed from below the ordinary high water mark of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards; and

4. The species of plants selected for the breakwater must be native and as low growing as reasonably possible in order to anchor the material, yet not infringe on the viewshed.

IT IS FURTHER ORDERED that the order issued herein is a PRELIMINARY ORDER. Idaho Code § 67-5245. The hearing in this matter was completed on August 13, 2019. Consistent with the *Notice of Appointment of Hearing Coordinator and Hearing*, "The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty days after the conclusion of the hearing." This

Preliminary Order is submitted fewer than thirty days after conclusion of the hearing.

Dated this 28th day of August, 2019.

CHRIS M. BROMLEY
Hearing Coordinator

CERTIFICATE OF SERVICE

I certify that on this 28th day of August, 2019, I caused to be served a true and correct copy of the foregoing was served upon the following persons by the method(s) indicated:

Dustin T. Miller
Director
Idaho Dept. of Lands
P.O. Box 83720
Boise, ID 83720-0050

- ☐ U.S. Mail, postage prepaid
- ☒ Hand Delivery
- ☐ Facsimile:
- ☒ Email: dmiller@idl.idaho.gov

Kourtney Romine
Administrative Assistant
Idaho Dept. of Lands
P.O. Box 83720
Boise, ID 83720-0050

- ☐ Statehouse Mail
- ☐ Hand Delivery
- ☐ Federal Express
- ☒ Email: kromine@idl.idaho.gov

Angela Schaer Kaufmann
P.O. Box 83720
Boise, ID 83720-0010

- ☐ Statehouse Mail
- ☐ Hand Delivery
- ☐ Federal Express
- ☒ Email: angela.kaufmann@ag.idaho.gov

CHRIS M. BROMLEY

BEFORE THE STATE BOARD OF LAND COMMISSIONERS
STATE OF IDAHO

In the Matter of:	)	Case No. PH-2019-PUB-10-001
	)	
Encroachment Permit Application No. L-97-S-0891C	)	**FINAL ORDER**
	)	
Bonner County, Applicant.	)	
	)	

I. NATURE OF PROCEEDINGS/ISSUES

Encroachments, including breakwaters, placed in, on or above the beds of navigable lake, and channel deepening, require a permit issued by the Idaho Department of Lands ("IDL") pursuant to the requirements of the Lake Protection Act, Title 58, Chapter 13, Idaho Code, and the corresponding administrative rules promulgated by the State Board of Land Commissioners, IDAPA 20.03.04.000 *et seq.*, Rules for the Regulation of Beds, Waters and Airspace over Navigable Lakes in the State of Idaho.

Bonner County ("Applicant"), applied for Encroachment Permit No. L-97-S-0891C on April 16, 2019 ("Application"), followed by an Addendum on June 19, 2019. According to the Application,

> The purpose of this project is to provide navigable access from Priest Lake into the Thorofare during the recreational season. The overall objective of the project is to develop sustainable modifications to improve Thorofare access and navigability with channel deepening and replacement of the derelict breakwater.

Application, p. 1.

On June 17, 2019, I issued a Notice of Appointment of Hearing Coordinator and Hearing, in which I appointed Chris Bromley as Hearing Coordinator. The document also provided notice

of a public hearing to be held on August 13, 2019 at 6:00 p.m. Pacific Daylight Time in Priest River, Idaho.

The Hearing Coordinator issued his Preliminary Order on August 28, 2019. My responsibility is to render a decision pursuant to Idaho Code § 58-1306(c) and IDAPA 20.03.04.030.07 on the behalf of the State Board of Land Commissioners based on the record and applicable law. In making this determination I have relied on the record for this matter. Specifically,

- I have reviewed the record, including the Application and all documents and exhibits thereto; all written comments received prior to the close of the August 13, 2019 hearing; and all documents and exhibits.
- I have examined the Hearing Coordinator's Preliminary Order in light of the record and the applicable law.

II. FINDINGS OF FACT

I adopt Paragraphs 1 – 31 of the Factual and Procedural Background of the Preliminary Order as my Findings of Fact.

III. CONCLUSIONS OF LAW

A. I adopt Paragraphs 1-15 of the Conclusions of Law of the Preliminary Order ("Conclusions of Law"). I specifically conclude that the Application meets the procedural requirements of Idaho Code § 58-1306 and IDAPA 20.03.04.000 *et seq.* and that the Department possesses the authority to regulate encroachments in, on or above the bed of Priest Lake.

B. I adopt Paragraphs 16-21 of the Conclusions of Law.

C. I have chosen not to adopt the first sentence of Paragraph 22 of the Conclusions of Law as written, and instead substitute the following:

> 22. Idaho Code § 58-1301 requires that the "lake values" of "the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration . . . ." I.C. § 58-1301. *See also KEA* at 629, 671 P.2d at 1092 ("[t]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce should be reviewed."

I adopt the remainder of Paragraph 22, beginning with "[b]ecause no road exists, . . ."

D. I have chosen not to adopt the first sentence of Paragraph 23 of the Conclusions of Law as written, and instead substitute the following:

> 23. Under Idaho Code § 58-1301, the "lake values" must be "given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment." *See also KEA* at 629, 671 P.2d at 1092 (a proposed encroachment should be "examined cumulatively with existing impediments to the full use of the public trust resource.")

I adopt the remainder of Paragraph 23, beginning with "Furthermore, 'the impact of the individual project . . . ."

E. I have chosen not to adopt the first sentence of Paragraph 24 of the Conclusions of Law as written, and instead substitute the following:

> 24. The balancing of factors required in Idaho Code § 58-1301 requires consideration of a proposed encroachment's purpose. *See also KEA* at 630, 671 P.2d at 1093 (a proposed encroachment such as the breakwater should be examined "in light of the primary purpose for which the resource is situated, i.e., commerce, navigation, fishing or recreation . . . .")

I adopt the remainder of Paragraph 24, beginning with ""'A primary purpose of Priest Lake . . . ."

F. I have chosen not to adopt the first sentence of Paragraph 25 of the Conclusions of Law as written, and instead substitute the following:

25. Idaho Code § 58-1301 requires a balancing of lake values with the justification for or benefit of a proposed encroachment. *See also KEA* at 630, 671 P.2d at 1093 (consideration should be given to "the degree to which broad public uses are set aside in favor of more limited or private uses.").

I adopt the remainder of Paragraph 25, beginning with "The breakwater is for private use. . . ."

G. I hereby adopt Paragraphs 26 – 46 of the Conclusions of Law.

IV. FINAL ORDER

Having reviewed the record and Preliminary Order, I adopt the Preliminary Order as my decision in this matter, and it is incorporated by reference herein, except as explicitly set forth above. The Preliminary Order is attached to this Final Order. The Applicant is qualified to make application for the encroachments and activities discussed herein, and the proposed encroachment is in conformance with the applicable standards.

It is hereby ORDERED that the Application for Encroachment Permit No. L-97-S-0891C is APPROVED subject to the following four conditions:

1. **Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed Sheet 4 of 7 Drawing will occur prior to project completion;**

2. **Bonner County will submit an application for a submerged lands easement to the Idaho Department of Lands to cover the new breakwater in Priest Lake;**

3. **Bonner County or its contractor(s) will obtain a Land Use Permit or other instrument approved by the Idaho Department of Lands to compensate the State/IDL for sand and other natural lake bed materials dredged or removed from below the ordinary high water mark of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards; and**

4. **The species of plants selected for the breakwater must be native and as low growing as reasonably possible in order to anchor the material, yet not infringe on the viewshed.**

This is a final order of the agency. Pursuant to Idaho Code § 58-1306(c) and IDAPA 20.30.04.030.09, the Applicant or any aggrieved party who appeared at the hearing shall have the

right to have the proceedings and Final Order reviewed by the district court in the county in which the encroachment is proposed by filing a notice of appeal within thirty (30) days from the date of this Final Order. Because this Order is for approval of a permit, any party appealing this Final Order must file a bond with the district court in accordance with Idaho Code § 58-1306(c). The amount of the bond will be set by the district court, in an amount not less than $500.

DATED 12th day of September, 2019

DUSTIN T. MILLER
Director, Department of Lands

CERTIFICATE OF MAILING

I hereby certify that on this 12th day of September, 2019. I caused to be served a true and correct copy of the foregoing by the method indicated below, and addressed to the following:

Jason Scott GeoEngineers, Inc. 523 East Second Avenue Spokane, WA 99202	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☒ Email: jscott@geoengineers.com
Steve Klatt Bonner County 1500 Highway 2, Suite 101 Sandpoint, ID 83864	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☒ Email: steve.klatt@bonnercountyid.gov
Joy Vega P.O. Box 83720 Boise, ID 83720-0010	☒ Statehouse Mail ☐ Hand Delivery ☒ Email: joy.vega@ag.idaho.gov
Idaho Department of Lands c/o Andrew Smyth, Public Trust Program Manager 300 N 6th Street, Suite 103 Boise, ID 83702-0050	☐ U.S. Mail, postage prepaid ☒ Hand Delivery ☒ Email: asmyth@idl.idaho.gov

Courtesy copy via email only:
Shane Slate – shane.p.slate@usace.army.mil
Jeremy Deforge – Jeremy@4seasonslandscape.net
John & Lydia Hungate – jell60@hotmail.com
Rick Collingwood – rick.collingwood@idwr.idaho.gov
Randy Ramey – randy@predevinc.com
Eleanor Jones – ejjones3@gmail.com
Anne Ashburn – ashburn@nwrain.com
Jon Miller – jrmecon@uidaho.edu
Neeley Miller – neeley.miller@idwr.idaho.gov
Ken Hagman – ken@copperbayconstruction.com
Fred Cox – fredcox@sisna.com
Craig Hill – craighill@hillsresort.com

Kartney Romine
Kourtney Romine, Administrative Assistant

BEFORE THE DEPARTMENT OF LANDS

OF THE STATE OF IDAHO

In the Matter of: Encroachment Permit Application No. L-97-S-0891C Bonner County, Applicant.	Case No. PH-2019-PUB-10-001 **PRELIMINARY ORDER**

FACTUAL AND PROCEDURAL BACKGROUND

A. The Application

1. On April 16, 2019, Bonner County filed a *Joint Application for Permits* ("Application") with the Idaho Department of Lands ("Department" or "IDL") for a breakwater at the north end of Priest Lake to replace an existing timber breakwater. *Application* at 2, line 16. Figures 1 and 3 to the Application show the general location of the proposed breakwater in relation to Priest Lake. Figure 2a to the Application is a closer view of the proposed breakwater in relation to the existing breakwater. Sheet 4 of 7 to the Application is a more detailed site plan of the proposed breakwater itself.

2. On May 2, 2019, the Department emailed Bonner County regarding an incomplete detail in the Application concerning the disposal of sediment. A subsequent email was sent to Bonner County on May 29, 2019, again requesting the additional information. On May 31, 2019, a consultant for Bonner County responded to IDL's question.

3. On June 5, 2019, the Department, in an email to Bonner County, deemed the Application complete, through the addition of an *Addendum*, discussing "how much of the

breakwater and western excavation (5,725 cubic yards) will be disposed of at an upland site." *See also Testimony of Mike Ahmer and Trevor Anderson*. The *Addendum* states it modifies page 2, box 16 to the Application.

4. According to the Application: "The purpose of this project is to provide navigable access from Priest Lake into the Thorofare during the recreational season. The overall objective of the project is to develop sustainable modifications to improve Thorofare access and navigability with channel deepening and replacement of the derelict breakwater. The project is supported by the Idaho Water Resources Board, Bonner County, Priest Lake businesses and numerous private stakeholders." *Application* at 1, line 15. In line 15, page 1 of the Application, the box "Public" is checked defining the purpose and need for the navigational encroachment.

5. Attached to the Application are various maps, aerial images, site plans, construction elevations, engineering drawings, and a PowerPoint entitled, *Priest Lake Water Management Report: Thorofare Preliminary Engineering – Progress Report*, dated November 5, 2018, prepared by Mott MacDonald for the Idaho Department of Water Resources and the Idaho Water Resource Board ("IWRB PowerPoint"). The Application shows it was mailed to adjacent property owners.

6. The Application explains:

> A solid breakwater will be installed along a slightly rotated alignment, with extension further into the lake. Thorofare dredging to the -2.0 Lake Datum will provide a 5-foot depth for navigation.
>
> The western end of the breakwater would first be breached, to funnel flow into a remnant channel, providing a temporary migratory channel for fish. This would allow dredging, timber breakwater removal, and construction to occur in isolated conditions.
>
> The footprint of the breakwater and western extension will require removal of 5,725 cubic yards (cy) of sediment to meet planned elevations. Approximately 10,374 cy of stone, gravel, and cobble would then be hauled to the project area to build up the

breakwater. The final breakwater will be about 1,300 feet long, and 42 feet wide. A 225-foot western extension of the breakwater will also be constructed to mitigate wave erosion risk and protect this section from bank erosion during high flow. It will consist of 660 cy of geobags and 492 cy of gravel/cobble built around the existing timber piles. About 12,200 cy of sediment will be dredged for the channel. Of this, 11,418 cy of dredge spoils will be re-used and place on the lake side (south) of the breakwater and extension as beach fill. These spoils will be graded at a 10:1 slope from the top of the breakwater to the lake. Native plants (e.g., willow) will be planted in the sandy spoils. The remainder of the dredge spoils (782 cy) would be hauled to an upland disposal site. The final dredged channel will be approximately 50 feet wide, and the dredge prism will cover roughly 3.5 acres.

A temporary haul road may be needed to ford the Thorofare at low water. 444 cy of gravel would be used, which would be removed after construction. Access may also be completed from the Lionhead Boat Launch, requiring 200 cy of temporary fill and 115 cy for Ecology block stabilization in the lake. A temporary erosion and sedimentation control (TESC) plan will be developed and implemented by the contractor. Silt fences will be installed along the perimeter of the work areas to confine sediment and runoff. Straw bales[,] stake straw wattles, or similar measures will be added to the silt fencing. Sediment release from the initial breakwater beach, breakwater removal, breakwater construction, and re-watering may result in temporary, localized increases in suspended sediment and turbidity. However, this impact is expected to be brief and minimal.

Id. at 2, line 16. As stated above, page 2, paragraph 16 was modified by the *Addendum*.

7. The Application discusses alternatives:

Several options were originally screened, and ultimately three alternatives were assessed (new bio-engineered, rubblemound, and sheet pile structures) for Thorofare improvements (see attached alternatives analysis[)]. A bio-engineered structure would require a larger footprint in the lake, and highest maintenance costs, and was thus eliminated from consideration. The sheet pile option provides high constructability, but no opportunity for habitat enhancement, and pile driving can be disruptive to fish. The rubblemound structure can provide additional habitat, can be constructed in isolated conditions, and does not have the high underwater noise levels, [t]hus, is was selected.

Id. at 2, line 17.

8. The Application discusses mitigation:

Following development of the new breakwater, the sandy material on the lake (south) side will be planted with native vegetation (e.g., willow). Flow will be returned to the original Thorofare channel. Due to the deeper (5-foot) channel, fish migration should be improved between Priest Lake and the Thorofare. Upon

> completion of the project, temporary fill will be removed at the Lionhead boat ramp and the area will be restored. Other project areas will be returned to pre-disturbance conditions. No other mitigation measures are anticipated at this time because all impacts are considered temporary.

Id. at 2, line 18.

9. The Application discusses best management practices:

> Thorofare flows will be managed to allow the majority of the construction to occur in near dry or isolated groundwater conditions to minimize the work areas exposed directly to open lake surface waters. This will require the installation of temporary berm to isolate work areas and diversion of existing flow channels around the active work areas. Temporary sand berms may be constructed with on-site sand and limited imported materials to divert water through an existing remnant channel upstream of the primary breakwater structure, such that most construction and dredging can be executed in the dry or at the lowest possible water level. The footprint of a berm to divert flow is approximately 225 feet long by 40 feet wide. Work sites will be restored to pre-project conditions after the completion of construction.

Id. at 3, line 26b.

B. Notice of the Application and Comments Received

10. On June 6, 2019, the Department prepared a *Memorandum* to be sent to various local, state, and federal entities, as well as the Idaho Conservation League and adjacent neighbors, giving notice of the Application to those who received the *Memorandum* and soliciting comments, recommendations, or objections by July 6, 2019.

11. On June 10, 2019, and June 12, 2019, IDL mailed courtesy notification letters to landowners in the area, informing them of the Application and the ability to comment.

12. On June 11, 2019, the United States Army Corps of Engineers ("USACE") stated it was working on finalizing its public notice for the breakwater.

13. On June 17, 2019, Dustin T. Miller, Director, appointed Chris M. Bromley as "'Hearing Coordinator' to conduct a hearing in the above-captioned matter. The hearing will be conducted pursuant to Idaho Code § 58-1306(c). The Hearing Coordinator has the scope of

authority delineated by IDAPA 20.01.01.413.01 and by IDAPA 20.03.04.05." *Notice of Appointment of Hearing Coordinator and Hearing* at 1. The Director "delegate[d] initial decision-making authority to the Hearing Coordinator pursuant to Idaho Code § 67-5245." *Id*. "Notice is hereby given that a public hearing in the above-captioned matter will be conducted in accordance with IDAPA 20.01.01.000 *et seq*. on Tuesday, August 13, 2019 at 6:00 p.m. Pacific Daylight Time at the Priest River Auditorium located at 1020 US-2, Priest River, Idaho." *Id*. at 2. "The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty days after the conclusion of the hearing." *Id*. at 1.

14. On June 26, 2019, IDL mailed letters to other landowners regarding the Application, the ability to comment, and the time and place for the hearing.

15. On June 27, 2019, an *Affidavit of Publication* was signed by a bookkeeper with the *Bonner County Daily Bee*, a newspaper of general publication in Bonner County, Idaho, stating notice of the Application and notice of the hearing "was published in the regular and entire issue of the Bonner County Daily Bee for a period of 2 consecutive weeks, commencing on the 19 day of June 2019, and ending on the 26 day of June, 2019."

16. During the months of June, July, and August, 2019, written comments were received by IDL concerning the Application. Some written comments agreed with the Application. Other written comments questioned the process, the greater height of the proposed breakwater relative to the current breakwater, exacerbation of sand build-up, deposition of dredged material, whether current infrastructure could handle construction, construction methods, and the impact to private property values. The written comments did not question the need to take some action as to the current state of the breakwater.

17. On August 5, 2019, IDL received an email from the Idaho Department of Environmental Quality stating: "DEQ will be developing a Water Quality Certificate for the Thoroghfare Project. We will start on it soon."

18. On August 12, 2019, IDL received a letter from the applicant, Bonner County. The letter discussed the efforts taken by Bonner County since 2016, beginning with "the feasibility study" to keep the project "in the public eye. We accepted dozens of comments throughout that period, which were accommodated in the final design. . . . . We have been reviewing comments that have been posted to the Idaho Department of Lands (IDL) website and addressing questions and concerns because it is important for this project to maximize the intended benefits and minimize impacts to the extent possible. . . . . As a project intended to provide benefits to the entire Priest Lake community (residential, business, and recreational), we will continue to maintain an open door to address comments and make sure voices are heard throughout the final design and construction phases of the project."

C. The August 13, 2019 Hearing

19. On August 13, 2019, a hearing took place at the Priest River Auditorium in Priest River, Idaho, starting at just after 6:00 p.m. The order of testimony was established by the hearing coordinator as follows: (1) testimony from Bonner County; (2) testimony from public agencies other than IDL; (3) testimony from IDL; (4) testimony from the public; and (5) any reply from Bonner County.

20. Testimony on behalf of the applicant was given by Steve Klatt, Bonner County, Department of Parks & Waterways. To aid his testimony, Mr. Klatt presented with a PowerPoint, entitled *Priest Lake Thorofare Improvement Project* (hereinafter "PowerPoint"). Mr. Klatt explained the breakwater has been present since approximately 1917, with aerial

photography supporting its existence since 1935. *Testimony of Steve Klatt*; *PowerPoint* at 2, 4. Mr. Klatt discussed the history of the breakwater, showing aerial photographs comparing the historic breakwater with the current breakwater. As part of the PowerPoint, Mr. Klatt superimposed a red outline over an aerial image showing where the 1935 breakwater stood in relation to the 2015 breakwater. *PowerPoint* at 4. Using the PowerPoint, Mr. Klatt explained how deposition of sediment has impacted the north end of Priest Lake and navigation, with different colors showing the depth of sediment. *Id*. at 6. Mr. Klatt also showed a slide with computer modeling that was done to understand waves and current. *Id*. at 7. Mr. Klatt discussed the need for improvements to the breakwater, the number of years the topic has been discussed in public forums, with creation of a steering committee made up of private and public stakeholders, and how the engineering firm, Mott MacDonald, was chosen for the project.

21. Shane Phillips, project manager and engineer with Mott MacDonald, also with aid of the PowerPoint, discussed the creation of a steering committee and public input that led to the consideration of improvement alternatives to the breakwater, ultimately leading to the contents of the Application. *Testimony of Shane Phillips*; *PowerPoint* at 5, 9. According to Mr. Phillips, the current breakwater was built with porous wood slats that allows currents and sediment to move through the breakwater, resulting in sediment deposition that reduces depth and impacts navigation. *Testimony of Shane Phillips*; *PowerPoint* at 5, 12. Mr. Phillips explained the proposed breakwater will be built from stone and will be rotated approximately 15 degrees from the existing timber breakwater, *PowerPoint* at 11-14, resulting in a "permanent repair to an existing structure," *Testimony of Shane Phillips*; *PowerPoint* at 16.

22. Mike Ahmer, Resource Supervisor – Public Trust, Department of Lands, next testified, reading his written comments into the record ("IDL Comment"). The IDL Comment

was made part of the record at the hearing.[1] The IDL Comment explains the Application proposes a public, navigational encroachment in and above the bed of Priest Lake. *IDL Comment* at 2-3; *see also Application* at 1, line 15. While past permitting was not made part of the record, the IDL Comment states: "IDL has issued encroachment permits for work on the Thorofare in the past." *Id*. at 2. "The Thorofare is the main access route to Upper Priest Lake because no road access exists. Potential impacts to the fisheries and water quality have been addressed in the proposed design and construction methods. Item 17 on page 2 of the application lists some of the measures proposed to prevent impacts to fisheries." *Id*. at 3. "The height of the breakwater is needed to withstand the effects of waves and ice." *Id*. "Protection of public trust resources such as fisheries and habitat helped lead to the selected design." *Id*. The IDL Comment concludes the Application for a navigational encroachment is approvable, subject to certain modifications and conditions. *Id*. at 4.

23. After Mr. Ahmer's comments, a representative with USACE explained a separate process exists for federal approval related to the Clean Water Act, with separate notice.

24. Jeff Connolly, Bonner County Commissioner, next testified in support of the project.

25. Eleanor Travis, a Priest Lake property owner, next testified concerning the lack of notice and consultation. Ms. Travis had concerns as to how the proposed breakwater would respond to ice and movement of rock. Ms. Travis read a passage from a 1981 book, entitled *North of the Narrows*, and concluded her testimony with a question as to whether the Thorofare in the future would resemble a canal.

[1] The IDL Comment received by the hearing coordinator bears a "Draft" watermark on pages 2 and 4. The IDL Comment shows it was electronically signed by Mr. Ahmer, but does not show his actual signature. The IDL Comment was read into the record by Mr. Ahmer and accepted into the record by the hearing coordinator.

26. Randy Ramey, a thirty-year owner from the Sandpiper Shores subdivision, next testified. Mr. Ramey explained he has been involved with the Thorofare discussion since 2004 through various committees, and that his property is located at "ground zero" for the Thorofare project. Mr. Ramey supported the Application, testifying no project will be perfect, but this project will lead to sustainable navigation. After testifying, but before the close of the hearing, Mr. Ramey supplemented his testimony with a document entitled *Last Chance to Save Upper Priest Lake*, which appears to be a transcript of a discussion in the United States Senate involving Senator Frank Church and the efforts to preserve Upper Priest Lake. One passage of that document states: "There is neither road nor trail to the lake but the approach is easy and scenic, via the Thoroughfare, a lazily meandering stream just deep enough for most outboard motorboats and wide enough to permit one boat to pass another." *Last Chance to Save Upper Priest Lake* at 3-4.

27. Ken Hagman, a member of the Steering Committee, next testified in favor of the Application.

28. John Hungate, property owner just north of the Thorofare, next testified as to his concerns that by rotating the breakwater and increasing the depth of the channel it will increase the velocity of water, moving more sand in front of his property, reducing the use and enjoyment of his property, as well as his property's value. Mr. Hungate explained it used to be possible to dive from his dock into Priest Lake, but that is no longer possible because of sand deposition.

29. After the public testimony, a reply was given by Bonner County. Mr. Klatt testified as to the impacts boats can have on shorelines. Mr. Klatt explained the area in and around the breakwater and Thorofare has been managed as a no wake zone.

30. Mr. Phillips, in reply for Bonner County, addressed the question of ice and rock. Mr. Phillips explained the subjects have been researched, with breakwaters used extensively in very cold places, such as the Great Lakes and the northern slope of Alaska. Mr. Phillips also addressed the question of sand movement and sedimentation. Using the "Navigation/Bathymetry" slide to the PowerPoint, Mr. Phillips explained the solid breakwater structure will move sand farther out into Priest Lake. Mr. Phillips testified he has personally visited Priest Lake and the Thorofare, in order to aid in the assessment and engineering of the project.

31. The hearing concluded around 7:30 p.m., and the record was closed.

CONCLUSIONS OF LAW

1. The Hearing Coordinator was tasked by the Department to issue a preliminary order. Idaho Code § 67-5245 governs preliminary orders and states as follows:

> (1) A preliminary order shall include:
>
> (a) A statement that the order will become a final order without further notice; and
>
> (b) The actions necessary to obtain administrative review of the preliminary order.
>
> (2) The agency head, upon his own motion may, or, upon motion by any party shall, review a preliminary order, except to the extent that:
>
> (a) Another statute precludes or limits agency review of the preliminary order; or
>
> (b) The agency head has delegated his authority to review preliminary orders to one (1) or more persons.
>
> (3) A petition for review of a preliminary order must be filed with the agency head, or with any person designated for this purpose by rule of the agency, within fourteen (14) days after the service date of the preliminary order unless a different time is required by other provision of law. If the agency head on his own motion decides to review a preliminary order, the agency head shall give written notice within fourteen (14) days after the issuance of the preliminary order unless a different time is required by other provisions of law. The fourteen (14) day period for filing of notice is tolled by the filing of a petition for reconsideration under section 67-5243(3), Idaho Code.

(4) The basis for review must be stated on the petition. If the agency head on his own motion gives notice of his intent to review a preliminary order, the agency head shall identify the issues he intends to review.
(5) The agency head shall allow all parties to file exceptions to the preliminary order, to present briefs on the issues, and may allow all parties to participate in oral argument.
(6) The agency head shall:
(a) Issue a final order in writing, within fifty-six (56) days of the receipt of the final briefs or oral argument, whichever is later, unless the period is waived or extended with the written consent of all parties, or for good cause shown;
(b) Remand the matter for additional hearings; or
(c) Hold additional hearings.
(7) The head of the agency or his designee for the review of preliminary orders shall exercise all of the decision-making power that he would have had if the agency head had presided over the hearing.

Idaho Code § 67-5245.

2. According to the *Notice of Appointment of Hearing Coordinator and Hearing*:

The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty (30) days after the conclusion of the hearing. As provided in Idaho Code § 67-5240, the contested case provisions of the Administrative Procedures Act do not apply where the legislature has directed the use of alternative procedures. Because the legislature has enacted specific alternative procedures in Idaho Code § 58-1306 that require a final order to be issued within 30 days of the hearing, and leave insufficient time to consider petitions for review of the preliminary order, the procedures of Idaho Code § 67-5245 addressing petitions for review of preliminary orders are not applicable.

Notice of Appointment of Hearing Coordinator and Hearing at 1-2 (emphasis added).

All such hearings shall be public and held under rules promulgated by the board under the provisions of chapter 52, title 67 of the Idaho Code. The board shall render a decision within thirty (30) days following conclusion of the hearing and a copy of the board's decision shall be mailed to the applicant and to each person or agency appearing at the hearing and giving testimony in support of or in opposition to the proposed encroachment. Any applicant or other aggrieved party so appearing at a hearing shall have the right to have the proceedings and decision of the board reviewed by the district court in the county where the encroachment is proposed by filing notice of appeal within thirty (30) days from the date of the board's decision.

Idaho Code § 58-1306(c).

3. The hearing in this matter concluded at approximately 7:30 p.m. on August 13, 2019, with the matter before the hearing coordinator to issue a preliminary order.

4. All testimony was considered by the hearing coordinator. All written comments and documents received before the hearing was closed were considered by the hearing coordinator.

A. The Applicant Bears the Burden of Persuasion

5. As the applicant, Bonner County bears the burden of persuasion. "The customary common law rule that the moving party has the burden of proof – including not only the burden of going forward but also the burden of persuasion – is generally observed in administrative hearings." *Intermountain Health Care, Inc. v. Bd. of County Comm'rs of Blaine County*, 107 Idaho 248, 251, 688 P.2d 260, 263 (Ct. App. 1984) *rev'd on other grounds* 109 Idaho 299, 707 P.2d 410 (1985).

6. Under Idaho law, "preponderance of the evidence" is generally the applicable standard for administrative proceedings, unless the Idaho Supreme Court or legislature has said otherwise. *N. Frontiers, Inc. v. State ex rel. Cade,* 129 Idaho 437, 439, 926 P.2d 213, 215 (Ct. App. 1996). "Absent an allegation of fraud or a statute or court rule requiring a higher standard, administrative hearings are governed by a preponderance of the evidence standard." *Id. citing* 2 Am. Jur. 2d *Administrative Law* § 363 (1994). In civil cases, the well-settled principle is that the burden of proof is preponderance of the evidence. *Nield v. Pocatello Health Services, Inc.*, 156 Idaho 802, 848, 332 P.3d 714, 760 (2014). "In most hearings the burden of persuasion is met by the usual civil case standard or preponderance of evidence." *Intermountain* at 251, 688 P.2d at 263 "A preponderance of the evidence means that when weighing all of the evidence in the

record, the evidence on which the finder of fact relies is more probably true than not." *Oxley v. Medicine Rock Specialties, Inc.*, 139 Idaho 476, 481, 80 P.3d 1077, 1082 (2003).

B. The Application Meets the Procedural Requirements of Idaho Code § 58-1306 and IDAPA 20.03.04

7. Certain requirements, contained in Idaho Code § 58-1306 and IDAPA 20.03.04, must be met for an application to be considered by IDL.

8. First, "Applications for construction, enlargement or replacement of a nonnavigational encroachment, a commercial navigational encroachment, a community navigational encroachment, or for a navigational encroachment extending beyond the line of navigability shall be submitted upon forms to be furnished by the board and accompanied by plans of the proposed encroachment containing information required by section 58-1302(k)." Idaho Code § 58-1306(a); *see also* IDAPA 20.03.04.020.07. Plans are defined as meaning, "maps, sketches, engineering drawings, aerial and other photographs, word descriptions, and specifications sufficient to describe the extent, nature and approximate location of the proposed encroachment and the proposed method of accomplishing the same." Idaho Code § 58-1302(k); *see also* IDAPA 20.03.04.020.07. Here, the Application was submitted on the *Joint Application for Permits* form, approved for use by the Department. Through maps, aerial images, site plans, engineering drawings, and construction elevations, the County describes the work that will occur. Therefore, the Application meets the requirements of Idaho Code § 58-1306(a), Idaho Code § 58-1302(k), and IDAPA 20.03.04.020.07.

9. Second, "Applications for noncommercial encroachments intended to improve waterways for navigation, wildlife habitat and other recreational uses by members of the public must be filed by a municipality, county, state, or federal agency, or other entity empowered to make such improvements. Application fees are not required for these encroachments." IDAPA

20.03.04.07.d. Here, the Application is for a public, navigational encroachment. *Application* at 1, line 15; *IDL Comment* at 3. The Application was filed by Bonner County. *Application* at 1. As a governmental entity, and in accordance with IDAPA 20.03.04.07.d, Bonner County was authorized to file this type of application.

10. Third, "Within ten (10) days of receipt of an application . . . the board shall cause to be published . . . once a week for two (2) consecutive weeks, a notice advertising of the application and describing the proposed encroachment and general location thereof." Idaho Code § 58-1306(b); *see also* IDAPA 20.03.04.030.01. Here, the Application was initially received on April 16, 2019. The Application was deemed complete by the Department on June 5, 2019, following submittal of the *Addendum* discussing "how much of the breakwater and western excavation (5,725 cubic yards) will be disposed of at an upland site." On June 6, 2019, the Department prepared a *Memorandum* that it sent to various local, state, and federal entities, as well as the Idaho Conservation League and adjacent neighbors. On June 10, 2019 and June 12, 2019, IDL mailed courtesy notification letters to landowners in the area, informing them of the Application and the ability to comment. Notice of the Application was published in the *Bonner County Daily Bee* for a period of two consecutive weeks, commencing on June 19, 2019 and ending June 26, 2019. *Affidavit of Publication*. Therefore, the Application was timely published in accordance with Idaho Code § 58-1306(b) and IDAPA 20.03.04.030.01.

11. Fourth, "Any resident of the state of Idaho, or a nonresident owner or lessee of real property adjacent to the lake, or any state or federal agency may, within thirty (30) days of the first date of publication, file with the board an objection to the proposed encroachment and a request for a hearing on the application." Idaho Code § 58-1306(c); *see also* IDAPA 20.03.04.030.04. The first notice of the Application was published on June 19, 2019, with the

last notice published on June 26, 2019. The first written comment was received by the Department on June 17, 2019, with the last written comment received on August 11, 2019. While comments must have been received "within thirty (30) days after the first appearance of this notice," which was June 19, 2019, the Department continued to take written comments up until the close of the hearing on August 13, 2019. All written comments were considered by the hearing coordinator. Therefore, the Department provided more than the statutorily required period of thirty days for receiving comments.

12. Fifth, a hearing may be held if an objection requesting a hearing is made, or upon the Department's own discretion. Idaho Code § 58-1306(c); *see also* IDAPA 20.03.04.030.05. Here, the Director ordered a hearing be held, noticing the same through publication in the *Bonner County Daily Bee*. Therefore, the hearing requirement of Idaho Code § 58-1306(c) and IDAPA 20.03.04.030.05 is satisfied. All oral comments and associated documents given to the hearing coordinator at the hearing were considered.

C. The Department Possess the Authority to Regulate Priest Lake

13. The Department is vested with the authority, in the interest of "public health, interest, safety and welfare [to regulate] all encroachments upon, in or above the beds of waters of navigable lakes of the state . . . in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment." Idaho Code § 58-1301.

14. The County proposes to work in the bed of Priest Lake in order to construct a navigational encroachment. *Application* at 1, line 15; *IDL Comment* at 3. The work is discussed

in the Application, drawings, and aerial images. Priest Lake is a navigable body of water that is regulated by the Department. *State of Idaho v. Hudson*, 162 Idaho 888, 407 P.3d 202 (2017).

15. "Priest Lake has been a navigable lake since Idaho became a state in 1890. In approximately 1950, the State of Idaho constructed a dam on Priest Lake, which has stabilized the lake elevation at approximately 2437.64 feet from July to September since 1951." *Id*. at 889, 407 P.3d at 203. "Idaho law provides that 'a riparian owner (on a navigable river or stream) or a littoral owner (on a navigable lake) takes title down to the natural high water mark.' The State of Idaho then owns, 'in trust for the public title to the bed of the navigable water below the OHWM as it existed at the time the State was admitted into the Union.' The Idaho legislature enacted the LPA, which is codified as Idaho Code 58, chapter 13, to regulate encroachments and activities that occur in, on, or above navigable lakes in the State of Idaho." *Id*. at 893, 407 P.3d at 207. The presence of the dam on Priest Lake and the water level the dam creates is not a material fact in determining the ordinary high water mark ("OHWM"). *Id*.

D. The Public Trust Doctrine

16. "The board of land commissioners shall regulate, control and may permit encroachments in aid of navigation or not in aid of navigation on, in or above the beds or waters of navigable lakes . . . ." Idaho Code § 58-1303.

17. Consideration of an application for encroachment requires the balancing of interests:

> The legislature of the state of Idaho hereby declares that the public health, interest, safety and welfare requires that all encroachments upon, in or above the beds or waters of navigable lakes of the state be regulated in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment. No encroachment on, in or above the beds or waters

> of any navigable lake in the state shall hereafter be made unless approval therefor has been given as provided in this act.

Idaho Code § 58-1301.

18. The public trust doctrine is "a limitation on the power of the state to alienate or encumber title to the beds of navigable waters as defined in this chapter." Idaho Code § 58-1203(1). As explained by the Idaho Supreme Court, the following factors should be considered in evaluating an application for encroachment:

> [T]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce; the impact of the individual project on the public trust resource; the impact of the individual project when examined cumulatively with existing impediments to full use of the public trust resource, i.e. in this instance the proportion of the lake taken up by docks, moorings or other impediments; the impact of the project on the public trust resource when that resource is examined in light of the primary purpose for which the resource is suited, i.e. commerce, navigation, fishing or recreation; and the degree to which broad public uses are set aside in favor of more limited or private ones

Kootenai Env. Alliance, Inc. v. Panhandle Yacht Club, Inc., 105 Idaho 622, 629-30, 671 P.2d 1085, 1092-93 (1983) (hereinafter "KEA").

19. According to Department rule: "Breakwaters built upon the lake for use in aid of navigation will not be authorized below the normal low water without an extraordinary showing of need, provided, however, that this shall not apply to floating breakwaters secured by piling and used to protect private property from recurring wind, wave, or ice damage, or used to control traffic in busy areas of the lakes. The breakwater shall be designed to counter wave actions of known wave heights and wave lengths." IDAPA 20.03.04.015.06.

20. In evaluating the factors set forth in Idaho Code § 58-1301 and *KEA*, and as will be explained below, the Application, is approved, subject to certain conditions set forth in sections E, F, and G in this preliminary order.

21. The Application is for a breakwater in aid of navigation. *Application* at 1, line 15. By rule, a "breakwater" is defined as an "Encroachment in Aid of Navigation." IDAPA 20.03.04.010.15. "The term 'encroachments in aid of navigation' may be used interchangeably herein with the term 'navigational encroachments.'" *Id*.

22. According to *KEA*, the "[t]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce" should be reviewed. *KEA* at 629, 671 P.2d at 1092. Because no road exists, the Thorofare is the main access route to Upper Priest Lake, *Application* at 3; *see also Last Chance to Save Upper Priest Lake* at 3-4, with the breakwater helping maintain access to the Thorofare. Without a replaced breakwater, navigational access to Upper Priest Lake will be hindered, which will negatively impact recreation and commerce. By deepening the channel to 5 feet, and maintaining the no wake zone to reduce the movement of sediment, the replaced breakwater should improve navigation and recreation opportunities. Reducing deposition of sediment near the breakwater, Thorofare, and shoreline is a project goal, was a public comment, and was testified to at the hearing. While fish, fisheries, and fish migration were discussed in the Application and other written materials, fishing was not.

23. According to *KEA*, the replaced breakwater should be "examined cumulatively with existing impediments to full use of the public trust resource . . . ." *KEA* at 629, 671 P.2d at 1092. Furthermore, "the impact of the individual project on the public trust resource" should be examined. *Id*. It is important that the breakwater is a historic structure, present since approximately 1917, with aerial photography from as early as 1935 showing its presence in much the same area as it exists today and as discussed in the Application. *Testimony of Steve Klatt*; *PowerPoint*. Comments in the record and testimony at the hearing did not dispute the need for a breakwater, with consensus that something needs to be done. When examined

cumulatively, the breakwater and Thorofare are important features in Priest Lake that have been present for a century and aid in full use of the public trust resource.

24. According to *KEA*, the proposed breakwater should be examined "in light of the primary purpose for which the resource is situated, i.e. commerce, navigation, fishing or recreation . . . ." *KEA* at 630, 671 P.2d at 1093. A primary purpose of Priest Lake was not discussed. That said, the record supports a conclusion that the breakwater aids in navigation, recreation, and commerce in and around that area of Priest Lake.

25. According to *KEA*, the proposed breakwater should be examined in light of "the degree to which broad public uses are set aside in favor of more limited or private uses." *KEA* at 630, 671 P.2d at 1093. The breakwater is for public use, allowing the public to better use the Thorofare, which is the navigational access to Upper Priest Lake. *Application* at 3; *see also Last Chance to Save Upper Priest Lake* at 3-4.

26. Specifically discussed was the height of the proposed breakwater relative to the existing timber breakwater, the materials chosen for the proposed breakwater, the lack of vegetation on the timber breakwater relative to the proposed breakwater, the alignment and porosity of the proposed breakwater, ice, and waves were discussion points in the record.

27. As to height, the existing breakwater varies, with the evidence showing it is approximately "+6.5 feet." *Application, Sheet 5 of 7 (Sections 1)*; *IWRB PowerPoint at 9*. The proposed breakwater will be "+7.0 feet." *Application, Sheet 5 of 7 (Sections 1)*. The height of the breakwater is important because a structure that is unreasonably taller than the existing breakwater will impact views from the northern end of Priest Lake and the overall aesthetic. While the proposed breakwater is not identical in height, and will be approximately six inches

higher than the existing breakwater, increasing the height of the breakwater by six inches is reasonable in light of the public benefits the breakwater will provide.

28. As to materials, the existing breakwater is timber driven into the bed of Priest Lake, while the proposed breakwater will consist of sand, gravel, cobble, and stone. *Application, Sheet 5 of 7 (Sections 1)*. An alternative considered was construction of a vertical breakwater made from steel sheetpile. *Application* at 2, line 17; *IWRB PowerPoint* at 5, 35-36. "The sheet pile option provides high constructability, but no opportunity for habitat enhancement, and pile driving can be disruptive to fish." *Application* at 2, line 17. Additional concerns raised with this alternative were: aesthetics ("galvanized or bare steel not a natural material"); wave and wake action; scour at the toe of the wall; and that it would be less compatible with dredged material reuse. *IWRB PowerPoint* at 36. From a cost standpoint, the vertical steel breakwater would cost significantly more than the sloped rock breakwater. *Id*. at 39-40. "A Rock Breakwater is recommended – It is the best material type for project site conditions (ice, access, hydrodynamics), locally available materials, and lower maintenance requirements." *IWRB PowerPoint at 42*. "The rubblemound structure can provide additional habitat, can be constructed in isolated conditions, and does not have the high underwater noise levels, [t]hus, it was selected." *Application* at 2, line 17. Local quarries will be used to source the rock for the breakwater. *IWRB PowerPoint* at 16-17. A concern raised at the hearing was whether the proposed breakwater would chip or break, resulting in material other than sand washing ashore. This is possible. That said, and as discussed at the hearing by the project engineer, the stone is local, is good quality, and is predicted to last for 75-100 years. The natural construction materials that will be used in construction of the stone breakwater are reasonable in light of the public benefit the breakwater will provide, and is reasonable in light of the proposed alternatives.

29. As to vegetation, a concern is the existing vertical breakwater has no vegetation growing on it, while the proposed breakwater is designed with vegetation on the Priest Lake side of the structure. *Application, Sheet 5 of 7 (Sections 1).* Vegetation is likely necessary to help anchor the gravel, cobble, and rock. The Application proposes "native species to be determined" that will be planted above the OHWM and stop one-foot short of the crest of the breakwater. *Id*. Because vegetation grows, it could impact the viewshed. *Comment of Mark Aden* ("No one wants a highly obtrusive structure that obscures the lake or the Thorofare any more than possible."); *Comment of Brian and RoseAnn Elliott* ("We would expect that no vegetation would be planted where there currently is no vegetation. We purchased this property because of the unobstructed view looking south down the lake. We expect the same view in perpetuity."). That vegetation should not unreasonably impact the viewshed was contemplated by Bonner County: "Plantings ok; needs to be lower growing shrubs and not large trees that would impact viewshed for property owners at Sand Piper Shores." *IWRB PowerPoint* at 14. The species of plants to be selected should be native and as low growing as possible to accomplish their purpose, yet not infringe on the viewshed. While not required, Bonner County is encouraged to continue the good public outreach it has done in the past to select vegetation that will accomplish these goals.

30. As to alignment, the proposed breakwater is rotated approximately 15 degrees differently from the existing breakwater. *Application, Figure 2a*; *PowerPoint* at 11; *IWRB PowerPoint* at 11, 28. As to porosity, the proposed breakwater will be solid, whereas the existing breakwater is not. *Application* at 2. "A rotated alignment is recommended, to further confine the flow, and is consistent with the first breakwater constructed." *IWRB PowerPoint* at 41. Deposition of sediment along the shore was discussed at the hearing as a concern. The rotated alignment and nonporous nature of the proposed breakwater was supported by computer

modeling and is predicted to improve sediment travel through the Thorofare, allowing sand to move into the deeper portions of Priest Lake. *Testimony of Shane Phillips*; *PowerPoint* at 12. The rotated alignment and nonporous construction is reasonable in light of the public benefits the breakwater will provide.

31. As to ice, Priest Lake does freeze, *IWRB PowerPoint* at 9, 12, 40, and ice could build up on the breakwater, damaging it. Ice was raised as a concern at the hearing relative to the proposed breakwater. Ice was addressed in the record. *Id*. Ice was addressed at the hearing by Mr. Phillips, who explained the design accounted for it. Mr. Phillips also stated breakwaters are extensively used in very cold environments such as the Great Lakes and the northern slope of Alaska. The proposed breakwater, which is sloped, will better withstand ice than a vertical breakwater. *IWRB PowerPoint* at 40. The proposed breakwater accounts for ice and is reasonable in light of the public benefit it will provide.

32. According to Department rule: "The breakwater shall be designed to counter wave actions of known wave heights and wave lengths." IDAPA 20.03.04.015.06. Waves and water levels were discussed in the record and accounted for in the design of the proposed breakwater. *IWRB PowerPoint* at 9. Waves were discussed in the record and were accounted for in the proposed breakwater. *Id*. at 10. The Application meets the criteria of IDAPA 20.03.04.015.06.

E. Unused Timber Breakwater

33. As discussed at the hearing, certain portions of the existing timber breakwater will be used during construction, while other portions will not.

34. According to IDL rule: "Pilings, anchors, old docks, and other structures or waste at the site of the installation or reinstallation and not used as a part of the encroachment shall be

removed from the water and lakebed at the time of the installation or reinstallation to a point above normal flood water levels . . . ." IDAPA 20.03.04.060.02.a.

35. As to the existing timber breakwater, the Department commented as follows: "Section 16 on page 2 of the application form briefly mentions removal of the existing timber breakwater on line 4. No further details are given. The existing timber breakwater will be used to support the western end of the proposed breakwater from STA 0+00 to STA 3+00 as shown in Sheet 4 of 7 and Sheet 5 of 7 on pages 13 and 14 of the application. The rest of the existing breakwater from STA 3+00 eastward should be removed during the project." *IDL Comment* at 3.

36. Consistent with its comment, IDL requests any encroachment permit that issues include the following language: "Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed/Sheet 4 of 7 Drawing will occur prior to project completion." *IDL Comment* at 4.

37. The Department's request that Bonner County remove the unused timber breakwater from the bed of Priest Lake is grounded in rule, IDAPA 20.03.04.055, and is approved by the hearing coordinator.

F. Submerged Land Easement

38. According to IDL rule: "Breakwaters . . . on or over state-owned beds, designed primarily to create additional land surface, will be authorized, if at all, by an encroachment permit and submerged land lease or easement, upon determination by the department to be an appropriate use of submerged lands." IDAPA 20.03.04.055.02. "As a condition of the encroachment permit, the department may require a submerged land lease or easement for use of any part of the state-owned bed of the lake where such lease or easement is required . . . . A lease or easement may be required for uses including, but not limited to, commercial uses.

Construction of an encroachment authorized by permit without first obtaining the required lease or easement shall constitute a trespass upon state-owned public trust lands. This rule is intended to grant the state recompense for the use of the state-owned bed of a navigable lake where reasonable and it is not intended that the department withhold or refuse to grant such lease or easement if in all other respects the proposed encroachment would be permitted." IDAPA 20.03.04.055.

39. According to the Department, "The proposed breakwater will be a permanent addition to the bed of Priest Lake, and will essentially create a peninsula above the ordinary high water mark (OHWM) of Priest Lake. Permanent features such as this placed on state-owned navigable waters normally require a submerged lands lease or submerged lands easement. Due to the noncommercial use of the breakwater, IDL believes a submerged lands easement would be more appropriate in this instance. An easement will also document the location of the ordinary high water mark and ensure that no claim can be made for upland ownership of the breakwater. Even though the breakwater will extend above the OHWM, it is still impressed with the public trust due to the underlying state-owned lake bed." *IDL Comment* at 3. As a result, IDL requests any encroachment permit that issues include the following language: "Bonner County will submit an application for a submerged lands easement to cover the new breakwater in Priest Lake." *IDL Comment* at 4.

40. Bonner County anticipated the possibility that an easement might be needed from the Department. *IWRB PowerPoint* at 13 ("may require an 'easement' type permit").

41. The Department's request that Bonner County obtain a submerged lands easement is grounded in rule, IDAPA 20.03.04.055, was anticipated by the applicant, and is approved by the hearing coordinator.

G. Dredged or Excavated Materials

42. According to the Department, "Most of the dredged or excavated material removed from the OWHM will be used in the project and left on the state owned bed of Priest Lake. An estimated 1,718 cubic yards of this material is planned to be hauled off site and disposed of in an upland location. A royalty on this material must be paid to IDL. For a project of limited duration and scope such as this proposal, a Land Use Permit is typically used by IDL to recover administrative costs and royalties associated with mineral removal from state lands." *IDL Comment* at 3-4.

43. In the *Addendum* to the Application, Bonner County states of the 5,725 cubic yards of excavation, 4,007 cubic yards will be reused at the site, and 1,718 cubic yards will be hauled off site and disposed of in an upland location.

44. Idaho Code § 47-717 states: "It shall be unlawful for any person, association, firm or corporation to remove in commercial quantities any ores, minerals, or deposits from state lands before securing a lease for said lands from the state board of land commissioners. Any person, association, firm or corporation who so removes ores, minerals or deposits shall be liable to the state for treble damages in a civil action."

45. In accordance with Idaho Code § 47-717, the Department requests any encroachment permit that issues include the following language: "Bonner County or their contractor will obtain a Land Use Permit or other instrument approved by IDL to pay for sand and other natural lake bed materials dredged or removed from below the OHWM of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards." *IDL Comment* at 4.

46. The Department's request that Bonner County obtain a Land Use Permit or other instrument to pay for sand and other natural lake bed materials dredged or removed from below the OHWM of Priest Lake and used or disposed of outside the confines of the state-owned lake bed is grounded in statute, Idaho Code § 47-717, and is approved by the hearing coordinator.

ORDER

Based on the foregoing findings of fact and conclusions of law, IT IS HEREBY ORDERED that Encroachment Permit Application No. L-97-S-0891C is APPROVED, subject to the following four conditions, as well as any other conditions imposed by the Director of the Idaho Department of Lands:

1. Removal of the existing timber breakwater adjacent to the proposed rock breakwater from approximately STA 3+00 eastward on the Site Plan-Proposed/Sheet 4 of 7 Drawing will occur prior to project completion;

2. Bonner County will submit an application for a submerged lands easement to the Idaho Department of Lands to cover the new breakwater in Priest Lake;

3. Bonner County or their contractor will obtain a Land Use Permit or other instrument approved by the Idaho Department of Lands to pay for sand and other natural lake bed materials dredged or removed from below the ordinary high water mark of Priest Lake and used or disposed of outside the confines of the state-owned lake bed. The expected amount is approximately 1,718 cubic yards; and

4. The species of plants selected for the breakwater must be native and as low growing as reasonably possible in order to anchor the material, yet not infringe on the viewshed.

IT IS FURTHER ORDERED that the order issued herein is a PRELIMINARY ORDER. Idaho Code § 67-5245. The hearing in this matter was completed on August 13, 2019. Consistent with the *Notice of Appointment of Hearing Coordinator and Hearing*, "The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty days after the conclusion of the hearing." This

Preliminary Order is submitted fewer than thirty days after conclusion of the hearing.

Dated this 28th day of August, 2019.

CHRIS M. BROMLEY
Hearing Coordinator

CERTIFICATE OF SERVICE

I certify that on this 28th day of August, 2019, I caused to be served a true and correct copy of the foregoing was served upon the following persons by the method(s) indicated:

Dustin T. Miller Director Idaho Dept. of Lands P.O. Box 83720 Boise, ID 83720-0050	☐ U.S. Mail, postage prepaid ☒ Hand Delivery ☐ Facsimile: ☒ Email: dmiller@idl.idaho.gov
Kourtney Romine Administrative Assistant Idaho Dept. of Lands P.O. Box 83720 Boise, ID 83720-0050	☐ Statehouse Mail ☐ Hand Delivery ☐ Federal Express ☒ Email: kromine@idl.idaho.gov
Angela Schaer Kaufmann P.O. Box 83720 Boise, ID 83720-0010	☐ Statehouse Mail ☐ Hand Delivery ☐ Federal Express ☒ Email: angela.kaufmann@ag.idaho.gov

CHRIS M. BROMLEY

From: Holzinger, Joseph R -FS
To: Ryan M. Tobias
Cc: Jason Scott; Michelle L. Skow
Subject: RE: Priest Lake Thorofare SF299 and Proposed Action
Date: Monday, June 3, 2019 7:44:06 AM
Attachments: image003.png
image004.png
image005.png
image006.png
image007.jpg
image008.png

[EXTERNAL]

Hi Ryan,

We have reviewed the County's proposal and it meets our screening criteria outlined at 36 CFR 251.54. It appears that the proposal was developed taking into consideration the terms and conditions of the existing authorization for the breakwater on NFS lands. Upon review, the District Ranger has determined that the proposed action, as it relates to NFS lands, fits within the scope of the current authorization (operation and maintenance activities). No additional review or analysis is required at this time.

Please let us know if there are any changes to the proposed action, as further review and/or analysis may be necessary. Additionally, please keep me apprised of any requirements imposed by the Army Corps of Engineers, State of Idaho, etc. and project timeline for implementation, as we will need to monitor maintenance activities that take place on NFS lands.

Thanks,

Joe Holzinger
Special Use Program Coordinator

Forest Service
North Idaho Special Use Zone, Idaho Panhandle National Forests

p: 208-765-7279
joseph.holzinger@usda.gov

3815 Schreiber Way
Coeur d'Alene, ID 83815
www.fs.fed.us

Caring for the land and serving people

From: Ryan M. Tobias [mailto:rtobias@geoengineers.com]
Sent: Friday, April 26, 2019 3:12 PM
To: Cano, Felipe -FS <felipe.cano@usda.gov>; Holzinger, Joseph R -FS <joseph.holzinger@usda.gov>; Cobb, David F -FS <david.cobb@usda.gov>
Cc: Jason Scott <jscott@geoengineers.com>; Michelle L. Skow <mskow@geoengineers.com>

Subject: Priest Lake Thorofare SF299 and Proposed Action

Hi Phil,

We had a little bit of a delay finalizing the details for the proposed action and SF299 information, but I think we have everything up to speed now for the permit submittal. Please see the attached SF299 and Proposed Action memorandum for the Thorofare improvements on USFS-administered lands.

We also completed a Biological Assessment for the proposed work, which is a larger file. It contains additional project information and maps that may be useful for your assessment. If you like, we can send you a link to download the BA as well.

If there's any questions, comments, or concerns, please let Jason Scott or I know.

Have a great weekend. Thanks,

Ryan Tobias
Senior Environmental Scientist 1

Telephone: 503.603.6657
Mobile: 503.931.3157
Email: rtobias@geoengineers.com
354 NE Greenwood Ave, Suite 201
Bend, OR 97701
www.geoengineers.com

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway • Coeur d'Alene, ID 83814 • (208) 769-1422
www.deq.idaho.gov

Brad Little, Governor
John H. Tippets, Director

October 16, 2019

Steve Klatt
Bonner County
1500 Hwy.2, Suite 101
Sandpoint, ID 83864

RE: Final §401 Water Quality Certification for the Priest Lake Thorofare Project, NWW-2018-00499

Dear Mr. Klatt,

Enclosed is the final water quality certification for the above referenced individual Army Corps of Engineers project, (NWW-2018-00499). No comments were received during the 21-day period that the document was available on our website for public comment. Please make sure that your staff and contracted individuals read the document and are familiar with conditions of the certification (pages 4-8).

If you have questions or concerns, please contact Thomas Herron at (208) 666-4631 or via email at Thomas.herron@deq.idaho.gov.

Sincerely,

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

Enclosure

c: Shane Slate, Army Corps of Engineers – Coeur d'Alene Field Office

Idaho Department of Environmental Quality

Final §401 Water Quality Certification

October 16, 2019

404 Permit Application Number: NWW-2018-00499, Bonner County – Priest Lake Thorofare

Applicant: Bonner County

Project Location: Latitude 48°44'23.21" N, Longitude -116°50'51.19" W – Lionhead boat ramp at Priest Lake Park in Bonner County in Sandpoint, ID

Receiving Water Body: Priest Lake

Pursuant to the provisions of Section 401(a)(1) of the Federal Water Pollution Control Act (Clean Water Act), as amended; 33 U.S.C. Section 1341(a)(1); and Idaho Code §§ 39-101 et seq. and 39-3601 et seq., the Idaho Department of Environmental Quality (DEQ) has authority to review activities receiving Section 404 dredge and fill permits and issue water quality certification decisions.

Based upon its review of the joint application for permit, received on August 21, 2019, DEQ certifies that if the permittee complies with the terms and conditions imposed by the permit along with the conditions set forth in this water quality certification, then there is reasonable assurance the activity will comply with the applicable requirements of Sections 301, 302, 303, 306, and 307 of the Clean Water Act, the Idaho Water Quality Standards (WQS) (IDAPA 58.01.02), and other appropriate water quality requirements of state law.

This certification does not constitute authorization of the permitted activities by any other state or federal agency or private person or entity. This certification does not excuse the permit holder from the obligation to obtain any other necessary approvals, authorizations, or permits.

Project Description

This project is designed to improve and expand navigable access between the Upper and Lower Priest lakes by dredging accumulated lakebed material from the Priest Lake Thorofare. The project will deepen the channel by five feet, dredging approximately 12,200 cubic yards of sediment, which will result in improved fish migration passage. Additionally, this project will replace the existing, dilapidated breakwater and will also extend the structure by 225 feet. This project requires the removal of 5,725 cubic yards of sediment for the breakwater footprint and will mitigate for erosion risk from wave action and bank erosion during high flows. The breakwater will be filled with approximately 10,374 cubic yards of stone, gravel and cobble. Construction of a temporary haul road may be required to ford the Thorofare at low water.

Antidegradation Review

The WQS contain an antidegradation policy providing three levels of protection to water bodies in Idaho (IDAPA 58.01.02.051).

- Tier I Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing uses of a water body and the level of water quality necessary to protect those existing uses will be maintained and protected (IDAPA 58.01.02.051.01; 58.01.02.052.01). Additionally, a Tier I review is performed for all new or reissued permits or licenses (IDAPA 58.01.02.052.07).
- Tier II Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (IDAPA 58.01.02.051.02; 58.01.02.052.08).
- Tier III Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters and requires that activities not cause a lowering of water quality (IDAPA 58.01.02.051.03; 58.01.02.052.09).

DEQ is employing a water body by water body approach to implementing Idaho's antidegradation policy. This approach means that any water body fully supporting its beneficial uses will be considered high quality (IDAPA 58.01.02.052.05.a). Any water body not fully supporting its beneficial uses will be provided Tier I protection for that use, unless specific circumstances warranting Tier II protection are met (IDAPA 58.01.02.052.05.c). The most recent federally approved Integrated Report and supporting data are used to determine support status and the tier of protection (IDAPA 58.01.02.052.05).

Pollutants of Concern

The primary pollutant of concern for this project is sediment. As part of the Section 401 water quality certification, DEQ is requiring the applicant comply with various conditions to protect water quality and to meet Idaho WQS, including the water quality criteria applicable to sediment.

Receiving Water Body Level of Protection

This project is located on Priest Lake within the Priest Subbasin assessment unit (AU) ID17010215PN014_04 (Priest Lake Thorofare – Upper Priest Lake to Priest Lake). This AU has designated for cold water aquatic life, salmonid spawning, primary contact recreation, and domestic water supply beneficial uses. In addition to these uses, all waters of the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100).

This AU is included in Category 3 (Unassessed Waters) of DEQ's 2016 Integrated Report. Therefore, DEQ must provide an appropriate level of protection on a case-by-case basis using information available at this time (IDAPA 58.01.02.052.05.b). Upstream segments of the Hughes Fork River and the Upper Priest River that feed into Upper Priest Lake are both water bodies that fully support aquatic life and contact recreation beneficial uses. Additionally, Caribou Creek,

which feeds directly into the Priest Lake Thorofare above lower Priest Lake is also a fully supporting water body. DEQ expects that lower segments of the assessment unit will retain similar high water quality. As such, DEQ will provide Tier II protection (IDAPA 58.01.02.051.02), in addition to Tier I (IDAPA 58.01.02.052.01), for the cold water aquatic life, salmonid spawning and contact recreation beneficial uses of this AU.

The only pollutant of concern associated with this project is sediment. However, sediment is not relevant to recreational uses since sediment will not degrade water quality necessary to support recreation uses, and it is therefore unnecessary for DEQ to conduct a Tier II analysis.

Protection and Maintenance of Existing Uses (Tier I Protection)

A Tier I review is performed for all new or reissued permits or licenses, applies to all waters subject to the jurisdiction of the Clean Water Act, and requires demonstration that existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. The numeric and narrative criteria in the WQS are set at levels that ensure protection of existing and designated beneficial uses.

Water bodies not supporting existing or designated beneficial uses must be identified as water quality limited, and a total maximum daily load (TMDL) must be prepared for those pollutants causing impairment. Once a TMDL is developed, discharges of causative pollutants shall be consistent with the allocations in the TMDL (IDAPA 58.01.02.055.05). Prior to the development of the TMDL, the WQS require the application of the antidegradation policy and implementation provisions to maintain and protect uses (IDAPA 58.01.02.055.04). The project will be consistent with the *Addendum – Priest River Subbasin Assessment and Total Maximum Daily Load* (DEQ 2003), which is designed to improve conditions (from sediment contributions) inside the Lower Priest River drainage.

During the construction phase, the applicant will implement, install, maintain, monitor, and adaptively manage best management practices (BMPs) directed toward reducing erosion and minimizing turbidity levels in receiving water bodies downstream of the project. In addition, permanent erosion and sediment controls will be implemented, which will minimize or prevent future sediment contributions from the project area. As long as the project is conducted in accordance with the provisions of the project plans, Section 404 permit, and conditions of this certification, then there is reasonable assurance the project will comply with the state's numeric and narrative criteria. These criteria are set at levels that protect and maintain existing and designated beneficial uses.

This project originally entertained three project alternatives, settling on a rubblemound structure for the Thorofare improvements. This alternative provides for habitat enhancement and does not utilize pile driving (disruptive to fish) while contributing a smaller footprint in the lake. The applicant will utilize the following BMPs to reduce sediment mobilization and further erosion on-site to protect water quality in the receiving waters. A temporary sand berm will be constructed to isolate work areas and divert the channel upstream from the breakwater so that construction and dredging will be conducted in dry conditions. Fish block nets or bubble curtains will be utilized around work areas. The project also allows for continued fish migration during construction. The contractor will be responsible for an approved Spill Prevention, Control and Countermeasure Plan as well as a Dredging and Dredge Material Hauling Plan.

There is no available information indicating the presence of any existing beneficial uses aside from those that are already designated and discussed above; therefore, the permit ensures that the level of water quality necessary to protect both existing and designated uses is maintained and protected in compliance with the Tier I provisions of Idaho's WQS (IDAPA 58.01.02.051.01 and 58.01.02.052.07).

Conditions Necessary to Ensure Compliance with Water Quality Standards or Other Appropriate Water Quality Requirements of State Law

General Conditions

1. This certification is conditioned upon the requirement that any modification (e.g., change in BMPs, work windows, etc.) of the permitted activity shall first be provided to DEQ for review to determine compliance with Idaho WQS and to provide additional certification pursuant to Section 401. Such modifications may not be implemented until DEQ has determined whether additional certification is necessary.
2. DEQ reserves the right to modify, amend, or revoke this certification if DEQ determines that, due to changes in relevant circumstances—including without limitation, changes in project activities, the characteristics of the receiving water bodies, or state WQS—there is no longer reasonable assurance of compliance with WQS or other appropriate requirements of state law.
3. If ownership of the project changes, the certification holder shall notify DEQ, in writing, upon transferring this ownership or responsibility for compliance with these conditions to another person or party. The new owner/operator shall request, in writing, the transfer of this water quality certification to his/her name.
4. A copy of this certification must be kept on the job site and readily available for review by any contractor working on the project and any federal, state, or local government personnel.
5. Project areas shall be clearly identified in the field prior to initiating land-disturbing activities to ensure avoidance of impacts to waters of the state beyond project footprints.
6. The applicant shall provide access to the project site and all mitigation sites upon request by DEQ personnel for site inspections, monitoring, and/or to ensure that conditions of this certification are being met.
7. The applicant is responsible for all work done by contractors and must ensure the contractors are informed of and follow all the conditions described in this certification and the Section 404 permit.
8. If this project disturbs more than 1 acre and there is potential for discharge of stormwater to waters of the state, coverage under the EPA Stormwater Construction General Permit *must* be obtained. More information can be found at https://www.epa.gov/npdes-permits/stormwater-discharges-construction-activities-region-10.

Erosion and Sediment Control

9. BMPs for sediment and erosion control suitable to prevent exceedances of state WQS shall be selected and installed before starting construction at the site. One resource that may be used in evaluating appropriate BMPs is DEQ's *Catalog of Stormwater Best Management Practices for Idaho Cities and Counties*, available online at http://www.deq.idaho.gov/media/494058-entire.pdf. Other resources may also be used for selecting appropriate BMPs.
10. One of the first construction activities shall be placing permanent and/or temporary erosion and sediment control measures around the perimeter of the project or initial work areas to protect the project water resources.
11. Permanent erosion and sediment control measures shall be installed in a manner that will provide long-term sediment and erosion control to prevent excess sediment from entering waters of the state.
12. Permanent erosion and sediment control measures shall be installed at the earliest practicable time consistent with good construction practices and shall be maintained as necessary throughout project operation.
13. Top elevations of bank stabilization shall be such that adequate freeboard is provided to protect from erosion at 100-year design flood elevation.
14. Structural fill or bank protection shall consist of materials that are placed and maintained to withstand predictable high flows in the waters of the state.
15. A BMP inspection and maintenance plan must be developed and implemented. At a minimum, BMPs must be inspected and maintained daily during project implementation.
16. BMP effectiveness shall be monitored during project implementation. BMPs shall be replaced or augmented if they are not effective.
17. All construction debris shall be properly disposed of so it cannot enter waters of the state or cause water quality degradation.
18. Disturbed areas suitable for vegetation shall be seeded or revegetated to prevent subsequent soil erosion.
19. Maximum fill slopes shall be such that material is structurally stable once placed and does not slough into the stream channel during construction, during periods prior to revegetation, or after vegetation is established.
20. To the extent reasonable and cost-effective, the activity submitted for certification shall be designed to minimize subsequent maintenance.
21. Sediment from disturbed areas or able to be tracked by vehicles onto pavement must not be allowed to leave the site in amounts that would reasonably be expected to enter waters of the state. Placement of clean aggregate at all construction entrances or exits and other BMPs such as truck or wheel washes, if needed, must be used when earth-moving equipment will be leaving the site and traveling on paved surfaces.

Turbidity

22. Sediment resulting from this activity must be mitigated to prevent violations of the turbidity standard as stipulated under the Idaho WQS (IDAPA 58.01.02). *Any violation of this standard must be reported to the DEQ regional office immediately.*
23. All practical BMPs on disturbed banks and within the waters of the state must be implemented to minimize turbidity. Visual observation is acceptable to determine whether BMPs are functioning properly. If a plume is observed, the project may be causing an exceedance of WQS and the permittee must inspect the condition of the projects BMPs. If the BMPs appear to be functioning to their fullest capability, then the permittee must modify the activity or implement additional BMPs (this may also include modifying existing BMPs).
24. Containment measures such as silt curtains, geotextile fabrics, and silt fences must be implemented and properly maintained to minimize instream sediment suspension and resulting turbidity.
25. Monitoring must occur each day during project implementation when project activities may result in turbidity increases above background levels. *A properly and regularly calibrated turbidimeter is required.*

Turbidity Monitoring and Compliance Requirements

To ensure compliance with Idaho's WQS, required monitoring steps shall include the following:

A. Choose and identify the following locations for each crossing:
   1. Background location: A relatively undisturbed location unaffected by the construction activity, up-current from the permitted activity; and,
   2. Compliance location: A location downcurrent from the permitted activity, within any visible plume, at the distance that corresponds to the size of the waterbody where work is taking place as listed on the table below:

Wetted Stream Width	Compliance Distance
Up to 30 feet	50 feet
>30 feet to 100 feet	100 feet
>100 feet to 200 feet	200 feet
>200 feet	300 feet

B. Conduct Compliance Monitoring with a Turbidimeter
   1. Measure turbidity at both background and compliance locations at the frequency directed in the tables below and record the date, time, location, and turbidity measurements in the daily log. The permittee must also record all controls and practices implemented at the start of the work.
   2. Turbidity measurements must be representative of stream turbidity when the activity is being conducted. *Measurements cannot be taken during a cessation of activity.*
   3. If the project causes turbidity levels to increase above 50 NTU over background, the permittee must implement additional controls and practices, resume work, and

monitor both points again. A description of the additional controls and the date, time, and location where they are implemented must be recorded in the daily log.

Compliance Monitoring With a Turbidimeter

Allowable Exceedance in Turbidity	Action Required at 1st Monitoring Interval	Action Required at 2nd Monitoring Interval
0 to 24 NTU above background	Continue to monitor every 2 hours	Continue to monitor every 2 hours
25 to 49 NTU above background	Continue to monitor every 2 hours	STOP work after 8 hours/24-hour period
25 NTU above background for 10 or more consecutive days	STOP work and follow instructions in B.3. above	
50 NTU or more above background (first occurrence)	STOP work and follow instructions in B.3. above	
50 NTU or more above background (second occurrence)	STOP work and follow instructions in B.3. above and notify DEQ Regional Office	

C. Reporting—Copies of daily logs for turbidity monitoring must be made available to DEQ and other local, state and federal regulatory agencies upon request. The log must include:
   1. Background NTUs, compliance point NTUs, comparison of the points in NTUs, and location, time, and date for each reading.
   2. A narrative discussing all exceedances, controls applied and their effectiveness, subsequent monitoring, work stoppages, and any other actions taken.

In-water Work

26. Work in open water is to be kept at a minimum and only when necessary. Equipment shall work from an upland site to minimize disturbance of waters of the state. If this is not practicable, appropriate measures must be taken to ensure disturbance to the waters of the state is minimized.
27. Construction affecting the bed or banks shall take place only during periods of low flow.
28. Heavy equipment working in wetlands shall be placed on mats or suitably designed pads to prevent damage to the wetlands.
29. Activities in spawning areas must be avoided to the maximum extent practicable.
30. Work in waters of the state shall be restricted to areas specified in the application.

Management of Hazardous or Deleterious Materials

31. Petroleum products and hazardous, toxic, and/or deleterious materials shall not be stored, disposed of, or accumulated adjacent to or in the immediate vicinity of waters of the state. Adequate measures and controls must be in place to ensure that those materials will not enter waters of the state as a result of high water, precipitation runoff, wind, storage facility failure, accidents in operation, or unauthorized third-party activities.
32. Vegetable-based hydraulic fluid should be used on equipment operating in or directly adjacent to the channel if this fluid is available.

33. Daily inspections of all fluid systems on equipment to be used in or near waters of the state shall be done to ensure no leaks or potential leaks exist prior to equipment use. A log book of these inspections shall be kept on site and provided to DEQ upon request.
34. Equipment and machinery must be removed from the vicinity of the waters of the state prior to refueling, repair, and/or maintenance.
35. Equipment and machinery shall be steam cleaned of oils and grease in an upland location or staging area with appropriate wastewater controls and treatment prior to entering a water of the state. Any wastewater or wash water must not be allowed to enter a water of the state.
36. Emergency spill procedures shall be in place and may include a spill response kit (e.g., oil absorbent booms or other equipment).
37. In accordance with IDAPA 58.01.02.850, in the event of an unauthorized release of hazardous material to state waters or to land such that there is a likelihood that it will enter state waters, the responsible persons in charge must
    a. Make every reasonable effort to abate and stop a continuing spill.
    b. Make every reasonable effort to contain spilled material in such a manner that it will not reach surface or ground waters of the state.
    c. Call 911 if immediate assistance is required to control, contain, or clean up the spill. If no assistance is needed in cleaning up the spill, contact the appropriate DEQ regional office during normal working hours or Idaho State Communications Center after normal working hours (1-800-632-8000). If the spilled volume is above federal reportable quantities, contact the National Response Center (1-800-424-8802).
        - Coeur d'Alene Regional Office: 208-769-1422 / 877-370-0017
    d. Collect, remove, and dispose of the spilled material in a manner approved by DEQ.

Right to Appeal Final Certification

The final Section 401 Water Quality Certification may be appealed by submitting a petition to initiate a contested case, pursuant to Idaho Code § 39-107(5) and the "Rules of Administrative Procedure before the Board of Environmental Quality" (IDAPA 58.01.23), within 35 days of the date of the final certification.

Questions or comments regarding the actions taken in this certification should be directed to Tom Herron at (208) 666-4631 or at Thomas.herron@deq.idaho.gov.

Daniel Redline
Regional Administrator
Coeur d'Alene Regional Office

United States Department of the Interior
U.S. Fish and Wildlife Service
Idaho Fish and Wildlife Office - Spokane
11103 East Montgomery Drive
Spokane Valley, Washington 99206
Telephone (509) 891-6839
www.fws.gov/idaho

In Reply Refer To:
FWS/R1/ES/IFWO/2020-I-0150 November 26, 2019

Shane Slate, Regulatory Project Manager
U.S. Army Corps of Engineers
Walla Walla District
Coeur d'Alene Regulatory Office
1910 Northwest Blvd., Suite 210
Coeur d'Alene, Idaho 83814

Subject: Priest Lake Thorofare Improvements, Bonner County, Idaho - Concurrence

Dear Mr. Slate:

This responds to the U.S. Army Corps of Engineers' (Corps) request for the U.S. Fish and Wildlife Service's (Service) concurrence on effects of the subject action to species and habitats listed under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.; [Act]). The Corps' request, dated and received by the Service on October 30, 2019, included a biological assessment (Assessment) entitled *Revised Biological Assessment Priest Lake Thorofare Improvements, Priest Lake, Idaho* (Project). Information contained in the Assessment is incorporated here by reference.

The Corps determined, through the Assessment, the Project would have no effect to grizzly bear (*Ursus arctos horribilis*) and North American wolverine (*Gulo gulo*). The regulations implementing section 7 of the Act do not require the Service to review or concur with no effect determinations. Through the Assessment, the Corps determined that the Project may affect, but is not likely to adversely affect the threatened bull trout (*Salvelinus confluentus*) and its designated critical habitat. The Service concurs with the Corps' determination for bull trout and its critical habitat, and presents our rationale below.

Proposed Action

The purpose of the Project is to improve navigable access for boat traffic from the north end of Priest Lake into the Thorofare by deepening the channel and replacing the existing derelict breakwater. The Project proposes to: 1) dredge an approximate 128,106 square foot area of the Thorofare to provide a five foot depth for navigation in the channel; and 2) remove the existing

breakwater and install a new, longer breakwater structure. The Project will begin in September 2020 and will be completed by the end of February 2021.

To begin, a temporary sand berm (225 feet long by 40 feet wide) consisting of native sand will be constructed across the width of the Thorofare directly above the Project area to divert flow from the Thorofare to the lake through an existing remnant channel in order to maintain fish passage. Next, a temporary ford (500 feet long by 24 feet wide) consisting of native sand and limited imported clean gravel will be constructed across the Thorofare to provide equipment access to the breakwater.

Equipment and materials will be also be transported via barges from the Lionhead Campground boat ramp at Priest Lake State Park. Approximately 200 cubic yards (cy) of temporary gravel fill and 115 cy of Ecology Blocks will be placed in Priest Lake adjacent to the boat ramp to aid in the loading of barges.

Removing the existing breakwater will involve dredging and excavation of 5,735 cy of sand under the footprint of the existing breakwater structure. Sand berms will be used to isolate the work area. The existing timber piles will be left in place and will be used for the new breakwater. Approximately 71,640 square feet of geotextile will be placed followed by 660 cy of geobags and 10,866 cy of clean armor rock, gravel, and cobble to build the new breakwater.

Dredging the Thorofare will include use of an excavator, crane with clamshell bucket, and/or a bulldozer. A hydraulic cutter suction dredge may be used in the case of higher water levels, which would require the installation of a floating pipeline to discharge the dredged material at a local beach site created to stabilize the breakwater. Dredged material will be transported to the beach or to an upland site by dump trucks or barges.

Fish exclusion measures such as sand berms, block nets or bubble curtains will be used to isolate Project work areas. The Project area will be restored to pre-Project conditions after construction work has been completed. The proposed action is fully described in the Assessment (pp. 3-6).

Species and Habitat Presence in the Project Area

Priest Lake and the Thorofare are designated bull trout foraging, migrating, and overwintering (FMO) critical habitat, and bull trout may be present during Project implementation. The Project is not expected to overlap with bull trout migration during the early dewatering/isolation stages of construction, however, there may be post-spawning fish migrating from Upper Priest Lake to Priest Lake (via the Thorofare) towards the middle and end of the construction schedule (Entz 2017, pp. 12-13). Habitat in the Project area consists of low quality substrate (i.e. fine sand) and minimal hiding cover, and as a result we anticipate bull trout if present,will be present in low numbers in the Project area.

Potential Impacts and Effects from the Proposed Action

Bull trout may be present in the Project area during Project implementation. Project effects may result from dewatering, construction-related noise, sediment and turbidity, and chemical contamination. Dewatering will be conducted gradually to encourage bull trout to move from the Project area into adjacent suitable habitat. Any bull trout remaining will be herded into adjacent

suitable habitat by a qualified fish biologist. As a result, effects of the dewatering process, including fish herding, are expected to be insignificant. Construction-related noise is not expected to exceed levels known to disturb bull trout (Assessment p. 16), and bull trout that may be present in the Project area will be able to move into adjacent suitable habitat, resulting in insignificant effects. Potential sediment plumes that may occur during construction and re-watering will be short-term and minor, and are expected to settle out quickly. Bull trout will be able to avoid potential effects by moving into adjacent suitable habitat. Therefore, sediment and turbidity effects to bull trout are expected to be insignificant. Effects from chemical contaminants will be minimized by machinery operating in the dry and usage of BMPs (Assessment p. 17), resulting in discountable effects.

The Project may also affect bull trout critical habitat by permanently altering the lakebed and potentially reducing the food base. Installation of the new breakwater will result in the alteration of approximately 45,150 square feet of the existing breakwater and an additional 4,500 square feet of lakebed materials. Dredging of the Thorofare will remove fine sand in a 128,106 square foot area. However, existing habitat conditions in the Project area provide little to no complexity, pools or hiding cover, and alteration of this relatively small area of habitat will not appreciably affect the overall quality of FMO habitat in Priest Lake or the Thorofare. The breakwater replacement will replace existing rock armoring and lakebed materials that currently provide limited macroinvertebrate habitat, but this will have a negligible effect on overall prey abundance in Priest Lake. As a result, effects of the Project to bull trout critical habitat are expected to be insignificant.

Concurrence

Based on the Service's review of the Assessment, we concur with the Corps' determination that the action outlined in the Assessment and this letter may affect, but is not likely to adversely affect bull trout and its designated critical habitat. This concurrence is based on low numbers of bull trout anticipated in the Project area, conducting activities in the dry, use of BMPs, and minimal alteration of critical habitat, all of which will reduce impacts of the proposed action to bull trout and its critical habitat to insignificant or discountable levels.

This concludes informal consultation on the Project. Further consultation pursuant to section 7(a)(2) of the Act is not required. As provided in 50 CFR §402.16, re-initiation of consultation on this action may be necessary if new information reveals that effects of the action may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by this Project.

We value the dialogue between our offices that seeks to minimize impacts to listed species and aid their recovery. If you have any questions about this letter, or your responsibilities under the Act, please contact Megan Kosterman of my staff at megan_kosterman@fws.gov or phone (509) 893-8013.

Sincerely,

Patricia C. Johnson-Hughes

for Christopher Swanson
Acting Idaho State Supervisor

cc: IDFG (Horsmon)
GeoEngineers, Inc. (Scott)

References

Entz, D.C. 2017. Interaction Between Lake Trout and Bull Trout in the Priest Lake System, Idaho. A Thesis Presented to Eastern Washington University, Cheney, Washington.

IDAHO STATE
HISTORICAL SOCIETY

February 19, 2020

Shane P. Slate
Walla Walla District, Corps of Engineers
Coeur d'Alene Regulatory Office
1910 Northwest Boulevard, Suite 210
Coeur d'Alene, Idaho 83814-2676

Re: Priest Lake Water Management Program, Bonner County, Idaho
NWW-2018-00499 / SHPO Review No.: 2020-290

Dear Mr. Slate

Thank you for consulting with our office on the above referenced project. We understand the scope of the work includes a proposal to reconstruct a breakwater at the mouth of the Thorofare at the northern end of Priest Lake, Bonner County, Idaho.

On 5 February 2020, our office received an inventory report documenting the results of an intensive survey conducted by Plateau Archaeological Investigations, LLC. The report documented and evaluated the Tyee II Shipwreck (17-9409) and the Priest Lake Breakwater (Temporary No.: LW-16) within the proposed 11.4-acre Area of Potential Effect (APE). The report recommended both sites not eligible for the National Register of Historic Places (NRHP). Our office has reviewed the materials and concur that the Tyee II Shipwreck (17-9409) and the Priest Lake Breakwater (Temporary No.: LW-16) are not eligible to the NRHP.

Pursuant to 36 CFR 800.5, we have applied the criteria of effect to the proposed undertaking. Based on the information received 5 February 2020, we concur that the proposed project actions will result in **no historic properties affected** (36 CFR 800.4(d)).

In the event that cultural material is inadvertently encountered during the implementation of this project, work shall be halted in the vicinity of the finds until they can be inspected and assessed by the appropriate consulting parties. If you have any questions, or the scope of the work changes, please contact me at chris.shaver@ishs.idaho.gov or (208) 488-7467.

Sincerely,

Christopher L. Shaver
Compliance Archaeologist
Idaho State Historic Preservation Office

Brad Little
Governor of Idaho

Janet Gallimore
Executive Director
State Historic
Preservation Officer

Administration:
2205 Old Penitentiary Rd.
Boise, Idaho 83712
208.334.2682
Fax: 208.334.2774

Idaho State Museum:
610 Julia Davis Dr.
Boise, Idaho 83702
208.334.2120

Idaho State Archives and State Records Center:
2205 Old Penitentiary Rd.
Boise, Idaho 83712
208.334.2620

State Historic Preservation Office:
210 Main St.
Boise, Idaho 83702
208.334.3861

Old Idaho Penitentiary and Historic Sites:
2445 Old Penitentiary Rd.
Boise, Idaho 83712
208.334.2844

HISTORY.IDAHO.GOV

APPENDIX B – GEOTECHNICAL REPORTS

CONTENTS

GeoEngineers
523 East Second Avenue
Spokane, Washington 99202
509.363.3125

May 14, 2019

Mott MacDonald
110 James Street, Suite 101
Edmonds, Washington 98020

Attention: Nels Sultan and Shane Philips

Subject: Letter Report
Priest Lake Thorofare
Breakwater Slope Stability Analyses and Design Criteria
Priest Lake, Idaho
File No. 22593-001-01

INTRODUCTION

This report presents our results and conclusions of geotechnical engineering analyses for the proposed replacement breakwater. There are two alternatives being considered for the replacement breakwater including:

- Alternative A, rock embankment
- Alternative B, sheet piles

In addition to construction of a new breakwater, project plans include dredging the Thorofare channel and placing dredged material as beach fill on the south side of the proposed breakwater. The general locations of the existing and proposed breakwaters are shown in the Site Plan, Figure 1. Details of the current rock and sheet pile alternatives are shown in Rock Breakwater Details, Figure 2 and Alternate Sheet Pile Breakwater Details, Figure 3, respectively. Figures 1 through 3 are from recent draft plans developed by Mott MacDonald.

The purpose of this analysis is to provide geotechnical recommendations for design of the breakwater, evaluate the proposed alignment for stability, and to estimate settlement of the proposed breakwater in order to help the design team determine the preferred type of breakwater. Our services are being provided in accordance with our agreement with Mott MacDonald dated August 1, 2018.

SEDIMENT SAMPLING AND TESTING

Four sediment samples (DMMU-1A, DMMU-1B, DMMU-2A and DMMU-2B) were collected by Delphis Technical Solutions, Inc. in September 2018, under subcontract to Mott MacDonald. The approximate sample locations are presented in Sediment Grab Sample Locations, Figure 4. The samples were subsequently delivered to GeoEngineers Spokane office. A portion of each sample was used to conduct grain-size analyses in GeoEngineers laboratory. A representative portion of each sample also was submitted to TestAmerica Laboratories for analyses of total organic carbon. Results of the grain-size analyses indicate the sediment consists predominantly of poorly-graded fine to medium sand (grain-size analyses are presented in Figure A-1 in Appendix A). Total organic carbon was not detected in the four sediment samples, which is consistent with grain-size analyses and visual observations of the samples. Results of the laboratory total organic carbon tests also are presented in Appendix A.

SLOPE STABILITY AND SETBACK CRITERIA FOR PROPOSED BREAKWATER EMBANKMENTS

One of the design considerations for the proposed breakwater is the stability of the existing slope near the shallow water/deep water transition along the lake bottom, and suitable setback criteria for the replacement breakwater from the crest of the slope. We used the computer program Slope/W to evaluate stability of the existing slope and the proposed embankments. Spencer's method was selected, as it evaluates both force and moment equilibrium. The following data was used to develop the slope stability model:

- Bathymetric data provided by Mott MacDonald was used to develop slope geometry. This data is presented in Figure 1. Based on this figure, we estimated the steep portion of the underwater slope is about 25 to 30 feet tall, and ranges in inclination between about 1.3H:1V (horizontal: vertical) to flatter than about 3.5H:1V along the transition. The slope of the transition is steepest near the end of the existing breakwater. However, near the proposed breakwater alignment, the steep portion of the slope ranges from about 2H:1V to about 3.5H:1V.
- High and low water level conditions were evaluated (high water at about gage elevation 4 feet and low water at about gage elevation 0.5 feet).
- Engineering parameters for the lake bed material were based on the results of a laboratory direct-shear test of the lakebed sediment and our experience with similar soils. The sediment consisted of poorly-graded fine sand with trace silt, similar to previous sediment samples collected in the area. Soil for each normal load increment of the direct-shear test was prepared by first air-drying, then placing the sand in the shear box as loosely as possible, followed by application of normal load and inundation. Results of the direct shear test indicate a drained angle of internal friction of 32 degrees, cohesion of zero, and a saturated unit weight between about 115 and 120 pounds per cubic foot (pcf). A copy of the laboratory test results is included as Figure A-2, Fine Sand Sediment – Direct Shear Test Results, Appendix A.
- Engineering parameters for the proposed breakwater were estimated based on Alternative A, a rock fill breakwater. Although a sensitivity analysis indicates that the breakwater material does not significantly impact the overall stability of the adjacent slope.
- The target minimum static safety factor used in our analyses was 1.25. For slope stability of embankments or general cut or fill slopes not supporting or potentially impacting a significant

structure, a safety factor or 1.25 is typically used (Idaho Department of Transportation Materials Manual). A target static safety factor of 1.5 is used for slopes that support critical structures such as retaining walls, bridges or buildings, or where slope failure could damage such structures or otherwise be a risk to life safety. Although this Because the proposed breakwater does not support or impact a significant structure, we used the lower bound static safety factor in our analyses.

- Seismic stability was not considered. The site is located in a region of generally low to moderate seismicity (the estimated 2,475-year return period peak ground acceleration is about 0.13g). On this basis, we anticipate the potential is low for a design-period seismic event to cause substantial damage to the breakwater. Additionally, we anticipate costs associated with mitigating potential slope instability or liquefaction-induced settlement likely would significantly exceed the cost to rebuild or repair the structure in the event a seismic event did occur. Therefore, we have not conducted a seismic evaluation of the proposed breakwater.

We also have included a figure showing the general geometry of the existing underwater slope and proposed breakwater used in our slope stability analyses, presented in General Profile Shallow Water/Deep Water Transition, Figure 5, General Profile Shallow Water/Deep Water Transition. Results of select slope stability analyses are presented in Figures 6 through 11.

Based on the results of our analyses, we recommend the following setback criteria from the edge of the breakwater embankment and the crest of the underwater slope. These criteria should be used when evaluating and selecting the proposed replacement breakwater alignment.

- Slopes flatter than 5H:1V, no setback required from the slope crest.
- Slopes 5H:1V to 2H:1V, minimum 10-foot setback from the crest.

Our stability analyses indicate a closer setback could be achieved for slopes flatter than about 2.5H:1V. As previously indicated, existing site slopes as steep as 1.3H:1V to flatter than about 3.5H:1V are present along the shallow water/deep water transition. While a simplified infinite slope analysis indicates that for a soil with a friction angle of 32 degrees, the maximum slope inclination should be about 1.6H:1V, the presence of steeper slopes suggests variation in the shear strength of the lakebed soil. We anticipate the geometry/deposition is such that the existing soil near the slope face in the vicinity of the proposed breakwater alignment is at or near its angle of repose. Therefore, it is our opinion that loading directly at the top of the slope crest could result in sloughing of the slope impacting proposed breakwater embankment. As such, we recommend maintaining a minimum setback of at least 10 feet for slopes steeper than 5H:1V. This will also allow for some natural sloughing of these underwater slopes without impacting the breakwater embankment.

SETTLEMENT OF PROPOSED BREAKWATER EMBANKMENTS

We estimated the settlement of the proposed rock breakwater based on the assumption that subsurface conditions along the prosed alignment consist of similar material as encountered in the shallow sediment samples collected for this project (specifically, we assumed subsurface conditions consist of loose sand with trace silt). In our opinion, this is an appropriate assumption based on the hydrogeologic conditions (i.e. depositional environment) near the mouth of the Thorofare and anecdotal evidence from previous dredging activities at the Thorofare.

In the absence of specific subsurface data, we conservatively assumed the elastic modulus of the loose sand was 200 kips per square inch (ksi), and the unit weight of the breakwater material and dredged sand fill was in the range of about 115 to 120 pcf. We used the proposed breakwater geometry presented in Figures 2 and 3 and assumed the lake level was at an elevation of zero (which results in a conservative estimate of settlement). On this basis we estimate that settlement of the proposed breakwater should be less than about 2 inches, and should occur rapidly, essentially as the breakwater is constructed and dredged sand backfill is placed. Post-construction settlement should be minor.

We understand that settlement of the proposed breakwater is principally an economic consideration, as settlement should not impact the overall stability of the proposed structure. If portions of the proposed breakwater are underlain by more compressible material, resulting in larger settlements than estimated, this will require placement of additional material to re-establish planned grades, but because of the relatively flexible nature of the proposed breakwater, we do not anticipate long-term negative impacts to the function of the structure if this settlement estimate is exceeded.

ENGINEERING PARAMETERS FOR SHEET PILE DESIGN

For preliminary pile design, we recommend the following parameters for use with the LPILE software (Ensoft) for estimating pile response to lateral loading:

Soil Model	Effective Unit Weight (pcf)	Friction Angle (deg.)	K (pci)
Sand (Reese)	55	32	20

Notes: pci = pounds per cubic inch

The following lateral earth pressure criteria can also be used for conventional limit equilibrium analyses for sheet pile design:

- Active earth pressure coefficient (Ka) = 0.31 (for both undisturbed lakebed sand and dredged fill sand)
- Effective equivalent fluid density for active earth pressure state of stress for dredged sand fill above water level (γ'Ka) = 115 x 0.31 = 35 pcf
- Effective equivalent fluid density for active earth pressure state of stress for sand below water level (γ'Ka) = 55 x 0.31 = 17 pcf
- Passive earth pressure coefficient (Kp) = 3.25
- Effective equivalent fluid density for passive earth pressure state of stress (γ'Kp) = 55 x 3.25 = 179 pcf

Note that these values do not include a safety factor. We recommend applying a safety factor of at least 1.5 to the passive pressure when determining embedment depths. Hydrostatic or dynamic loads should also be included if the water level is expected to be unbalanced at any time.

LIMITATIONS

We have prepared this report for Mott MacDonald for the proposed Priest Lake Thorofare replacement breakwater. Mott MacDonald may distribute copies of this report to the Idaho Water Resource Board and its authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering services in this area at the time this report was prepared. The conclusions, recommendations, and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report.

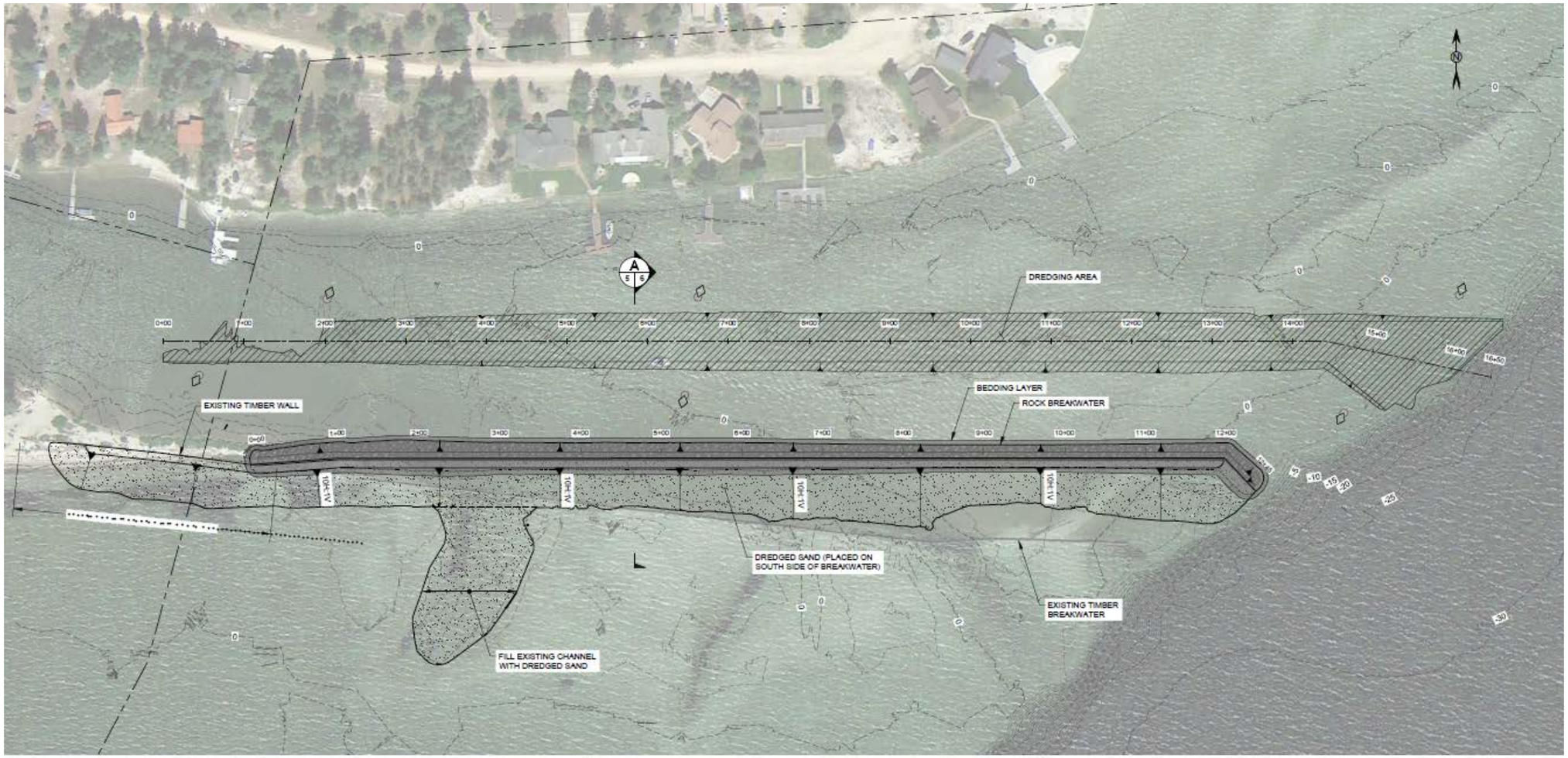
Sincerely,
GeoEngineers, Inc.

David R. Lauder, PE
Senior Geotechnical Engineer

Lyle J. Stone, PE, GE
Associate Geotechnical Engineer

DRL:LJS:tjh

Attachments:
Figure 1. Site Plan
Figure 2. Rock Breakwater Details
Figure 3. Alternate Sheet Pile Breakwater Details
Figure 4. Sediment Grab Sample Locations
Figure 5. General Profile Shallow Water/Deep Water Transition
Figures 6 through 11. Slope Stability Analyses
Appendix A – Laboratory Test Results
Figure A-1. Sieve Analyses Results
Figure A-2. Sand Sediment Direct Shear Test Results
TestAmerica Laboratory Test Report



NOTES

1. BATHYMETRY SOURCE: MAY 2017 MOTT MACDONALD DATA COLLECTION.
2. HORIZONTAL DATUM: NAD83, IDAHO STATE PLANES WEST ZONE, FEET
3. UNIT AND VERTICAL DATUM: FEET REFERENCED TO USGS GAGE 12393000 DATUM. DATUM OF GAGE 2,434.64 FEET ABOVE NGVD29
4. AERIAL SOURCE: GOOGLE EARTH

GENERAL PLAN

0 60 120

SCALE IN FEET

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mott MacDonald, Priest Lake Water Management Thorofare Breakwater and Dredging Draft Plans, November 2018

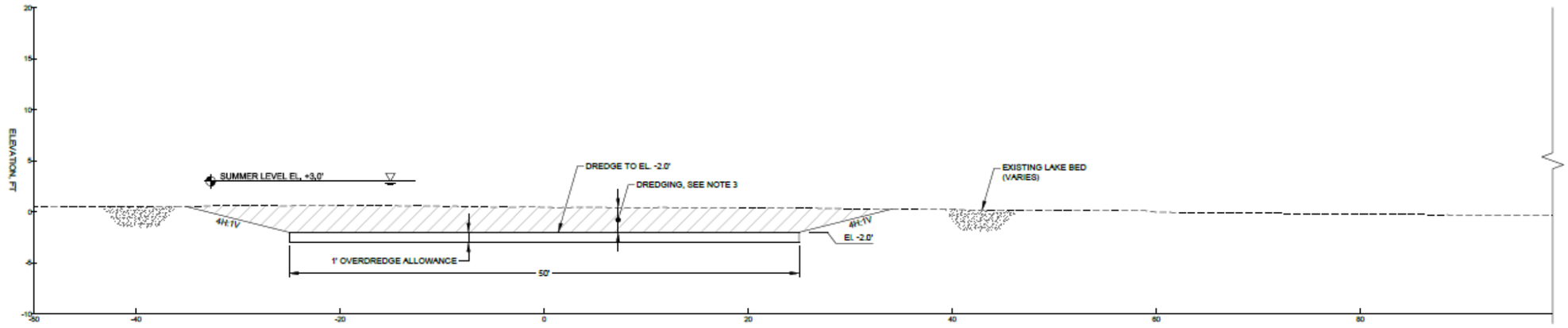
Site Plan

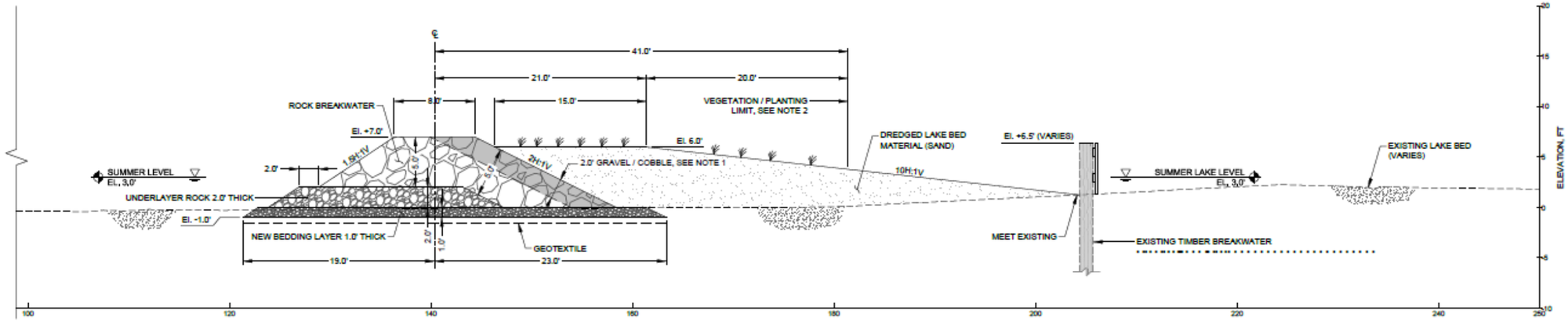
Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 1

22593-001-01 Date Exported: 01/03/19





NOTES

1. PLACE GRAVEL / COBBLE IN VOIDS OF ARMOR ROCK SURFACE.
2. PLANTINGS SHALL BE LOW HEIGHT (LESS THAN 3.0' HIGH), HUCKLEBERRY AND OTHER NATIVE SPECIES.
3. DREDGE TO EL. -2.0' AND PLACE MATERIAL ON SOUTH SIDE OF ROCK BREAKWATER AND PER PERMITS.
4. PLANTINGS TO BE INSTALLED ALONG THE WESTERN 1/3 OF BREAKWATER ALIGNMENT.

A 5 5 SECTION
DREDGE AREA AND ROCK BREAKWATER

0 5 10
SCALE IN FEET

LEGEND

- ARMOR ROCK, W50 = 1500 LBS
- UNDERLAYER ROCK, W50 = 150 LBS
- BEDDING ROCK, W50 = QUARRY SPALLS, 8" MINUS
- VEGETATION / PLANTING
- SAND (DREDGED MATERIAL)
- GRAVEL / COBBLE FILL IN VOIDS

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mott MacDonald, Priest Lake Water Management Thorofare Breakwater and Dredging Draft Plans, November 2018

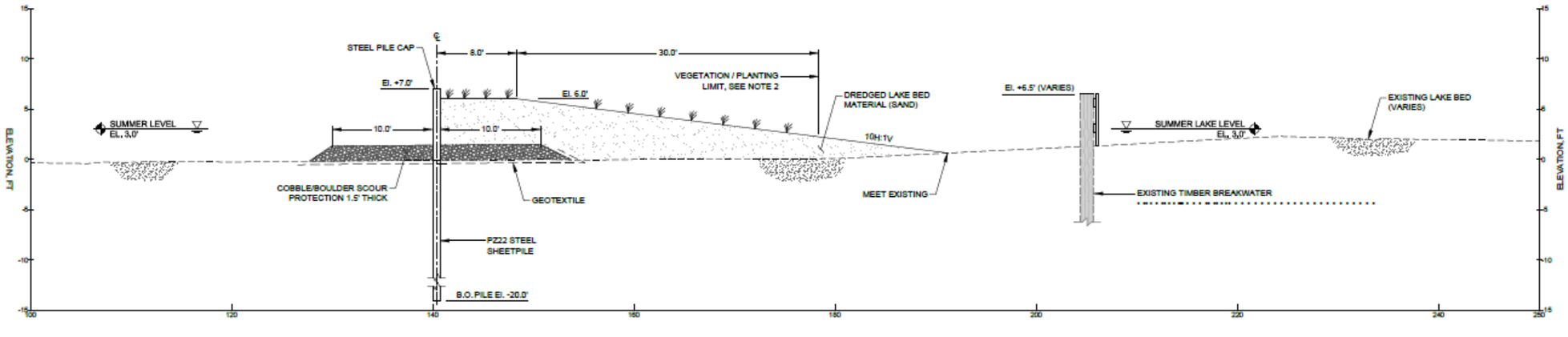
Rock Breakwater Details

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 2

22593-001-01 Date Exported: 01/03/2019



A/5/7 SECTION
STEEL SHEETPILE ALTERNATIVE

0 5 10
SCALE IN FEET

NOTES

1. PLANTINGS SHALL BE LOW HEIGHT (LESS THAN 3.0' HIGH), HUCKLEBERRY AND OTHER NATIVE SPECIES.
2. DREDGE TO EL. -2.0' AND PLACE MATERIAL ON SOUTH SIDE OF BREAKWATER AND PER PERMITS.
3. PLANTINGS TO BE INSTALLED ALONG THE WESTERN 1/3 OF BREAKWATER ALIGNMENT.

LEGEND

- VEGETATION / PLANTING
- COBBLE/BOULDER SCOUR PROTECTION
- SAND (DREDGED MATERIAL)

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mott MacDonald, Priest Lake Water Management Thorofare Breakwater and Dredging Draft Plans, November 2018

Alternate Sheet Pile Breakwater Details

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 3

22593-001-01 Date Exported: 01/03/2019

0,1 m S,S, VanVeen Grab and Recovered Samples

NOTES:

1. Survey related to Temporary RTK Benchmark:
   E 511140.816 m
   N 5398543.615 m
   Height above NGVD29: +743.544m (+2,439.441')

   Corrected to USGS Gage 12393000 Datum. Gage 3' is +2,437.64' NGVD29.
   Contours shown as depth referenced to maintained lake level +3'.
   Bathymetric Data collected May 10, 2017.
2. UTM - Zone 11 Grid shown (meters). Tickmarks at 100-m x 100-m.
3. Water Level +2,438.946 ft (+3.51' USGS gage) average during survey.
4. Orthomosaic Imagery collected on May 10, 2017. (GSD=2.54cm / Resolution=2.54cm/pixel).

N

0 25 50

Scale In Meters

Delphis
Technical Support and Solutions, LLC

13332 69th DR SE
Snohomish, WA 98296
Tel: 425-773-0722

PRIEST_LAKE:_PHASE_II
SEDIMENT_GRAB_SAMPLE_LOCATIONS
SEPTEMBER_27,2018

JOB NO. 201806	FIGURE NO.7
HORIZONTAL DATUM: UTM	SURVEYED BY: KJS
ZONE: ZONE_11	DRAWING DATE: 10/20/2018
UNITS: METERS	DRAWN BY: KJS
VERTICAL DATUM: DEPTH_IN_FEET_AT_MAINTAINED_LEVEL	SCALE: 1"=25M
SURVEY DATE: SEP_27_2018	DRAWING SIZE: 11"X17"

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Delphis Technical Solutions, September 2018

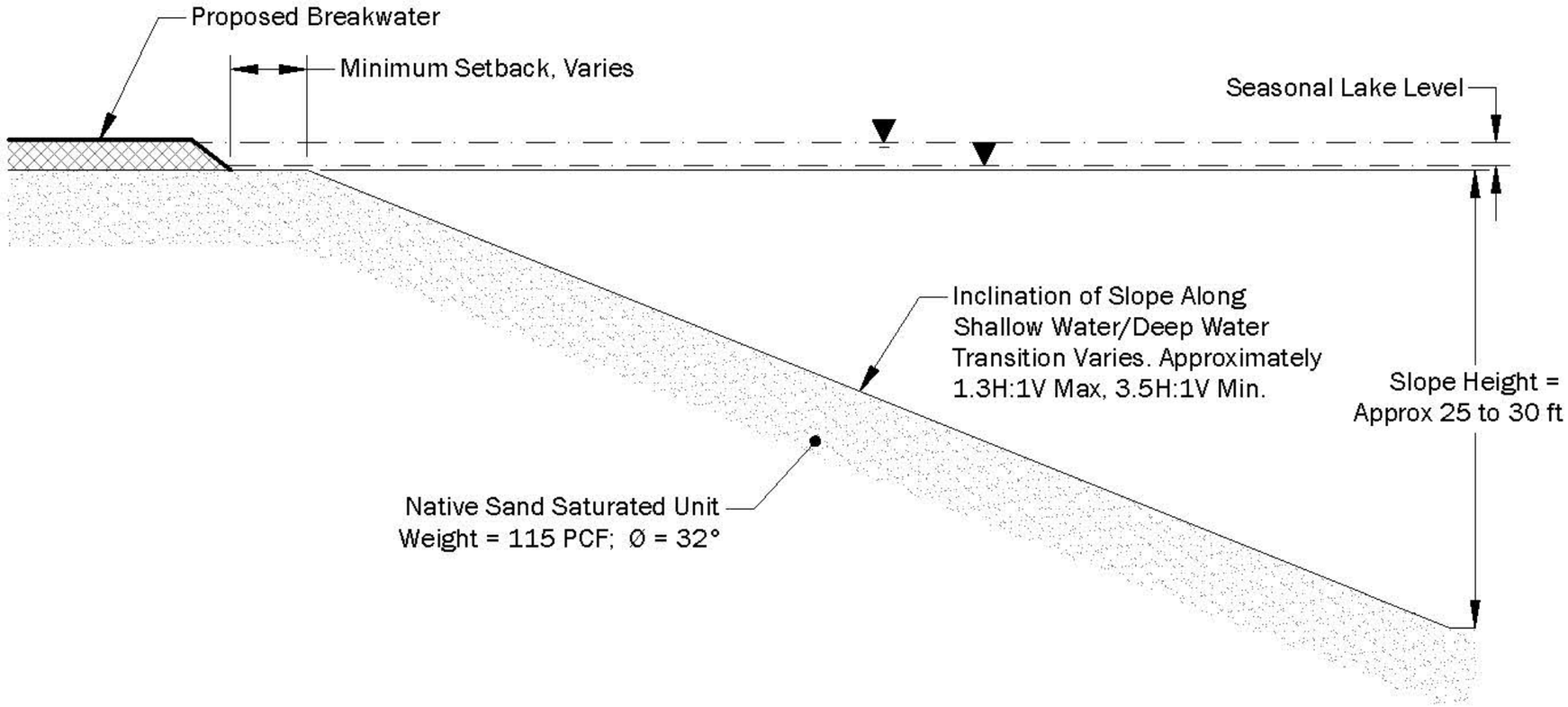
Sediment Grab Sample Locations

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 4

22593-001-01 Date Exported: 01/03/2019



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

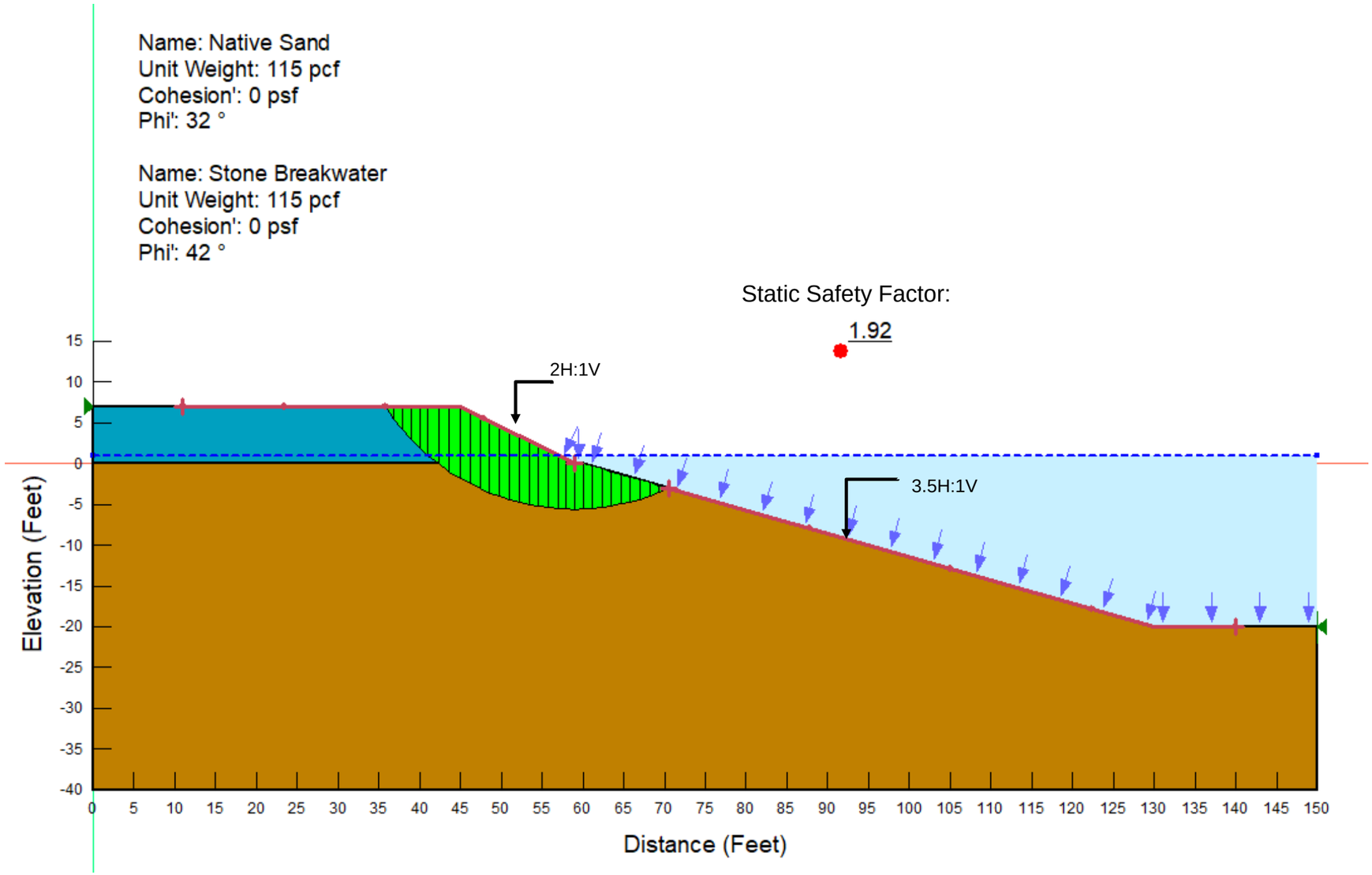
General Profile Shallow Water/Deep Water Transition

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 5

22593-001-01 Date Exported 01/03/2019



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Slope/W

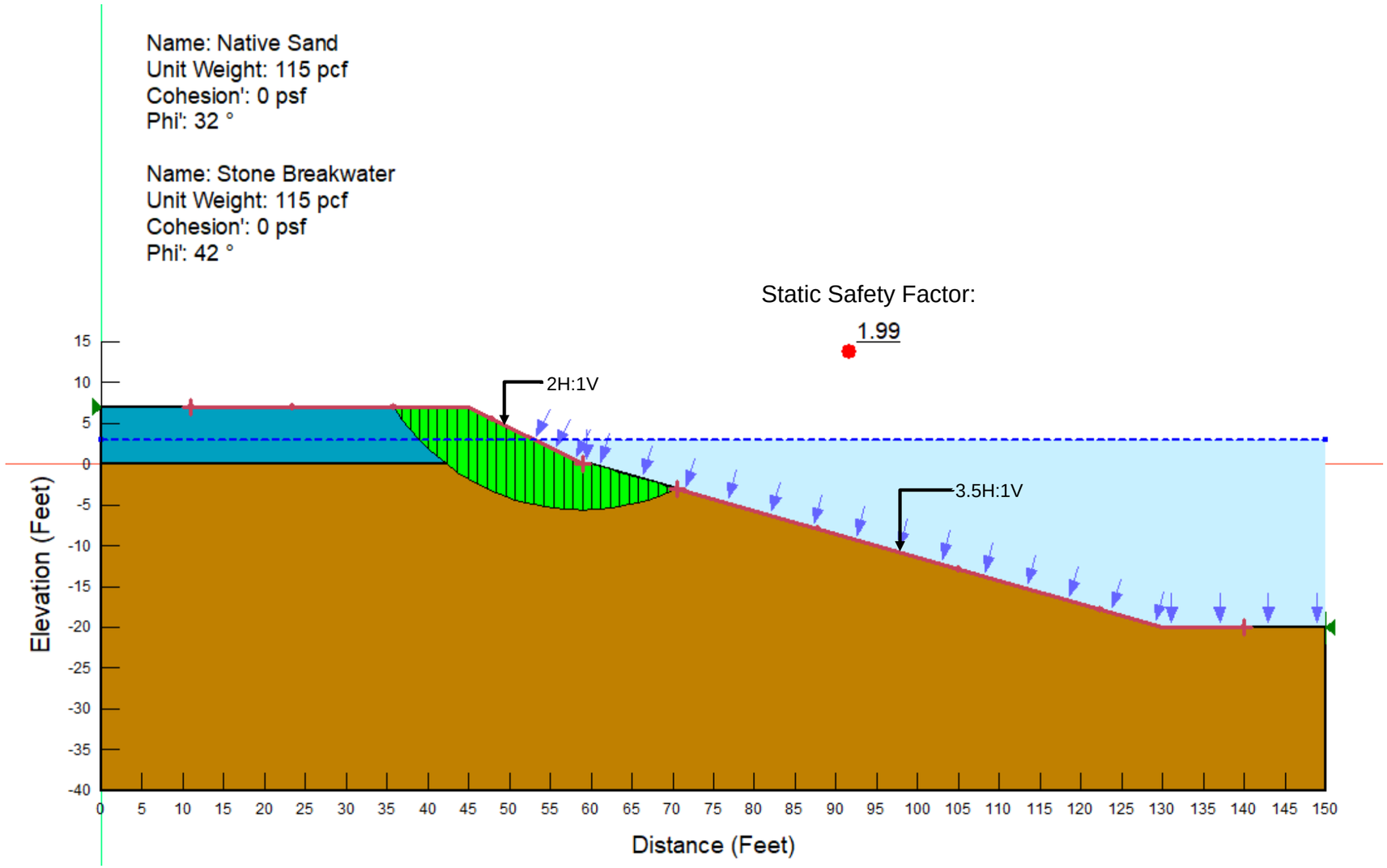
3.5H:1.0V Slope Stability Circular Model
Water Elevation = 1 Foot
1-Foot Breakwater Setback

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 6

22593-001-01 Date Exported: 12/26/18



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Slope/W

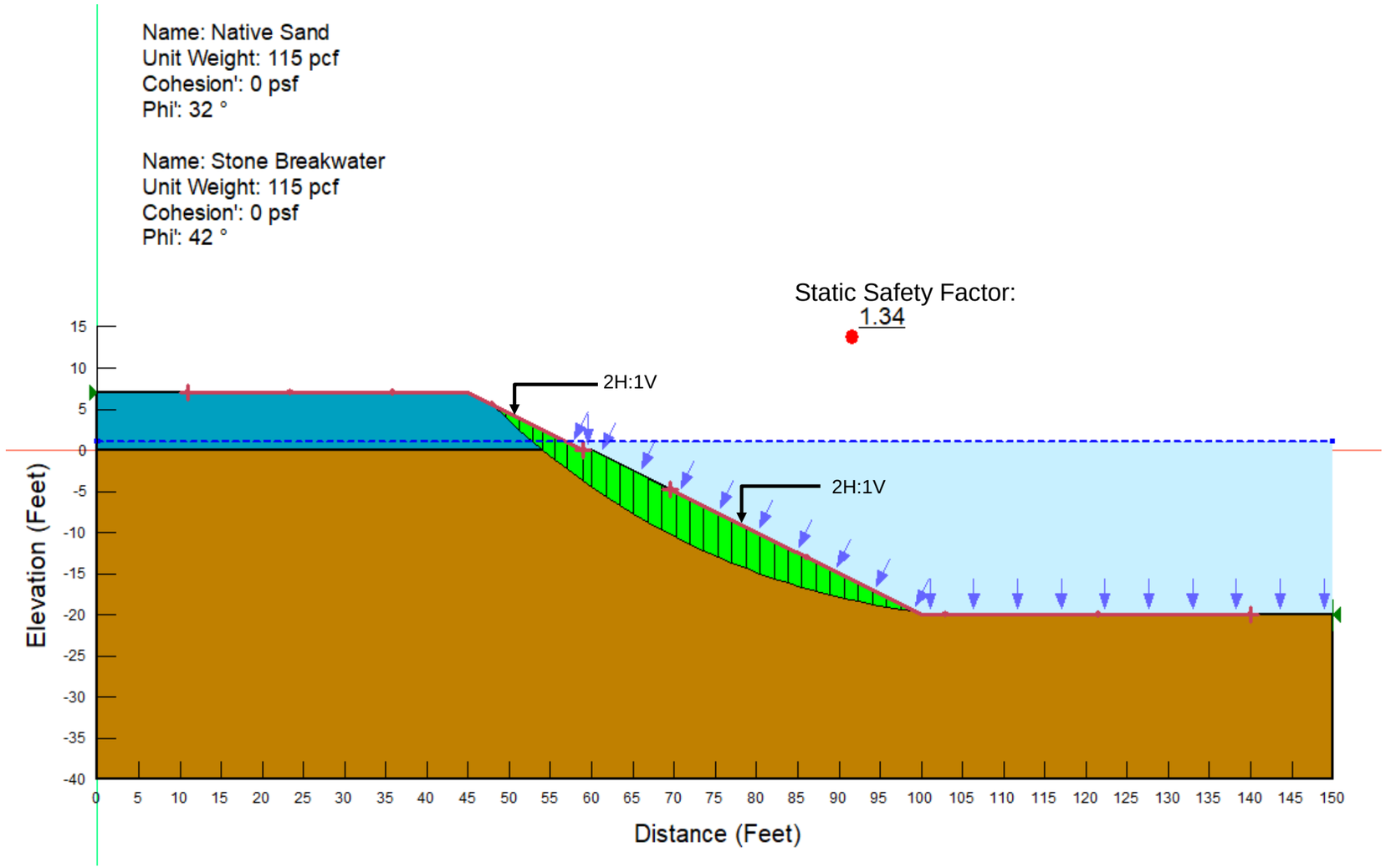
3.5H:1.0V Slope Stability Circular Model
Water Elevation = 3 Feet
1-Foot Breakwater Setback

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 7

22593-001-01 Date Exported: 12/26/18



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Slope/W

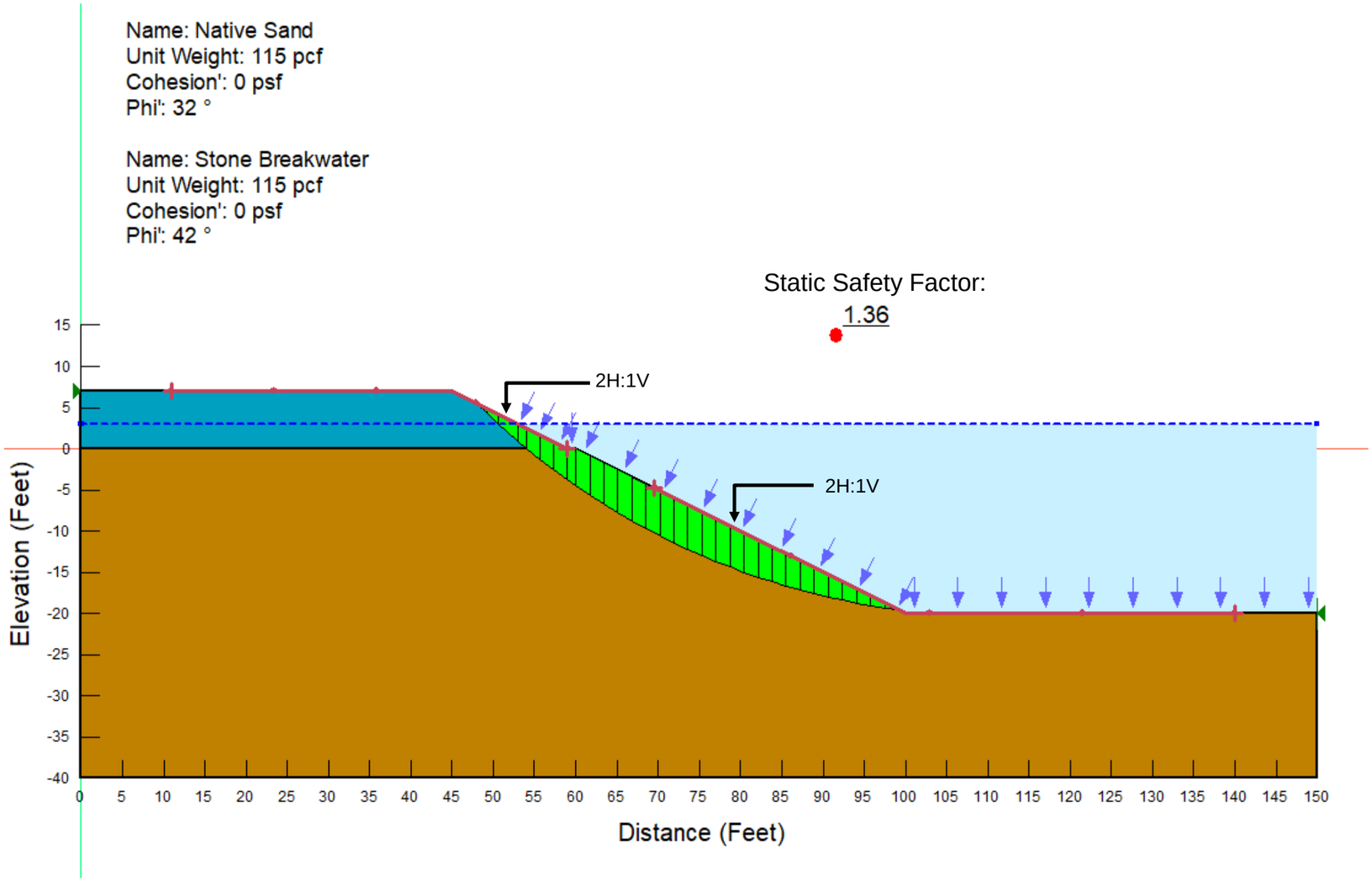
2H:1.0V Slope Stability Circular Model
Water Elevation = 1 Feet
1-Foot Breakwater Setback

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 8

22593-001-01 Date Exported: 12/26/18



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Slope/W

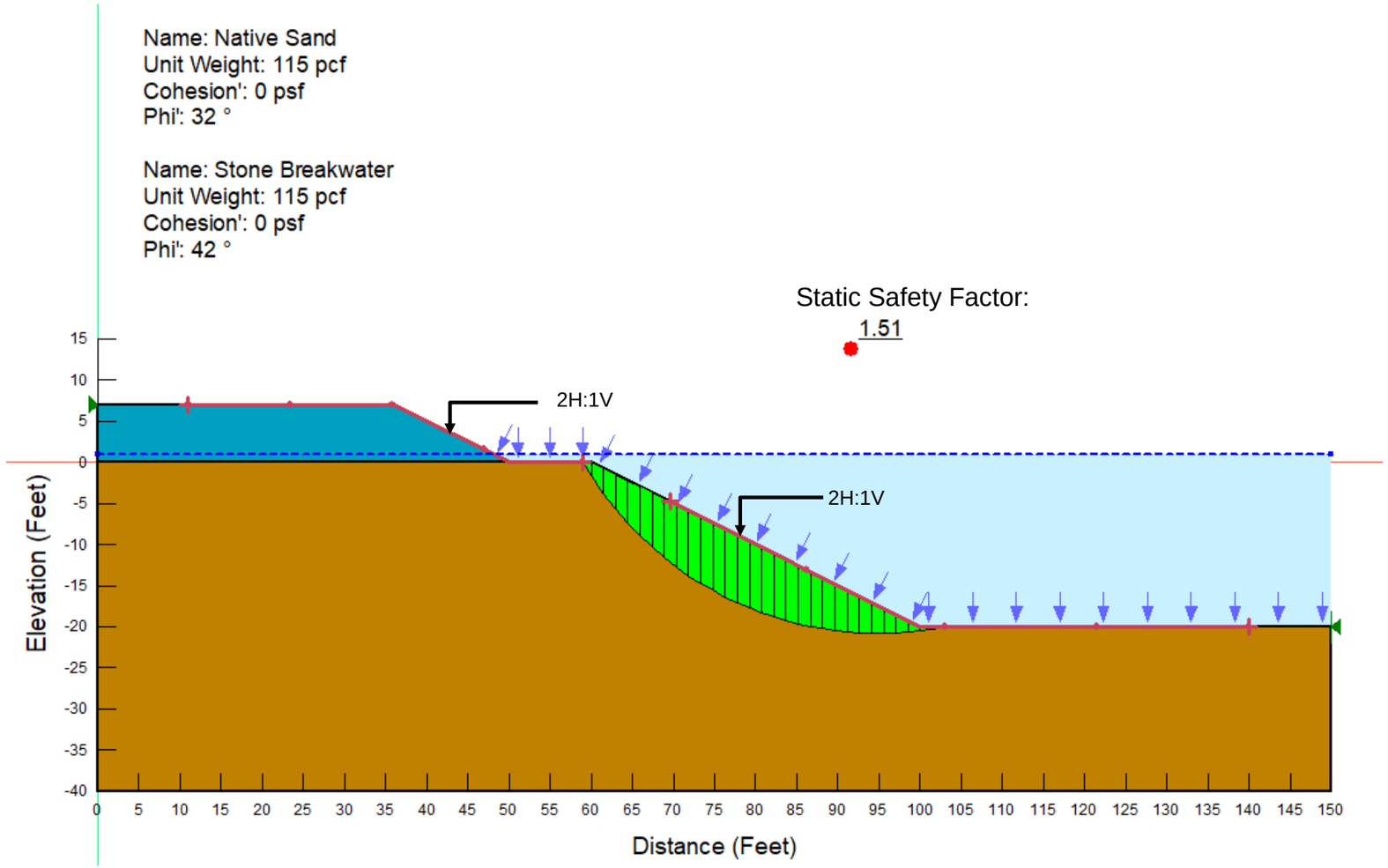
2H:1.0V Slope Stability Circular Model
Water Elevation = 3 Feet
1-Foot Breakwater Setback

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 9

22593-001-01 Date Exported: 12/26/18



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Slope/W

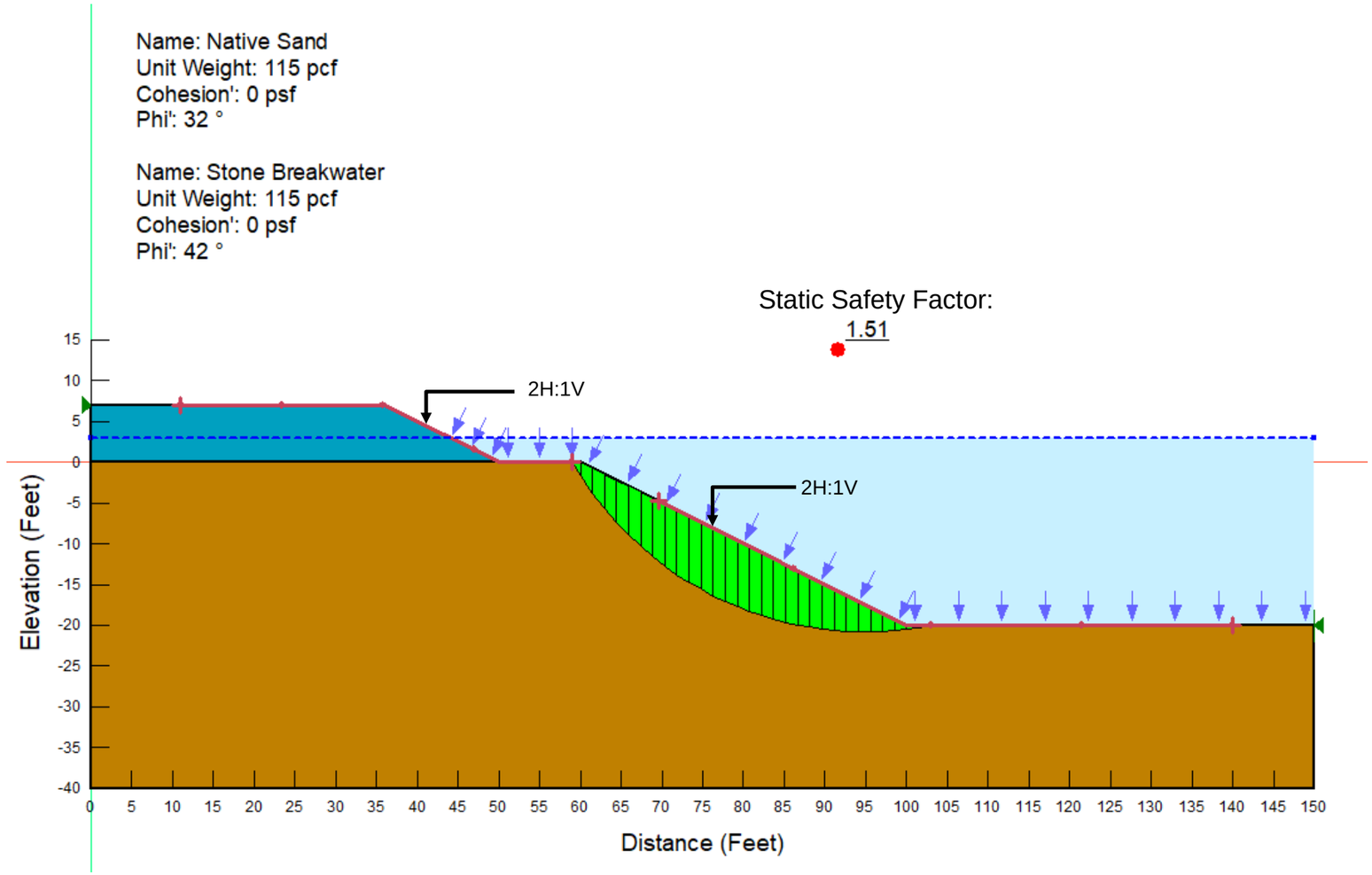
2H:1.0V Slope Stability Circular Model
Water Elevation = 1 Feet
10-Foot Breakwater Setback

Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 10

22593-001-01 Date Exported: 12/26/18



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Slope/W

2H:1.0V Slope Stability Circular Model
Water Elevation = 3 Feet
10-Foot Breakwater Setback

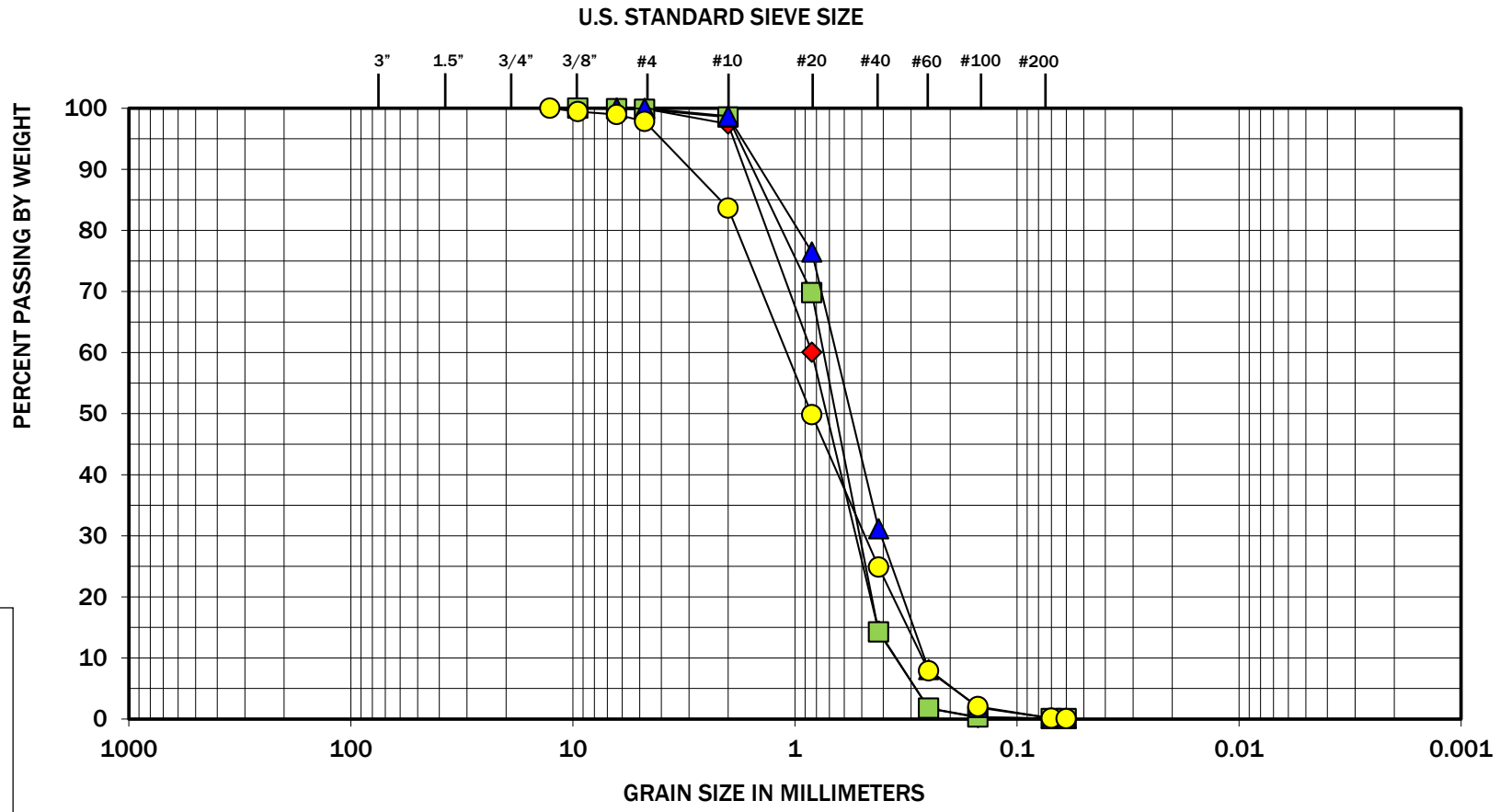
Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure 11

22593-001-01 Date Exported: 12/26/18

APPENDIX A
Laboratory Test Results



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Sample ID	Depth (feet)	Moisture (%)	Soil Description
◆	DMMU 1A		21	Fine to medium sand
■	DMMU 1B		22	Fine to medium sand
▲	DMMU 2A		26	Fine to medium sand
●	DMMU 2B		21	Fine to coarse sand

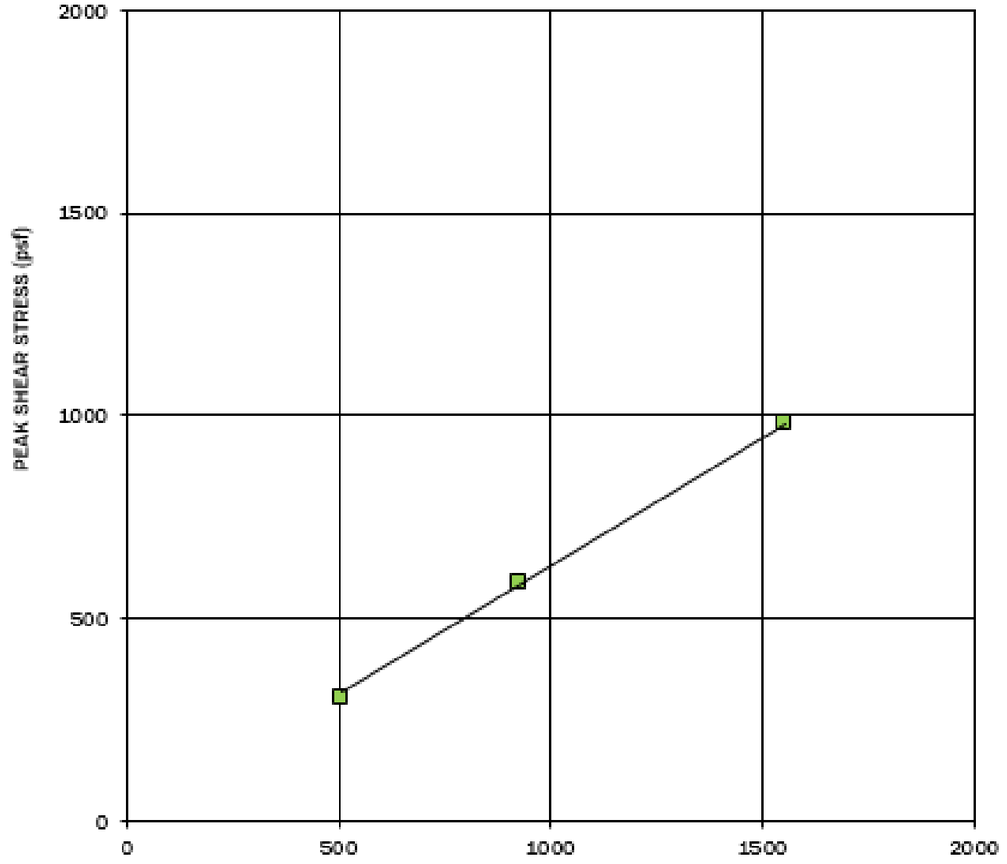
The grain size analysis results were obtained in general accordance with ASTM D 6913.

GeoEngineers

Figure A-1

Priest Lake Dam and Thorofare Modifications
Bonner County, Idaho

Sieve Analysis Results



Boring Number	Depth (feet)	Soil Description	Moisture (%)	Initial Dry Density (lbs/ft^3)
PL-88	Grab	Fine sand with trace silt	25 to 42	87

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes. The direct shear results were obtained in general accordance with ASTM D 3080

Sand Sediment Direct Shear Test Results

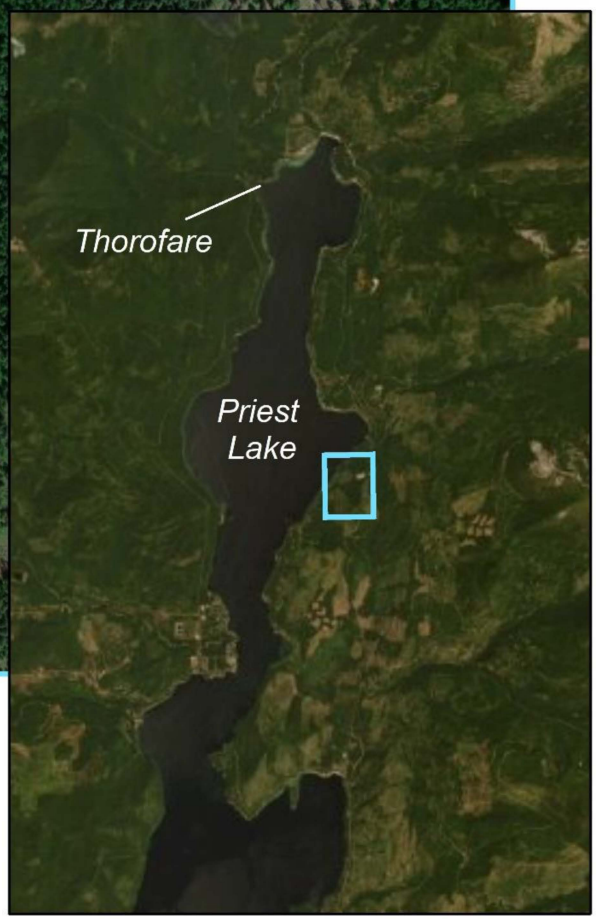
Priest Lake Thorofare
Priest Lake, Idaho

GeoEngineers

Figure A-2

APPENDIX C – TEMPORARY CONSTRUCTION ACCESS AGREEMENTS, STAGING & PLACEMENT AREAS

CONTENTS



BEAR CREEK TEMPORARY STOCKPILING AREA

HUCKLEBERRY BAY PLACEMENT AREA

APPENDIX D – EXISTING UTILITIES

CONTENTS

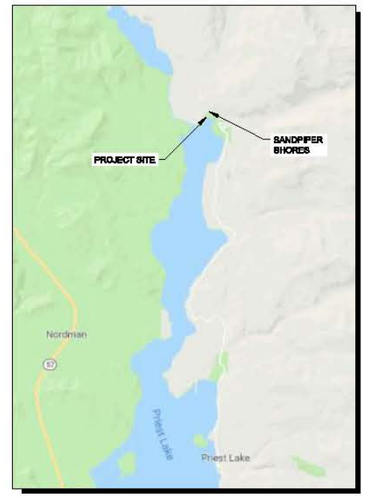
1. Sandpiper Shores Master Utility (SSMU) 90% Construction Drawings for Wastewater Improvements
2. Sewer and Pump House Plans (1988-1993)

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS
AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

CONSTRUCTION DRAWINGS FOR
SANDPIPER SHORES MASTER UTILITY (SSMU)
WASTEWATER IMPROVEMENTS
CLEAN WATER LOAN PROJECT #WW1705

A PORTION OF THE NW 1/4 OF SECTION 10
TOWNSHIP 62 NORTH, RANGE 4 WEST, BOISE MERIDIAN
BONNER COUNTY, IDAHO
FEBRUARY 2020

SHEET INDEX



(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

NOTICE TO CONTRACTORS

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD THE BONNER COUNTY HIGHWAY DISTRICT, THE CITY OF PRIEST LAKE, AND THE DESIGN CONSULTANT HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

UNAUTHORIZED CHANGES & USES: THE DESIGN CONSULTANT PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

UTILITY REPRESENTITIVES

UTILITY	AGENCY	REPRESENTATIVE	PHONE
ELECTRICITY	NORTHERN LIGHTS	AARON McNALL	208-255-8393
SEWER	SSMU	TRAVIS CLEMENSON	208-610-9844
WATER	SSMU	TRAVIS CLEMENSON	208-610-9844
TELEPHONE	FRONTIER	RON HELMICK	208-664-7106
FIRE	NORTH OF THE NARROWS FIRE DISTRICT		208-443-2979

DRAFT
FINAL ENGINEERING
REGISTERED
STATE OF IDAHO
SCOTT G. M.

BORDER SIZE: 22"x34"
DESIGNED: BGM
DRAWN: MCK
CHECKED: SGM/JT
APPROVED: BGM

REVISIONS

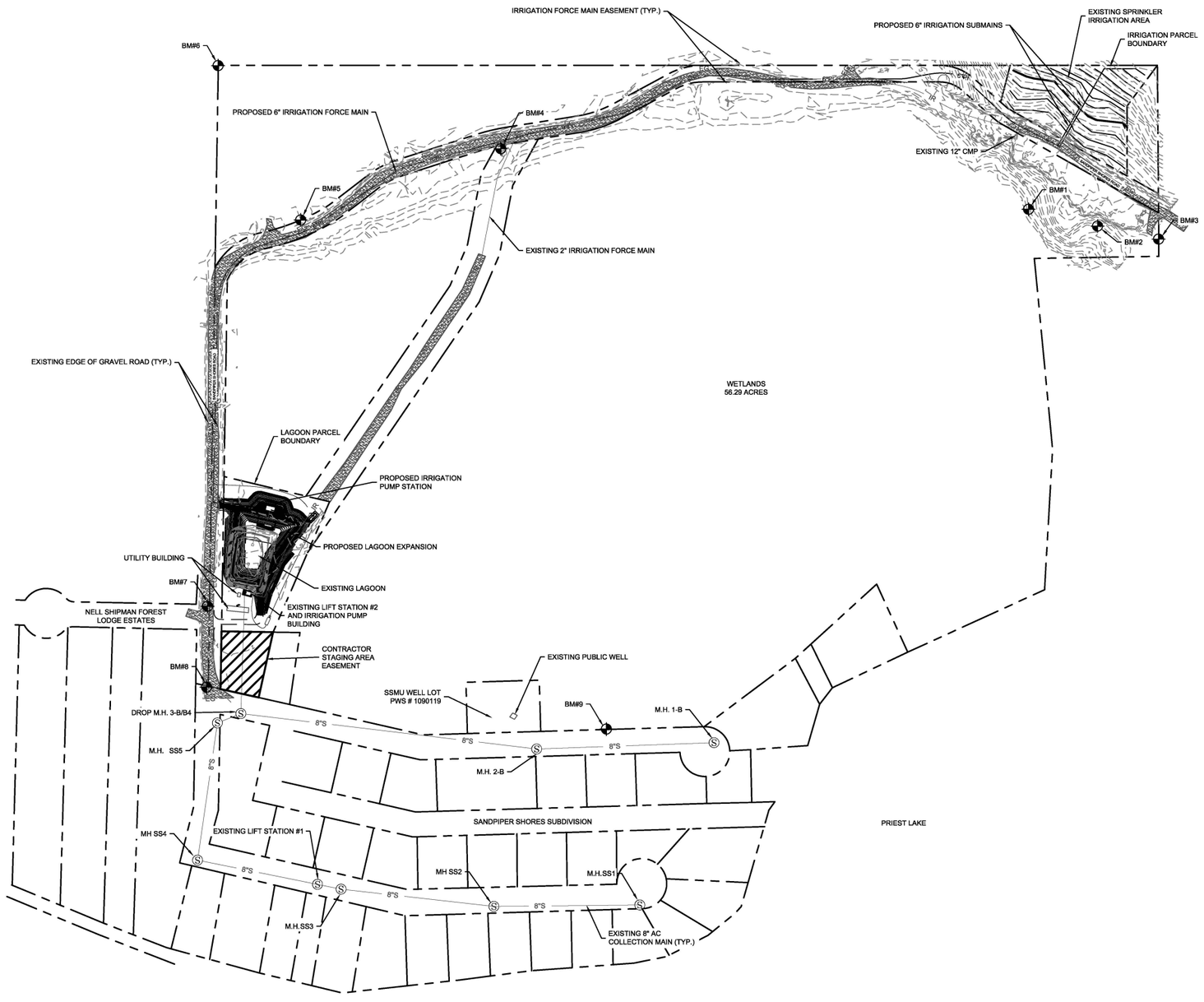
NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 N. MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • DODDY • COEUR D'ALENE • HEBER CITY
MERIDIAN • HAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
COVER

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE.

DATE: February 2020
PROJECT: 180380
SHEET: C0.00



CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

0 75 150 300 450

PHASING TABLE		
YEAR	PHASE	DESCRIPTION
1	1A	STORMWATER & EROSION CONTROL MEASURES
	1-B	LAGOON DRAW DOWN
	1-C	NEW IRRIGATION FORCE MAIN PIPING
	1-D	COLLECTION SYSTEM REPAIRS
	1-E	NEW DRIP IRRIGATION AREA
	1-F	TEMPORARY STORAGE AND IRRIGATION PUMP STATION
	1-G	LAGOON SLUDGE REMOVAL, EXPANSION AND LINING
	1-H	NEW IRRIGATION PUMP STATION
	1-I	NEW ELECTRICAL & CONTROL
	1-J	LAGOON AERATION SYSTEM
	1-K	SECURITY FENCING

PROJECT CONTACTS		
DESCRIPTION	REPRESENTATIVE	PHONE NUMBER
OWNER'S REPRESENTATIVE	MICKY MERRITT, SSMU	509-385-3816
PROJECT ENGINEER	SCOTT MCNEE, P.E. TO-ENGINEERS, INC.	208-762-3644
WASTEWATER OPERATOR	TRAVIS CLEMENSON	208-610-9844

NOTES:

1. THE PHASING SHOWN ON THIS PLAN SHEET IS GENERAL IN NATURE AND IS INTENDED TO SHOW THE GENERAL PROGRESSION OF THE PROJECT. CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SCHEDULE AND PHASING PLAN PER THE CONTRACT SPECIFICATIONS.
2. DURING THE COURSE OF THE PROJECT THERE WILL BE CONSTANT SEWER INFLOW FROM THE SSMU COLLECTION SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE IRRIGATION SYSTEM IS OPERATIONAL THROUGHOUT THE LAND APPLICATION SEASON (MAY-OCTOBER), TO ALLOW DISPOSAL OF EFFLUENT. CONTRACTOR SHALL COORDINATE WITH THE SYSTEM OPERATOR (TRAVIS CLEMENSON) FOR IRRIGATION DETAILS. SPECIAL ATTENTION SHALL BE REQUIRED FOR PHASING OF LAGOON CONSTRUCTION AND LINING.
3. ALL WASTEWATER IRRIGATION SHALL BE CONDUCTED BY THE SYSTEM OPERATOR IN ACCORDANCE WITH IDEQ REUSE PERMIT M-072-03.
4. ANY CONFLICTS OR CHANGE IN PHASING THAT COULD AFFECT DAILY OPERATION OF THE WASTEWATER COLLECTION AND TREATMENT SYSTEM SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OPERATOR IMMEDIATELY.
5. CONSTRUCTION OF THE PRIEST LAKE WATER MANAGEMENT THOROFARE PROJECT MAY BE OCCURRING CONCURRENT WITH THIS PROJECT AND WILL UTILIZE THE SAME ROADS FOR HAULING AND ACCESS. CONTRACTOR SHALL COORDINATE WITH THOROFARE CONTRACTOR TO AVOID CONFLICTS. CONTACT RICK COLLINGWOOD, IDWR, (208) 287-4835.
6. CONTRACTOR SHALL KEEP ALL CONSTRUCTION ACTIVITIES WITHIN THE LAGOON PARCEL, STAGING AREA EASEMENT, IRRIGATION PARCEL, ROADWAYS AND FORCE MAIN EASEMENT, AS NOTED ON THESE PLANS.

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

SURVEY INFORMATION									
SURVEY CONTROL PROVIDED BY SAWTOOTH LAND SURVEYING, LLC. - MARK DUFFNER 9905, PLS PHONE NO. (208) 714-4544									
ALL ELEVATIONS SHOWN ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).									
BM#1	BM#2	BM#3	BM#4	BM#5	BM#6	BM#7	BM#8	BM#9
NORTHING: 502416.6611	NORTHING: 502583.1061	NORTHING: 502729.8189	NORTHING: 501146.404	NORTHING: 500665.0038	NORTHING: 500466.3411	NORTHING: 500445.0965	NORTHING: 500441.9175	NORTHING: 501402.4006
EASTING: 499653.1372	EASTING: 499614.002	EASTING: 499582.3841	EASTING: 499798.055	EASTING: 499627.9718	EASTING: 499999.9793	EASTING: 498701.4155	EASTING: 498505.9149	EASTING: 498401.5883
ELEVATION: 2449.4189	ELEVATION: 2456.5048	ELEVATION: 2462.5687	ELEVATION: 2450.9103	ELEVATION: 2448.2948	ELEVATION: 2449.5378	ELEVATION: 2446.2924	ELEVATION: 2446.2983	ELEVATION: 2446.3954
DESCRIPTION: FOUND 5/8 REBAR	DESCRIPTION: FOUND 5/8 REBAR W/ PLASTIC CAP - PLS 882	DESCRIPTION: FOUND 5/8 REBAR W/ PLASTIC CAP - PLS 883	DESCRIPTION: FOUND 1/2 REBAR	DESCRIPTION: FOUND 3/4 REBAR W/ ALUM CAP - PE 775	DESCRIPTION: FOUND 5/8 REBAR W/ PLASTIC CAP - PLS 7879	DESCRIPTION: FOUND 5/8 REBAR W/ PLASTIC CAP - PLS 7880	DESCRIPTION: FOUND 5/8 REBAR W/ PLASTIC CAP - PLS 7881	DESCRIPTION: FOUND 3/4 REBAR W/ ALUM CAP - PE 775

DRAFT
SCOTT G. M. — STATE OF — REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE: 22"x34"
DESIGNED: SGM
DRAWN: MCK
CHECKED: SGM/ZJT
APPROVED: SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 N. MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
PROJECT OVERVIEW & PHASING

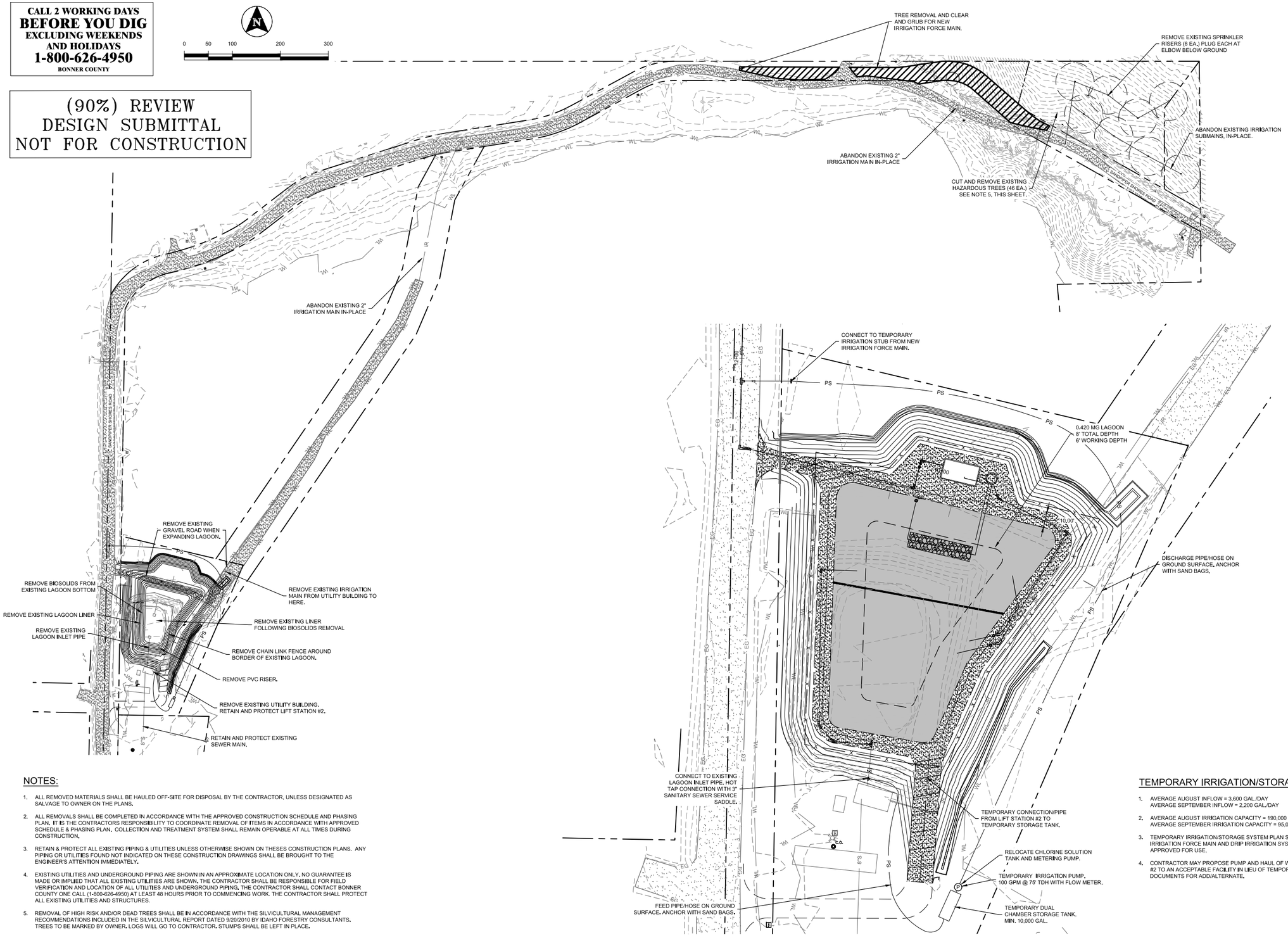
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C1.00

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

0 50 100 200 300



TEMPORARY IRRIGATION/STORAGE PLAN

0 15 30 60 90

NOTES:

1. ALL REMOVED MATERIALS SHALL BE HAULED OFF-SITE FOR DISPOSAL BY THE CONTRACTOR, UNLESS DESIGNATED AS SALVAGE TO OWNER ON THE PLANS.
2. ALL REMOVALS SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE AND PHASING PLAN. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE REMOVAL OF ITEMS IN ACCORDANCE WITH APPROVED SCHEDULE & PHASING PLAN. COLLECTION AND TREATMENT SYSTEM SHALL REMAIN OPERABLE AT ALL TIMES DURING CONSTRUCTION.
3. RETAIN & PROTECT ALL EXISTING PIPING & UTILITIES UNLESS OTHERWISE SHOWN ON THESES CONSTRUCTION PLANS. ANY PIPING OR UTILITIES FOUND NOT INDICATED ON THESE CONSTRUCTION DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
4. EXISTING UTILITIES AND UNDERGROUND PIPING ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. NO GUARANTEE IS MADE OR IMPLIED THAT ALL EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION AND LOCATION OF ALL UTILITIES AND UNDERGROUND PIPING. THE CONTRACTOR SHALL CONTACT BONNER COUNTY ONE CALL (1-800-626-4950) AT LEAST 48 HOURS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES.
5. REMOVAL OF HIGH RISK AND/OR DEAD TREES SHALL BE IN ACCORDANCE WITH THE SILVICULTURAL MANAGEMENT RECOMMENDATIONS INCLUDED IN THE SILVICULTURAL REPORT DATED 9/20/2010 BY IDAHO FORESTRY CONSULTANTS. TREES TO BE MARKED BY OWNER. LOGS WILL GO TO CONTRACTOR. STUMPS SHALL BE LEFT IN PLACE.

TEMPORARY IRRIGATION/STORAGE NOTES:

1. AVERAGE AUGUST INFLOW = 3,600 GAL./DAY
   AVERAGE SEPTEMBER INFLOW = 2,200 GAL./DAY
2. AVERAGE AUGUST IRRIGATION CAPACITY = 190,000 GAL.
   AVERAGE SEPTEMBER IRRIGATION CAPACITY = 95,000 GAL.
3. TEMPORARY IRRIGATION/STORAGE SYSTEM PLAN SHOWN ASSUMES THAT NEW IRRIGATION FORCE MAIN AND DRIP IRRIGATION SYSTEM HAVE BEEN INSTALLED AND APPROVED FOR USE.
4. CONTRACTOR MAY PROPOSE PUMP AND HAUL OF WASTEWATER FROM LIFT STATION #2 TO AN ACCEPTABLE FACILITY IN LIEU OF TEMPORARY IRRIGATION SYSTEM, SEE BID DOCUMENTS FOR ADD/ALTERNATE.

DRAFT
PROFESSIONAL ENGINEER REGISTERED STATE OF IDAHO SCOTT G. M.

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

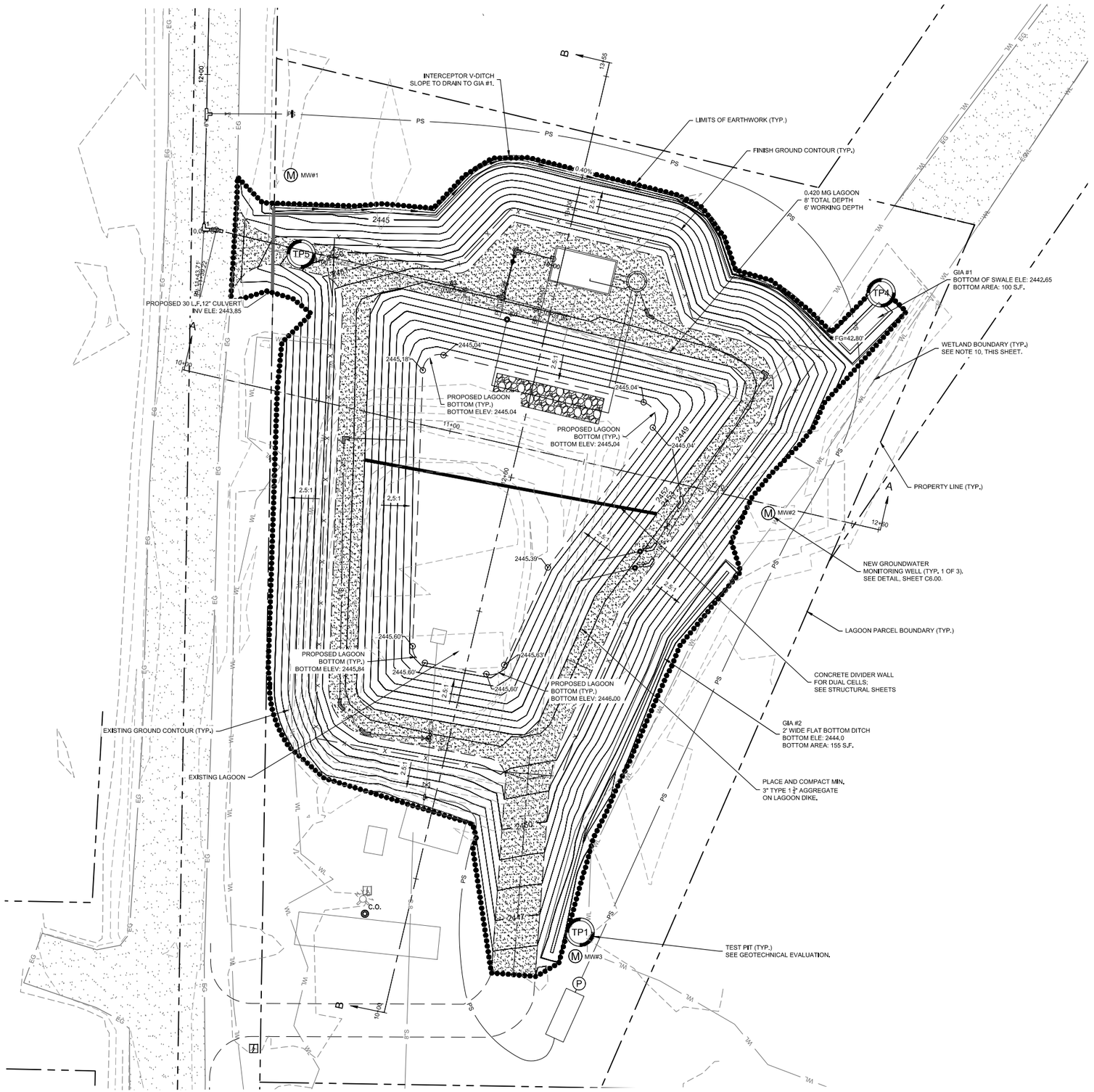
Sandpiper Shores Master Utility (SSMU)

Wastewater Improvements

DEMOLITION PLAN & TEMPORARY IRRIGATION/STORAGE PLAN

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C2.00



CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS
AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

ESTIMATED SITE VOLUMES	
CLEARING AND GRUBBING	2,423 SY
TOPSOIL STRIPPING	890 CY
SUBGRADE OVEREXCAVATION (UNSUITABLE)	1753 CY
EXCAVATION TO EMBANKMENT	3895 CY
GRANULAR STRUCTURAL FILL (IMPORT)	2669 CY
GENERAL STRUCTURAL FILL (IMPORT)	4723 CY
HAUL UNSUITABLE SOILS	1753 CY
¾" AGGREGATE SURFACING	986 SY

EARTHWORKS NOTES:

1. EARTH WORK QUANTITIES HAVE BEEN PROVIDED FOR THE CONTRACTORS CONVENIENCE. HOWEVER, THE CONTRACTOR SHOULD PERFORM THEIR OWN CALCULATIONS FOR ESTIMATING AND CONSTRUCTION PURPOSES. THE ENGINEER TAKES NO RESPONSIBILITIES FOR THE ACCURACY OR USE OF THESE FIGURES FOR THE PURPOSE ESTIMATING OR CONSTRUCTION. THESE ESTIMATED QUANTITIES HAVE BEEN COMPUTED USING DIGITAL TERRAIN MODELING, USING NEAT LINES.
2. CONTRACTOR SHALL PROVIDE SURVEY OF IN-PLACE EMBANKMENT FOR QUANTITIES.
3. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL EVALUATION DATED JANUARY 7, 2011 PREPARED BY STRATA AND FOLLOW THE RECOMMENDATIONS LISTED THEREIN.
4. PREVIOUSLY COMPLETED GEOTECHNICAL EVALUATION HAS DETERMINED THAT SOME OF THE NATIVE ON-SITE SOILS THAT ARE FREE OF ORGANICS, DEBRIS AND OTHER DELETERIOUS MATERIAL MAY BE UTILIZED WITH PROPER MOISTURE CONDITIONING, PLACEMENT AND COMPACTION, IT IS THE CONTRACTORS RESPONSIBILITY TO TAKE APPROPRIATE MEASURES TO PROTECT THE NATIVE MATERIAL FROM BECOMING OVER-SATURATED DURING CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LINER INSTALLER FOR PREPARATION OF THE SUBGRADE TO A CONDITION SUITABLE FOR LINER INSTALLATION. CONTRACTOR SHALL PROVIDE LINER COMPANY'S WRITTEN SUBGRADE APPROVAL A MINIMUM OF 5 DAYS PRIOR TO LINER INSTALLATION.
6. PLACE SILT FENCE ALONG TOE OF SLOPES FOR TEMPORARY EROSION CONTROL. LEAVE IN PLACE UNTIL FILL SLOPE VEGETATION IS ESTABLISHED. SEE STORM WATER AND EROSION CONTROL PLAN SHEET 7.00.
7. REMOVE ALL STUMPS AND ROOT SYSTEMS WITHIN EMBANKMENT SLOPE LIMITS AND LAGOON BOTTOM. RETAIN AND PROTECT ALL TREES OUTSIDE OF EMBANKMENT LIMITS. ALL STUMPS, ROOT SYSTEMS & BRUSH MAY BE BURNED ON-SITE WITH NECESSARY PERMITTING AT THE DISCRETION OF THE OWNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITTING.
8. EXISTING UTILITIES AND UNDERGROUND PIPING ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. NO GUARANTEE IS MADE OR IMPLIED THAT ALL EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION AND LOCATION OF ALL UTILITIES AND UNDERGROUND PIPING. THE CONTRACTOR SHALL CONTACT BONNER COUNTY ONE CALL (1-800-626-4950) AT LEAST 48 HOURS PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES.
9. ANY UNDOCUMENTED FILL AND THE UPPER 2.5 FEET OF NATIVE SILTY SAND SHALL BE REMOVED (I.E. OVEREXCAVATED) TO EXPOSE UNDISTURBED NATIVE SAND IN ANY AREAS WHICH WILL RECEIVE STRUCTURAL FILL (PRIMARILY EMBANKMENT AREAS). THIS OVEREXCAVATION WILL REQUIRE SOIL REMOVAL TO A TOTAL DEPTH OF APPROXIMATELY 4 TO 5 FEET BELOW EXISTING GRADES IN THE LOCATIONS EXPLORED WHERE UNCONTROLLED FILL OVERLIES NATIVE COMPRESSIBLE SOIL, THE OVEREXCAVATION MUST EXTEND AT LEAST 5 FEET BEYOND THE EMBANKMENT OR STRUCTURAL FILL TOE. THIS OVEREXCAVATION PROCESS WILL REMOVE SURFICIAL SOIL CONTAINING VEGETATION AND ORGANICS (TOPSOIL), DEEPER OR THICKER TOPSOIL PROFILES SHOULD BE EXPECTED IN ISOLATED AREAS, IN THE CENTER PORTION OF THE LAGOON, INSIDE OF EMBANKMENTS. THE CONTRACTOR SHALL REMOVE TOPSOIL AT LEAST 12 INCHES BELOW THE SURFACE AND ALL VEGETATION AND ORGANICS.
10. WETLAND IMPACTS PERMITTED UNDER NWW-2008-284 SANDPIPER SHORES WASTEWATER LAGOON EXPANSION (5/12/17) WITH AMENDED COMPENSATORY MITIGATION PLAN DATED 2/12/20.

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT
PROFESSIONAL ENGINEER
REGISTERED
STATE OF
SCOTT G. M

BORDER SIZE:	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

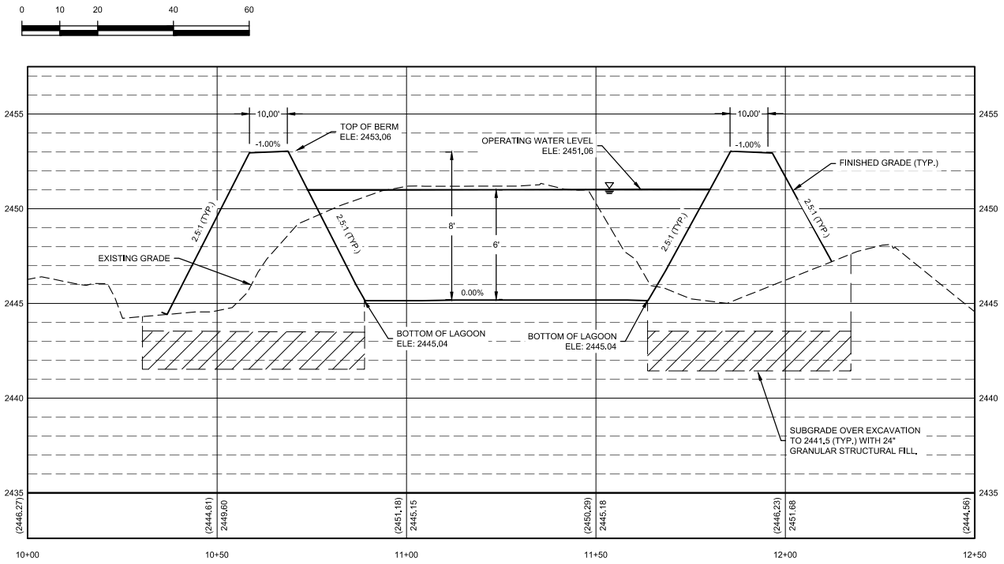
NO.	DESCRIPTION	DATE
	REVISIONS	

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
LAGOON EARTHWORKS

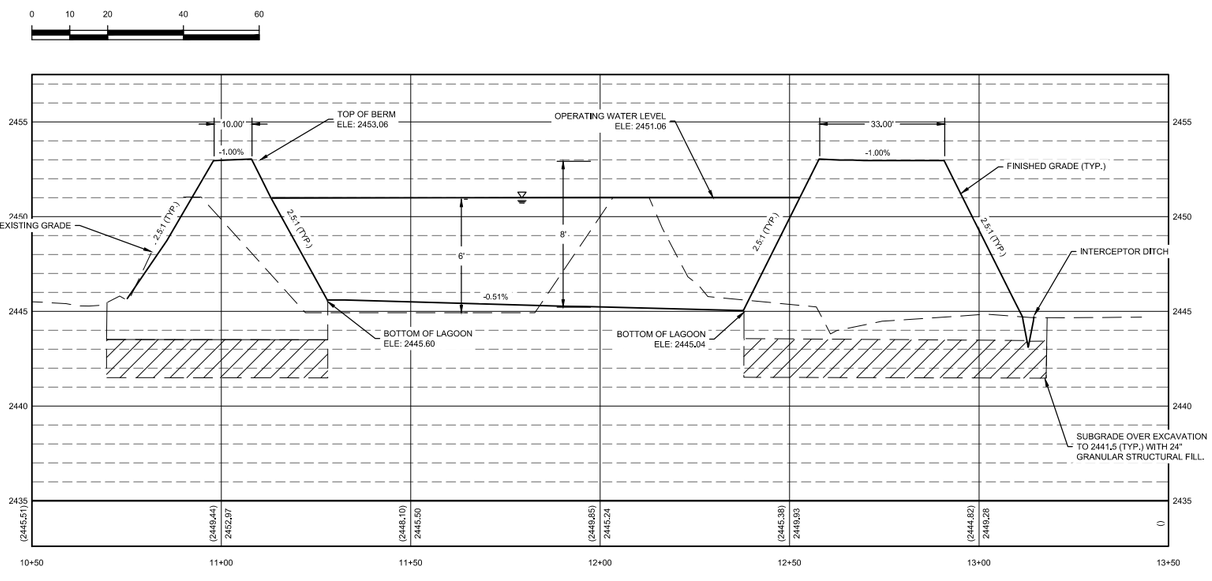
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE:	February 2020
PROJECT:	180380
SHEET:	C3.00



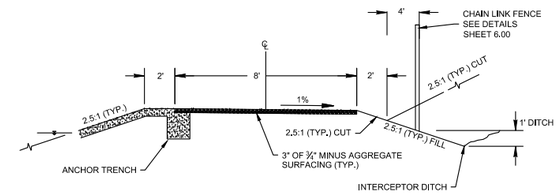
LAGOON #1 CROSS SECTION A-A

SCALE: VERTICAL 1"=3' EXAGGERATION=10



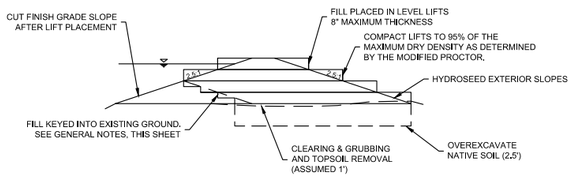
LAGOON #1 CROSS SECTION B-B

SCALE: VERTICAL 1"=3' EXAGGERATION=10



TYPICAL SECTION

SCALE: NTS



TYPICAL LAGOON EMBANKMENT CONSTRUCTION

SCALE: NTS

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

GENERAL NOTES:

1. BENCH WIDTH WILL VARY BUT SHOULD BE WIDE ENOUGH TO ACCOMMODATE COMPACTION EQUIPMENT.
2. BENCH HEIGHT SHOULD BE MINIMUM PRACTICAL TO ALLOW KEYING INTO EXISTING SLOPE.
3. TYPICAL SECTION STATIONING REFERS TO ALIGNMENT SECTIONS A-A AND B-B, SEE SHEET 3.00.

DRAFT
PROFESSIONAL ENGINEER
REGISTERED
STATE OF
SCOTT G. M

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

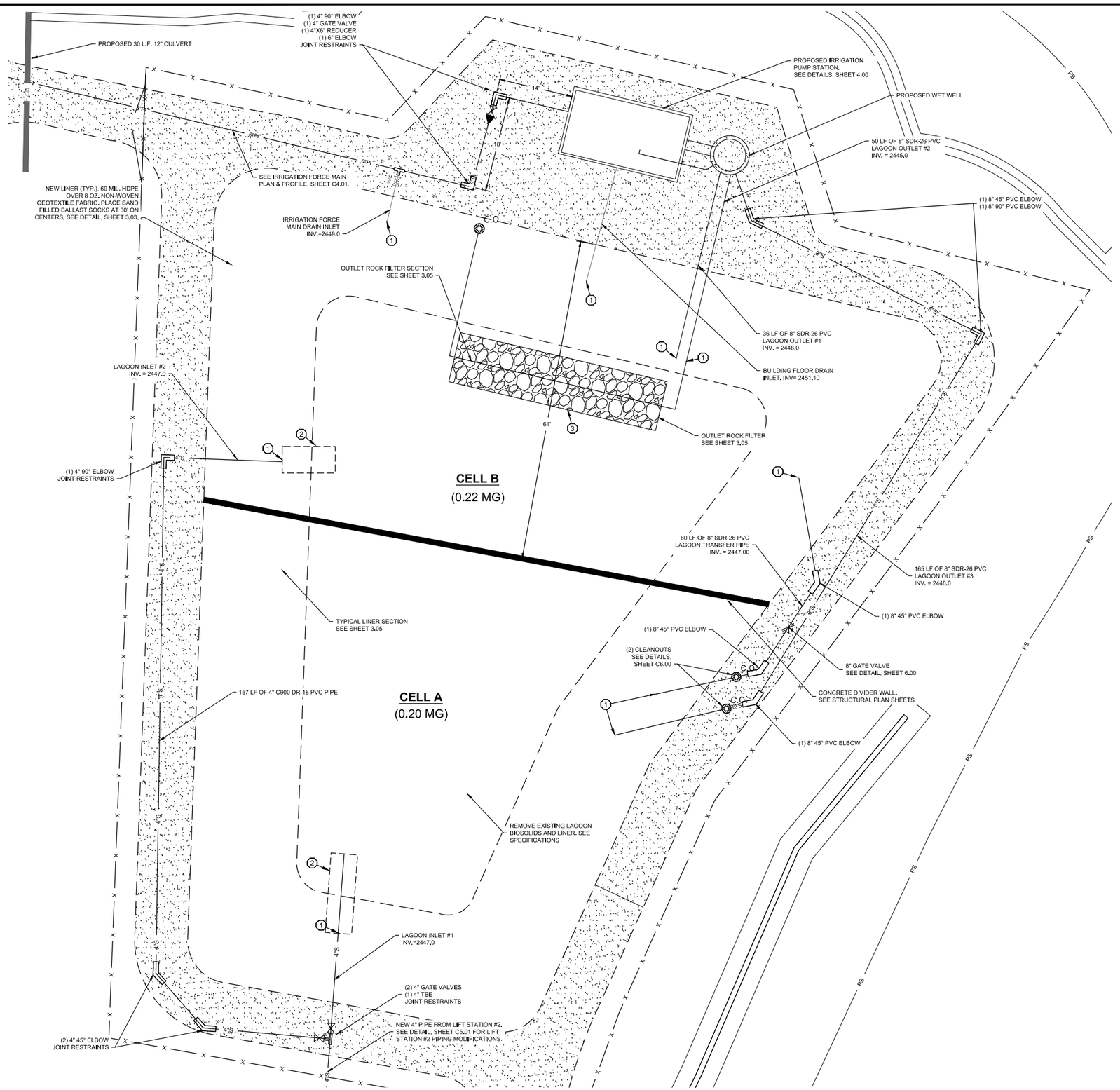
NO.	DESCRIPTION	DATE

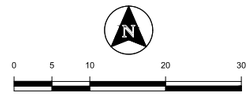
T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
LAGOON CROSS SECTIONS

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C3.01





CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

GENERAL NOTES:

1. SEE SHEET 3.05 AND 3.06 FOR LAGOON LINER AND PIPING DETAILS.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO PROTECT THE NEW LINER AFTER INSTALLATION. ANY DAMAGE TO LINER PRIOR TO FINAL SITE SECURITY IS THE CONTRACTORS RESPONSIBILITY, TEMPORARY SECURITY FENCING MAY BE UTILIZED FOR THE PHASED CONSTRUCTION.

KEY NOTES

1. LINER PENETRATIONS, SEE LINER PENETRATION DETAIL, SHEET 3.05.
2. INSTALL DOUBLE LINER FROM INLET TO 5' PAST BOTTOM FOR NEW INLET PIPING SPLASH PAD.
3. INSTALL DOUBLE LINER BENEATH OUTLET ROCK FILTER.

DRAFT
PROFESSIONAL ENGINEER
REGISTERED
STATE OF
SCOTT G. M.

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/JJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

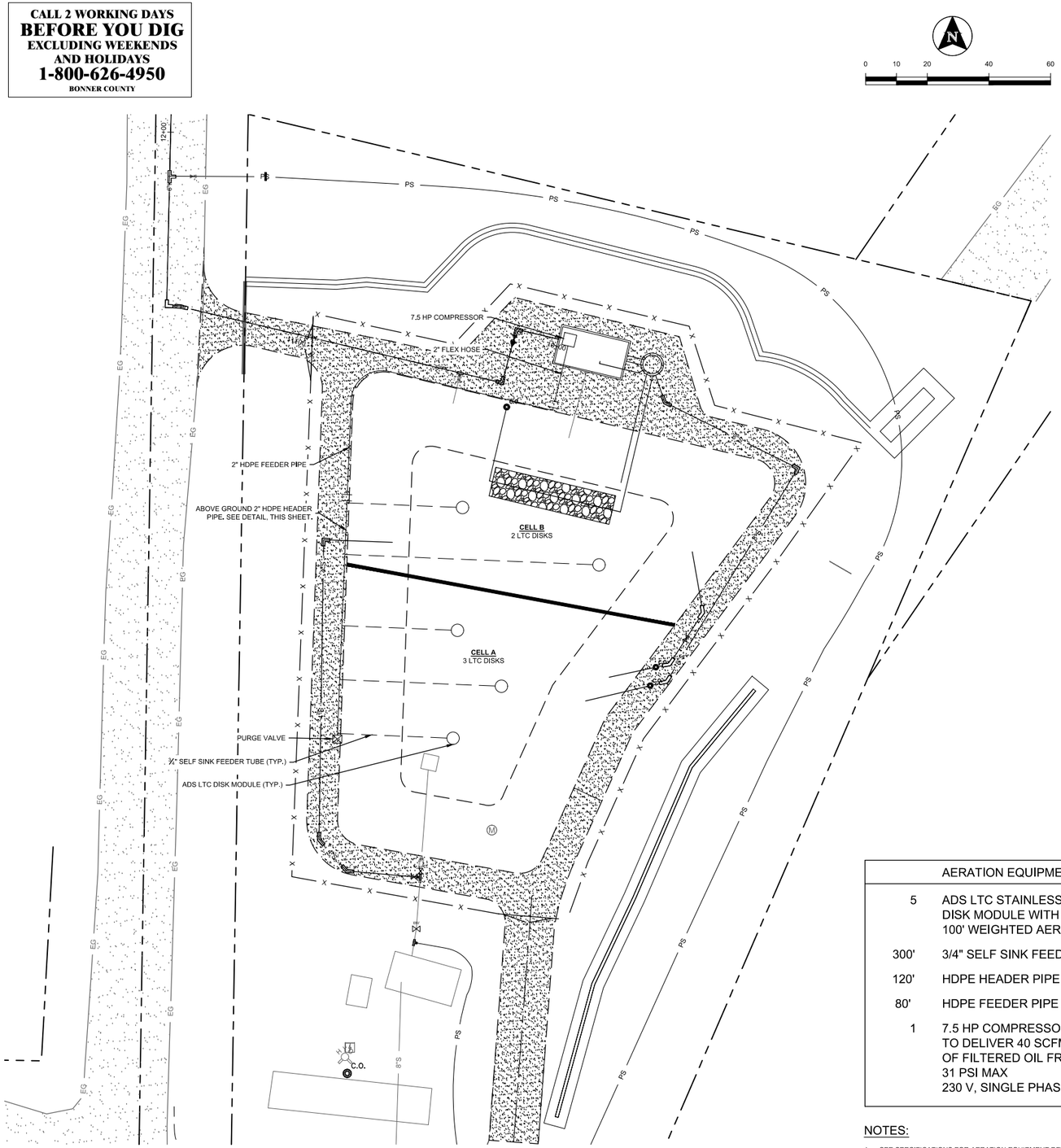
Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
LAGOON SITE & PIPING

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE:	February 2020
PROJECT:	180380
SHEET:	C3.02

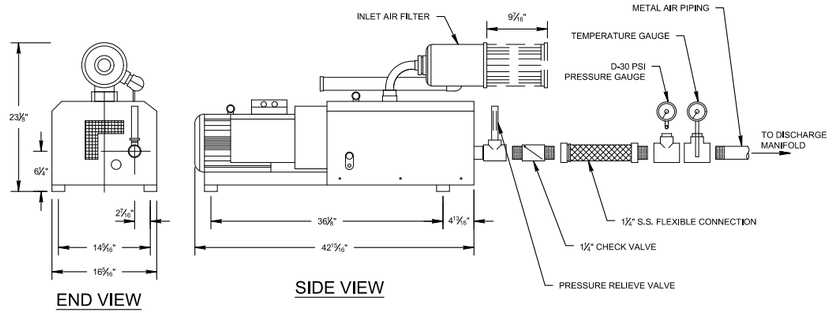
J:\180380\3_ACAD\DWG\SHEETS\180380C-LAGOON SITE_PIPING.DWG, 2/27/2020

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY



AERATION PLAN

SCALE: AS SHOWN

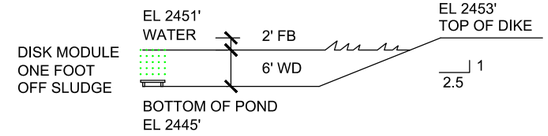


BUSH MINK COMPRESSOR SPECIFICATIONS # MM 1104BP OR APPROVED EQUAL

OIL-LESS AIR POSITIVE DISPLACEMENT PRESSURE PUMP
WITH COMPACT ROTARY CLAW DESIGN
7.5 HP, 230 VOLT, 60 HZ, 1 PHASE
SCFM @ 6 PSI =40 MAX PSI =31

PRESSURE PUMP DETAIL

SCALE: NTS



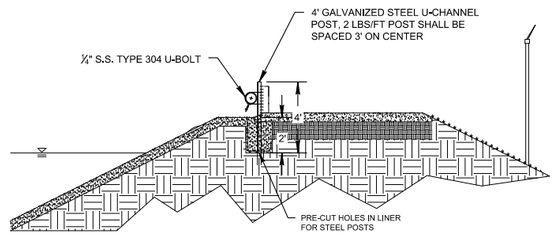
AERATION SECTION

SCALE: NTS

	AERATION EQUIPMENT
5	ADS LTC STAINLESS STEEL DISK MODULE WITH LEGS 100' WEIGHTED AERATION TUBE
300'	3/4" SELF SINK FEEDER TUBE
120'	HDPE HEADER PIPE
80'	HDPE FEEDER PIPE
1	7.5 HP COMPRESSOR TO DELIVER 40 SCFM OF FILTERED OIL FREE AIR AT 6 PSI 31 PSI MAX 230 V, SINGLE PHASE

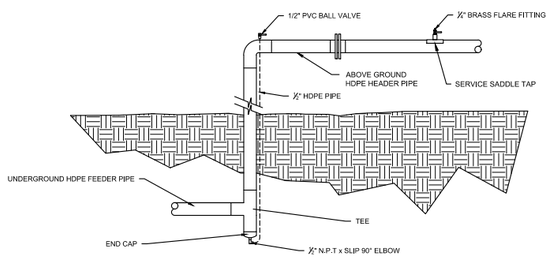
NOTES:

1. SEE SPECIFICATIONS FOR AERATION EQUIPMENT DETAILS.
2. CONTRACTOR SHALL MARK LOCATIONS OF AERATOR DISKS PRIOR TO INSTALL. CONTRACTOR SHALL NOTIFY ENGINEER ONCE LOCATIONS ARE MARKED AND REQUEST INSPECTION FOR APPROVAL OF PLACEMENT OF FEEDER TUBE & DISC MODULES.



ABOVE GROUND HEADER PIPE ANCHOR DETAIL

SCALE: NTS



MOISTURE DRAIN VALVE AND CLEANING INJECTION PORT

SCALE: NTS

DRAFT
SCOTT G. M. — STATE OF — REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/JJT
APPROVED	SGM

REVISIONS

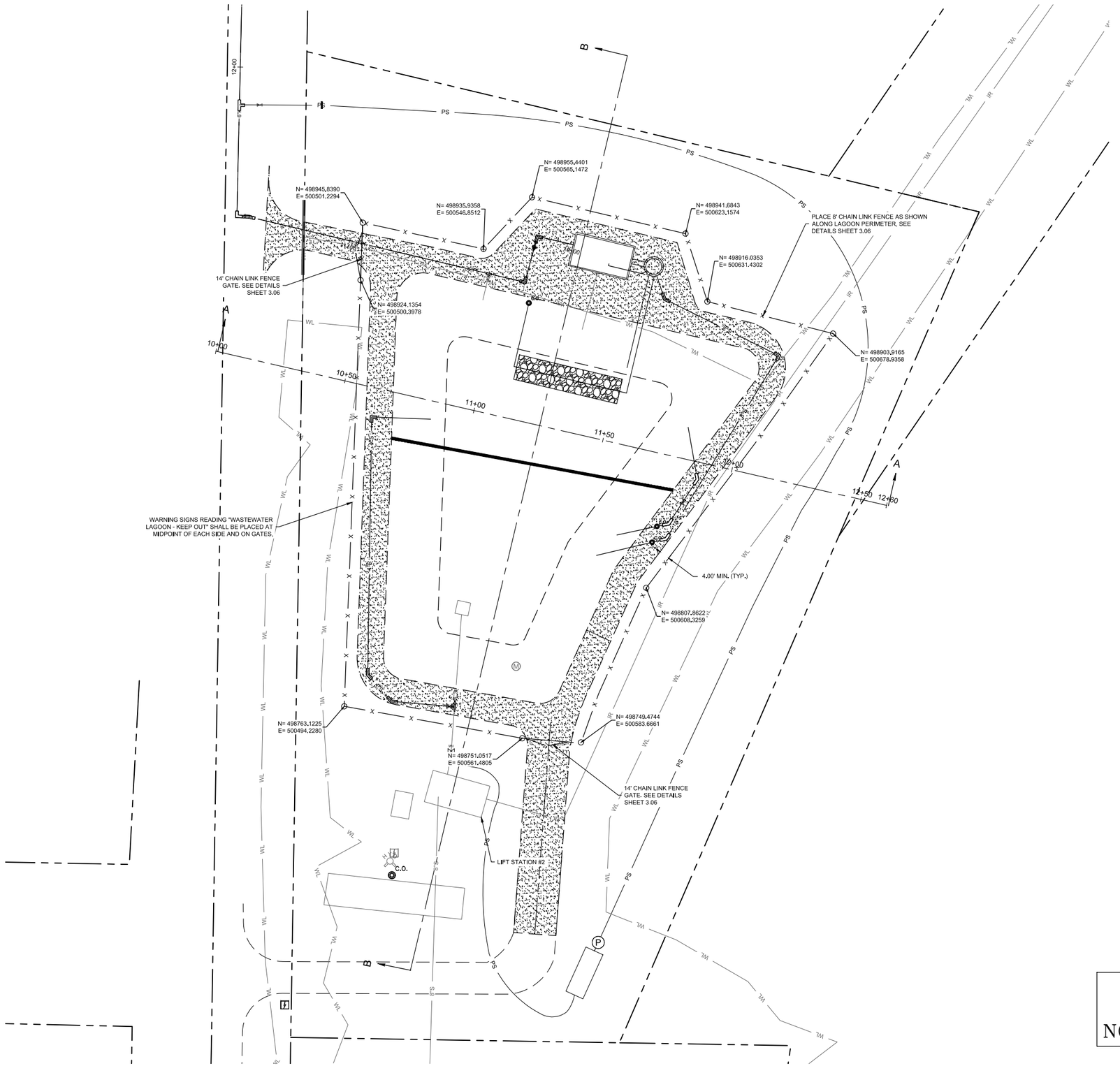
NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
LAGOON AERATION

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE:	February 2020
PROJECT:	180380
SHEET:	C3.03



0 10 20 40 60

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT
SCOTT G. M. — STATE OF — REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

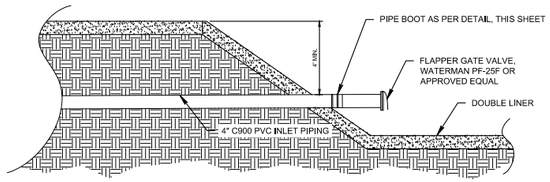
Sandpiper Shores Master Utility (SSMU)

Wastewater Improvements

LAGOON FENCING

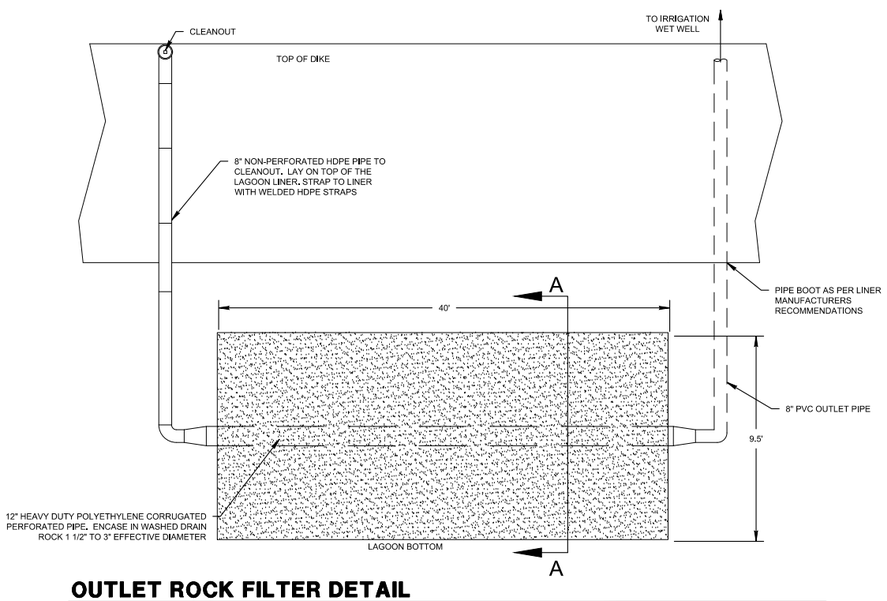
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE:	February 2020
PROJECT:	180380
SHEET:	C3.04



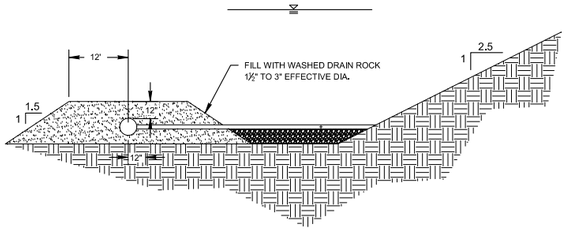
LAGOON INLET DETAIL

SCALE: NTS



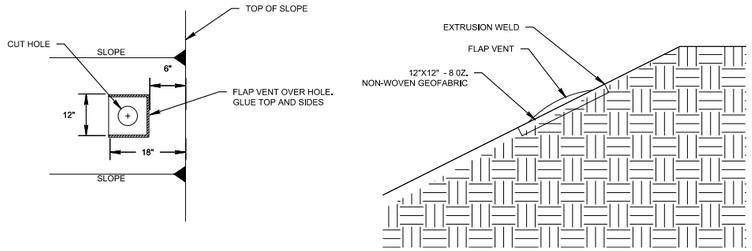
OUTLET ROCK FILTER DETAIL

SCALE: NTS



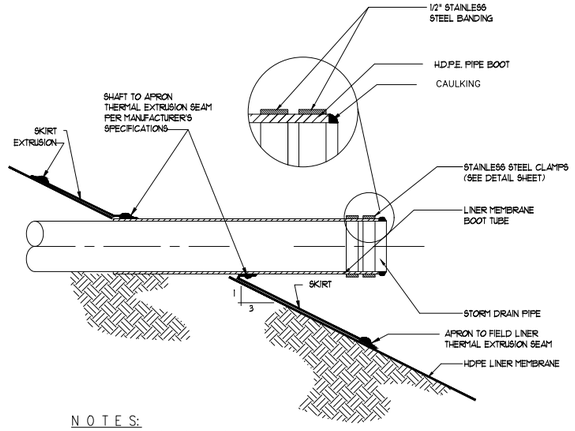
OUTLET ROCK FILTER SECTION A-A

SCALE: NTS



LINER GAS VENT

SCALE: NTS



NOTES:

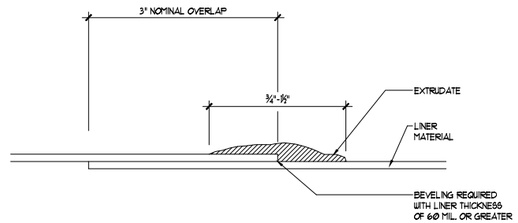
HOLE FOR PENETRATION OF MEMBRANE SHALL BE CUT UNDERSIZED SO THAT STRETCHED LINER FORMS A 1" FLANGE OVER THE PIPE

LINER SLOPE PENETRATION DETAIL (PIPE)

HDPE, LLDPE

NTS

SHEET NO.	DETAIL	NORTHWEST LININGS & GEOTEXTILE PRODUCTS, Inc.	JOB NAME:			
		www.northwestlinings.com	JOB NO.			
		21000 77TH AVE. SOUTH KENT, WA. 98032 (253) 872-0244 (253) 872-0245 FAX	DATE:	1 12 04	CHECKED:	
			BY:		SCALE:	



NOTES:

LINER SHEETS TACK WELDED TOGETHER AT OVERLAP TO FORM TEMPORARY BOND PRIOR TO WELDING

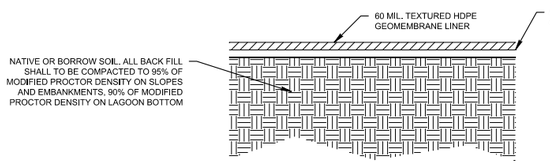
GRINDING NOT TO EXCEED 1/4" PAST 'SQUEEZE-OUT' ON EITHER SIDE. PROPER CARE SHOULD BE TAKEN IN NOT REMOVING TOO MUCH MATERIAL WHEN GRINDING

VACUUM TESTING IS THE NONDESTRUCTIVE SEAM TEST METHOD FOR EXTRUSION WELDS

EXTRUSION WELD

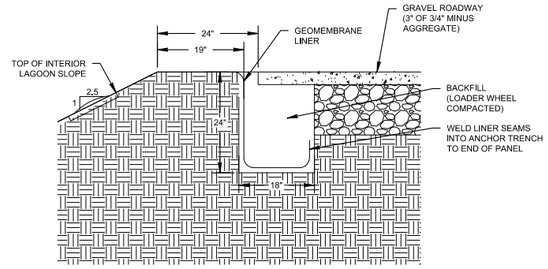
NTS

SHEET NO.	DETAIL	NORTHWEST LININGS & GEOTEXTILE PRODUCTS, Inc.	JOB NAME:			
		www.northwestlinings.com	JOB NO.			
		21000 77TH AVE. SOUTH KENT, WA. 98032 (253) 872-0244 (253) 872-0245 FAX	DATE:	2 20 04	CHECKED:	
			BY:		SCALE:	



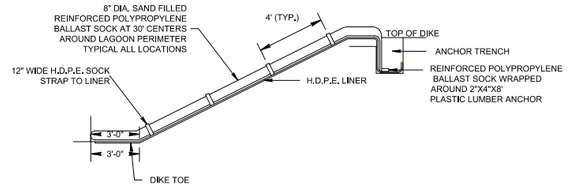
TYPICAL LINER SECTION

SCALE: NTS



TYPICAL LINER ANCHOR TRENCH

SCALE: NTS



BALLAST SOCK DETAIL

SCALE: NTS

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT
SCOTT G. M
PROFESSIONAL ENGINEER
REGISTERED
STATE OF

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

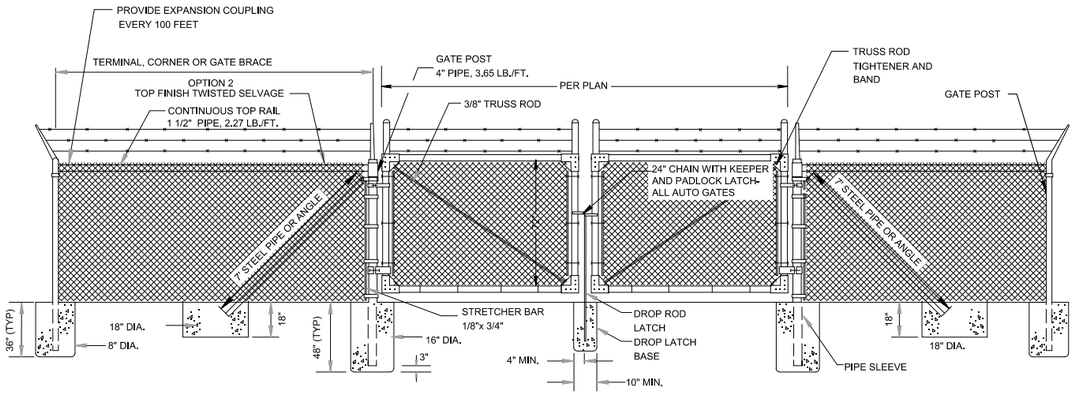
NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
LAGOON DETAILS

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C3.05

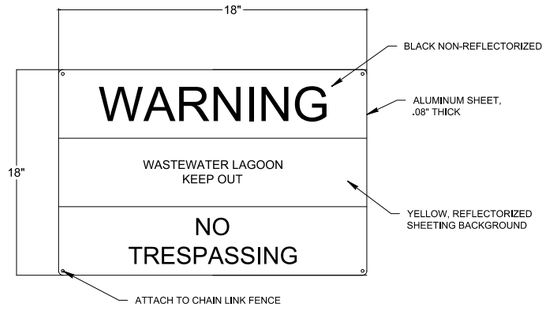


DOUBLE GATE DETAIL

SCALE: NTS

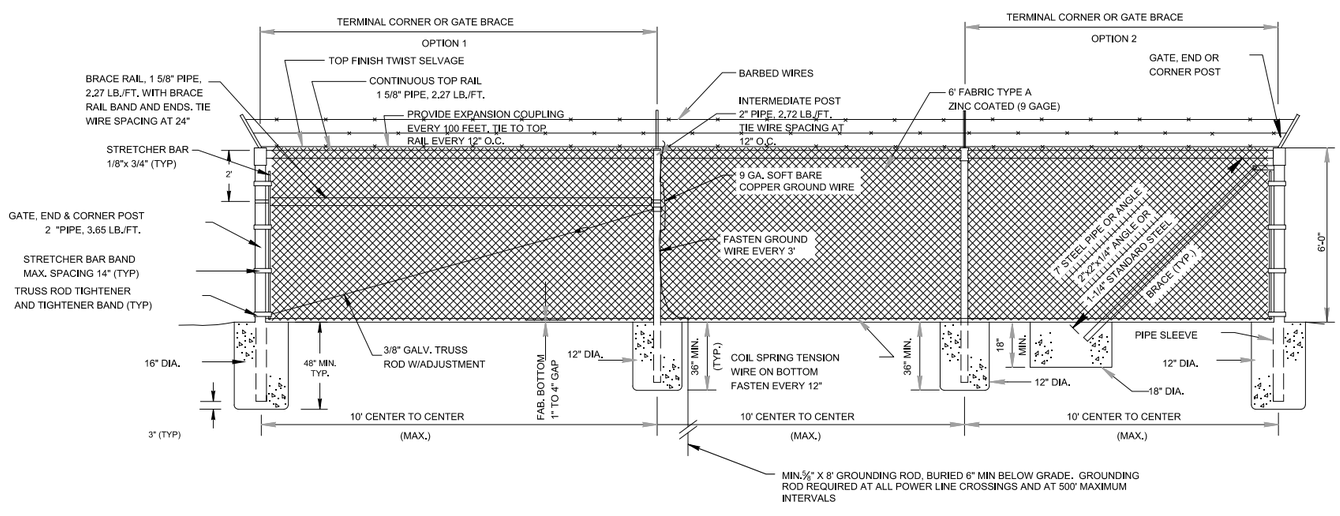
SCALE: NONE

NOTE: WARNING SIGNS READING "WASTEWATER LAGOON - KEEP OUT" SHALL BE PLACED ALONG THE FENCE. COORDINATE LOCATIONS WITH THE ENGINEER.



LAGOON WARNING SIGN DETAIL

SCALE: NTS



CHAIN LINK FENCE DETAIL

SCALE: NTS

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/JJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

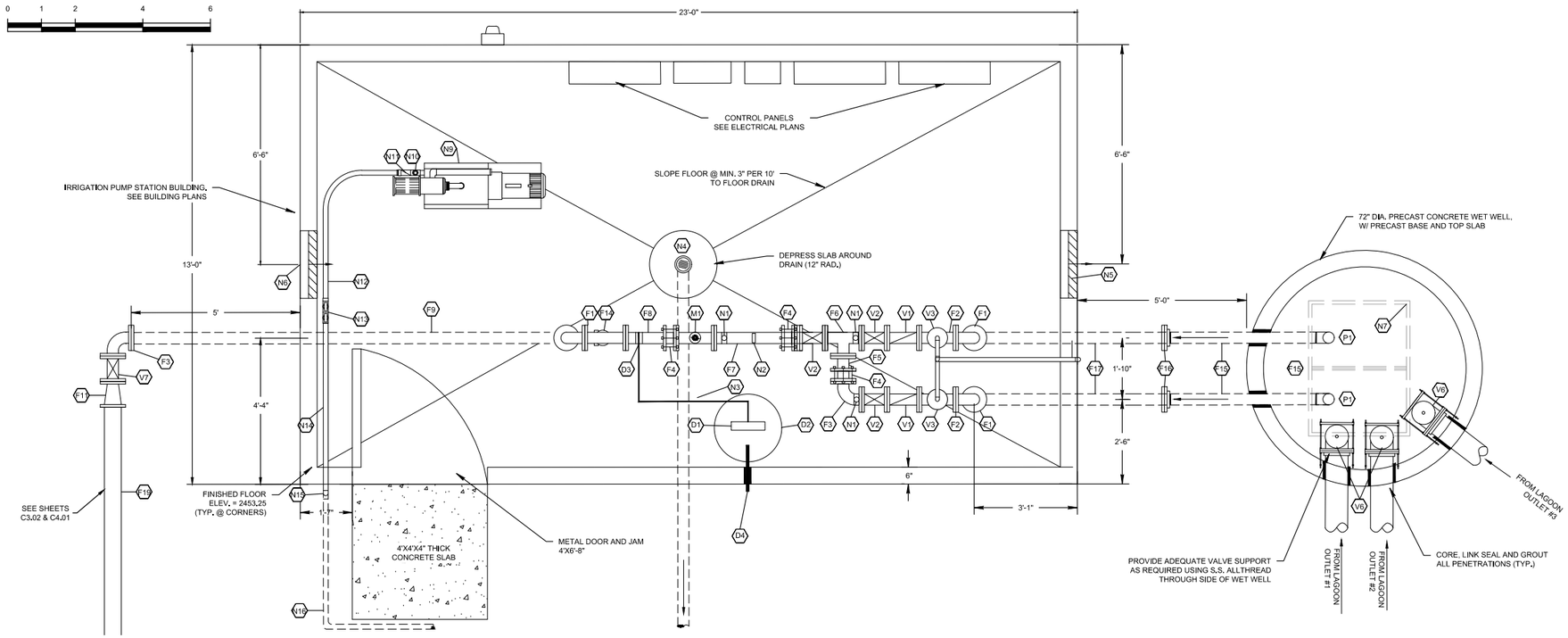
Sandpiper Shores Master Utility (SSMU)

Wastewater Improvements

LAGOON DETAILS

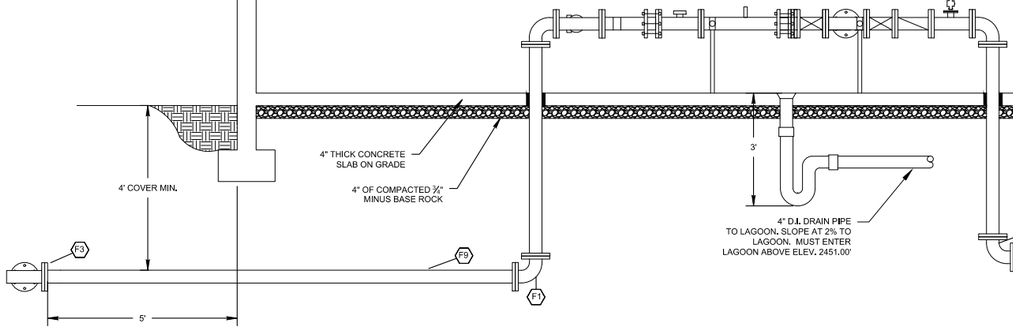
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

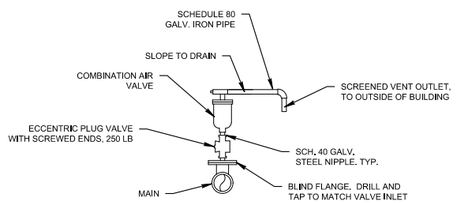
DATE: February 2020
PROJECT: 180380
SHEET: C3.06



IRRIGATION PUMP STATION PLAN VIEW

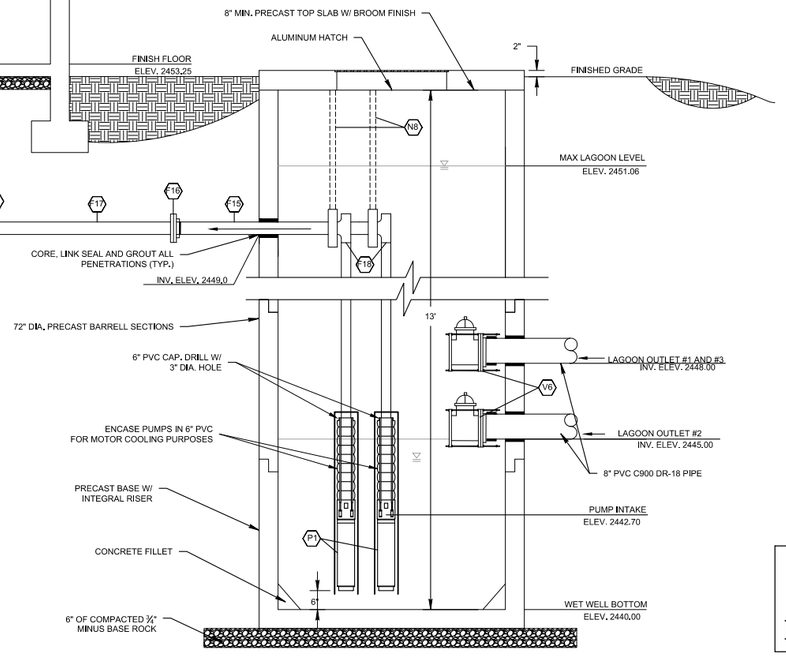
SCALE: 1"=2' (22"X34") 1"=4' (11"X17")





COMBINATION AIR VALVE ASSEMBLY DETAIL

SCALE: NTS



IRRIGATION PUMP STATION ELEVATION VIEW

SCALE: 1"=2' (22"X34") 1"=4' (11"X17")

GENERAL NOTES:

1. THE CONTRACTOR SHALL COORDINATE ANY CHANGES TO MECHANICAL PLAN WITH THE ENGINEER.
2. THIS DRAWING ILLUSTRATES THE REQUIRED PIPING AND FITTINGS TO SCALE. HOWEVER, FIELD ADJUSTMENT OF PIPE SPACING AND ALIGNMENT MAY BE REQUIRED.
3. ALL PIPING SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE LATEST EDITION OF ISPWC.
4. ALL FITTINGS SHALL BE FLANGED DUCTILE IRON CONFORMING TO ALL PROVISIONS OF ANSI/AWWA C110/A21.10 OR C153. ALL FLANGED FITTINGS SHALL BE FACE DRILLED IN ACCORDANCE WITH ANSI CLASS 125 B16.1.
5. PROVIDE MINIMUM 18" CLEARANCE BETWEEN BASE OF D.I. PIPE AND TOP OF FLOOR SLAB.
6. PROVIDE ¼" CLEAR SPACE AROUND PIPE PENETRATIONS THROUGH THE FLOOR SLAB. SEAL WITH FLEXIBLE CAULKING.
7. ALL PIPING INSIDE OF BUILDING SHALL BE PREPARED AND PAINTED (GREEN) WITH EPOXY COATING PER MANUFACTURERS SPECIFICATIONS.

PUMP:

P1 5 HP GRUNFOS MODEL 150S50-2 SUBMERSIBLE PUMP OR ENGINEER APPROVED EQUAL WITH A CAPACITY OF 100 GPM AT 70 TDH. FRANKLIN ELECTRIC SANDFIGHTER W/SUBTROL SUB MOTOR 6" 5-HP, 230-VOLTS, 60-Hz SINGLE PHASE. SEE ELECTRICAL PLANS

FLOW METER:

M1 4" UM06 McCROMETER ULTRAMAG FLOWMETER OR APPROVED EQUAL.

VALVES:

V1 4" FL. GLOBE STYLE SILENT CHECK VALVE, APCO SERIES 600, CLASS 150 W/ RESILIENT SEETING OR APPROVED EQUAL

V2 4" FL. RESILIENT SEATED GATE VALVE WITH HANDWHEEL OPERATOR

V3 NEW 3/4" COMBINATION AIR VALVE ASSEMBLY, APCO 143C OR APPROVED EQUAL. SEE DETAIL THIS SHEET

V6 8" FL. RESILIENT SEETED GATE VALVE, WITH 2" SQUARE NUT OPERATOR AND OPERATOR EXTENSION MOUNTED INSIDE OF WET WELL. PROVIDE VALVE SUPPORT AS NEEDED USING S.S. ALL THREAD THROUGH THE SIDE OF WET WELL

V7 4" FL RESILIENT SEETED GATE VALVE W/ 2" SQUARE NUT OPERATOR IN VALVE BOX.

PIPE & FITTINGS:

F1 4" FL. 90° ELBOW DOWN W/ 4" D.I. SPOOL (L= 5'-7") TO 4" FL. D.I. 90° ELBOW BELOW GROUND.

F2 4" FL. TEE WITH BLIND FLANGE OPEN END. DRILL AND TAP BLIND FLANGE FOR COMBINATION AIR VALVE INLET OR PRESSURE RELIEF VALVE AS NECESSARY.

F3 4" FL. 90° ELBOW

F4 4" FL. COUPLING ADAPTER W/ ANCHOR PINS. ROMAC "FCA 501" OR APPROVED EQUAL

F5 4" FL. X PE. D.I. SPOOL (0'-9")

F6 4" FL. TEE

F7 4" FL. X PE. D.I. SPOOL (2'-6")

F8 4" FL. X PE. D.I. SPOOL (1'-6")

F9 4" FL. D.I. SPOOL (12'-5")

F14 4"X6" FLXMJ REDUCER

F15 4" FL. Y-STRAINER, 1/8" MESH

F16 3" NPT GALV. SPOOL (4'-6")

F17 4"X3" COMPANION FLANGE

F18 4" FL. D.I. SPOOL (5'-10")

F19 3" PITLESS ADAPTER

F19 4" C900 DR-18 PVC PIPE

DISINFECTION:

D1 CHLORINE METERING PUMP, LMI MILTON ROY C92-1-363SI, SALVAGE FROM EXISTING IRRIGATION PUMPHOUSE. PROVIDE ADDITIONAL BACKUP CHLORINE METERING PUMP EQUAL TO EXISTING METERING PUMP

D2 50 GALLON POLYETHYLENE SOLUTION TANK FOR 15% SODIUM HYPOCHLORITE SOLUTION. SALVAGE EXISTING PE SOLUTION TANK FROM IRRIGATION PUMP HOUSE.

D3 4"X¾" SADDLE TAP FOR CHLORINE INJECTION

D4 1" PVC VENT LINE FROM FROM SOLUTION TANK. EXTEND TO BUILDING EXTERIOR, SCREEN END OF VENT LINE

MISCELLANEOUS:

N1 ADJUSTABLE PIPE SUPPORT SADDLE, GRINNEL OR APPROVED EQUAL

N2 PRESSURE GAUGE

N3 4" CAST IRON PIPE AND TRAP FOR FLOOR DRAIN. LENGTH TO BE DETERMINED IN FIELD, DAYLIGHT TO LAGOON AT ¼" PER FOOT. PLACE S.S. MESH SCREEN ON PIPE END AT DAYLIGHT.

N4 FLOOR DRAIN. PROVIDE TRAP ON DRAIN LINE. SET TOP OF FLOOR DRAIN ½" BELOW FINISH FLOOR SURFACE

N5 23½" x 23½" PROPELLER WALL MOUNTED VENTILATION FAN. MINIMUM 800 CFM. MOUNT AT 5 FT. ABOVE FLOOR SHALL INCLUDE LOUVER WITH MOTORIZED DAMPERS

N6 24" x 32" LOUVER WITH MOTORIZED DAMPERS, MOUNTED 18" ABOVE FLOOR

N7 LOCKABLE DOUBLE-DOOR ALUMINUM HATCH, 36"X48", IMBEDDED IN TOP SLAB. LOCATE TO ALLOW PUMP REMOVAL

N8 PIPE HANGARS

N9 BUSCH MINK MM1144BP PRESSURE PUMP OR ENGINEER APPROVED EQUAL, SEE AERATION PLAN SHEET C3.03.

N10 1 ¼" TEE W/ 0-100 PSI ADJUSTABLE PRESSURE RELIEF VALVE

N11 1¼" CHECK VALVE

N12 1¼" FLEXIBLE S.S. PIPE

N13 WALL MOUNTED MANIFOLD ASSEMBLY W/, 0-30 PSI PRESSURE GAUGE, 50" TO 300" THERMOMETER

N14 3" NPT GALVANIZED PIPE TO OUTSIDE OF BUILDING

N15 3" NPT GALVANIZED 90° ELBOW DOWN W/ 3" NPT GALVANIZED SPOOL , LENGTH TO BE DETERMINED IN FIELD TO 3" NPT GALVANIZED 90° ELBOW

N16 3" NPT GALVANIZED SPOOL MINIMUM LENGTH OF 20' TO 3" HDPE HEADER PIPING

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT
SCOTT G. M
STATE OF
REGISTERED
PROFESSIONAL ENGINEER

BORDER SIZE: 22"X34"
DESIGNED: SGM
DRAWN: MCK
CHECKED: SGM/ZJT
APPROVED: SGM

REVISIONS
NO. | DESCRIPTION | DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE ♦ CODY ♦ COEUR D'ALENE ♦ HEBER CITY
MERIDIAN ♦ NAMPA ♦ SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
IRRIGATION PUMPING STATION

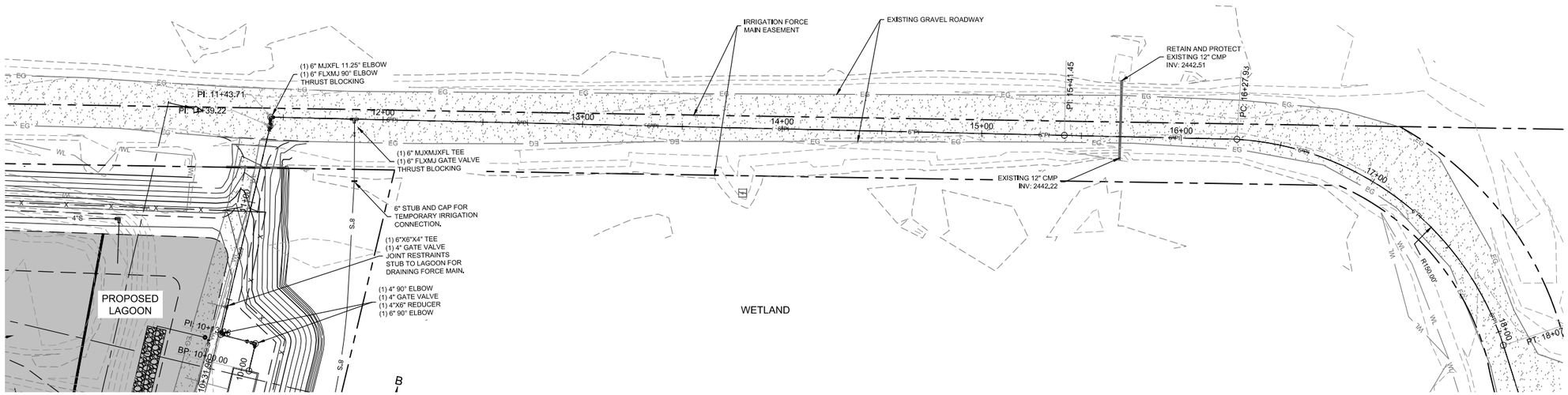
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C4.00

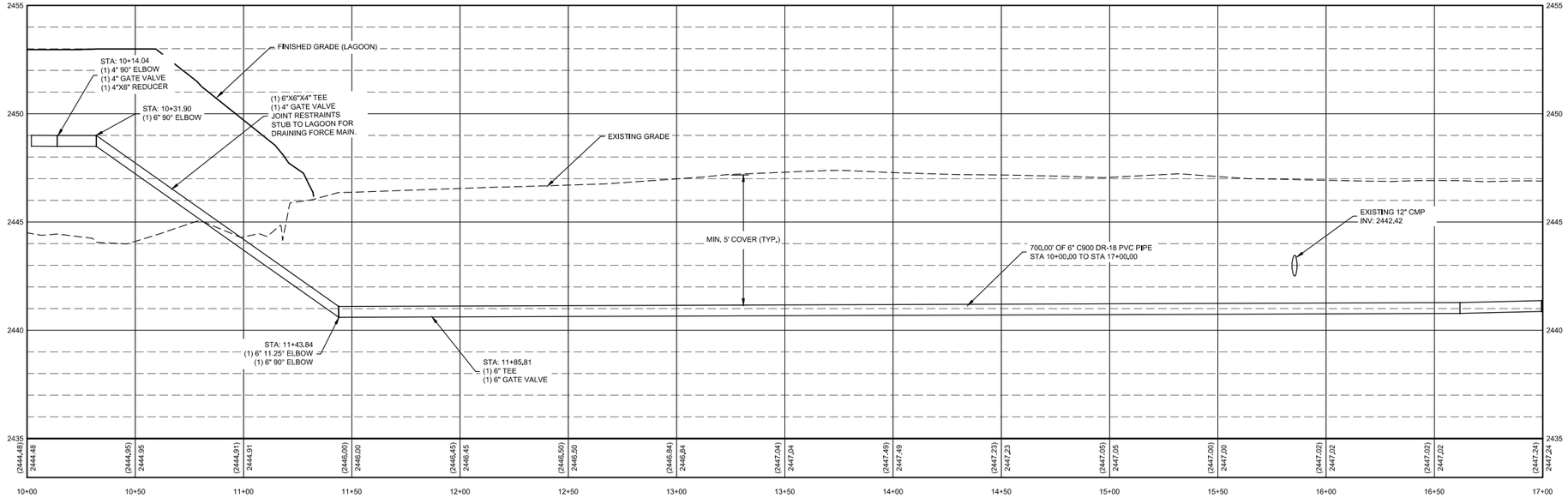
CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

0 15 30 60 90

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



IRRIGATION FORCE MAIN PIPING PLAN VIEW



IRRIGATION FORCE MAIN PROFILE VIEW: STA = 10+00.00 TO STA = 17+00.00

SCALE: HORIZ. 1"=30', VERT. 1"=3'

DRAFT
STATE OF IDAHO — SCOTT G. M. — REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)

Wastewater Improvements

IRRIGATION FORCEMAIN PLAN & PROFILE 1

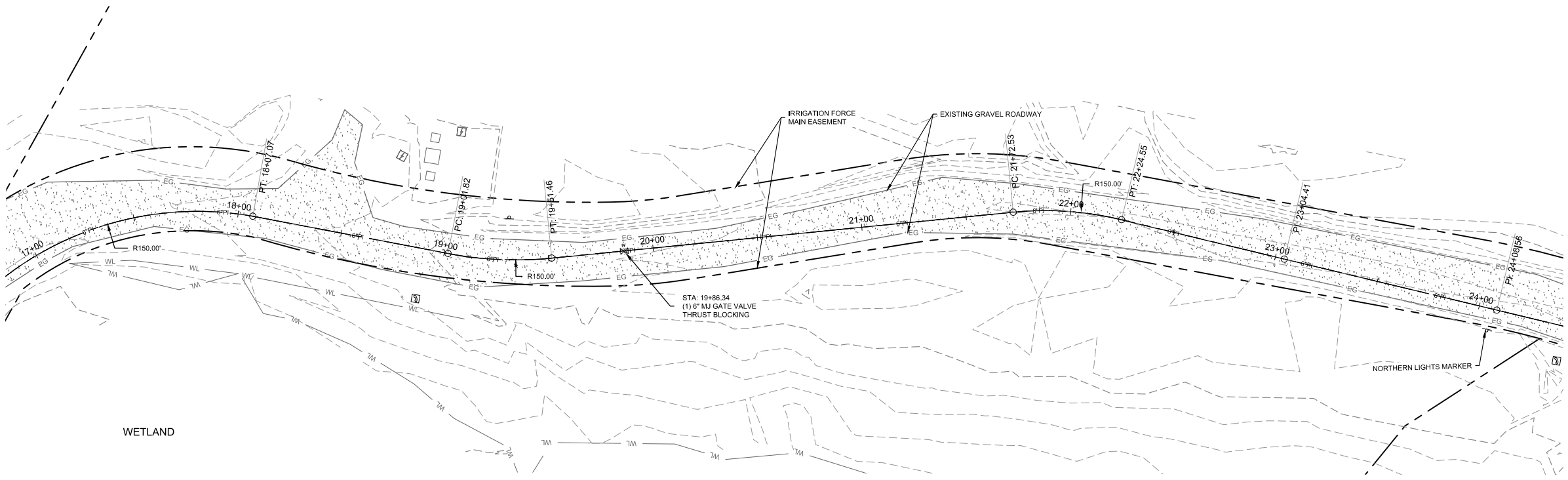
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C4.01

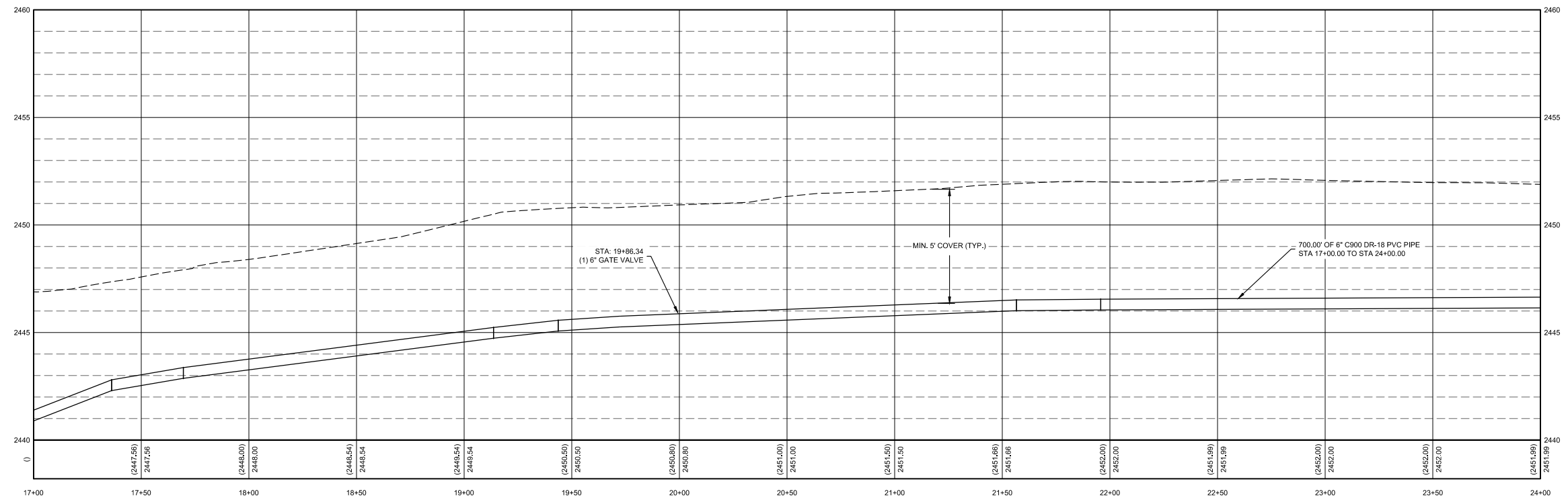
CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

0 15 30 60 90

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



IRRIGATION FORCE MAIN PIPING PLAN VIEW



IRRIGATION FORCE MAIN PROFILE VIEW: STA = 17+00.00 TO STA = 24+00.00

SCALE: HORIZ. 1"=30', VERT. 1"=3'

DRAFT
SCOTT G. M. — STATE OF — REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE:	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)

Wastewater Improvements

IRRIGATION FORCEMAIN PLAN & PROFILE 2

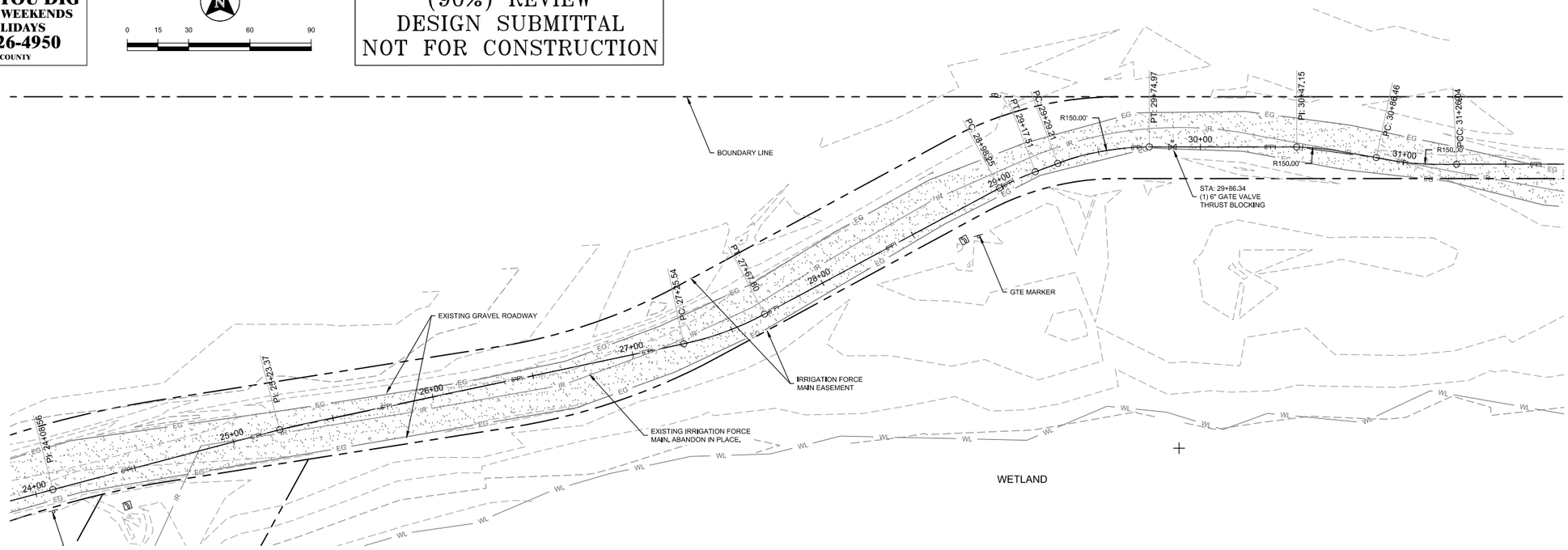
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C4.02

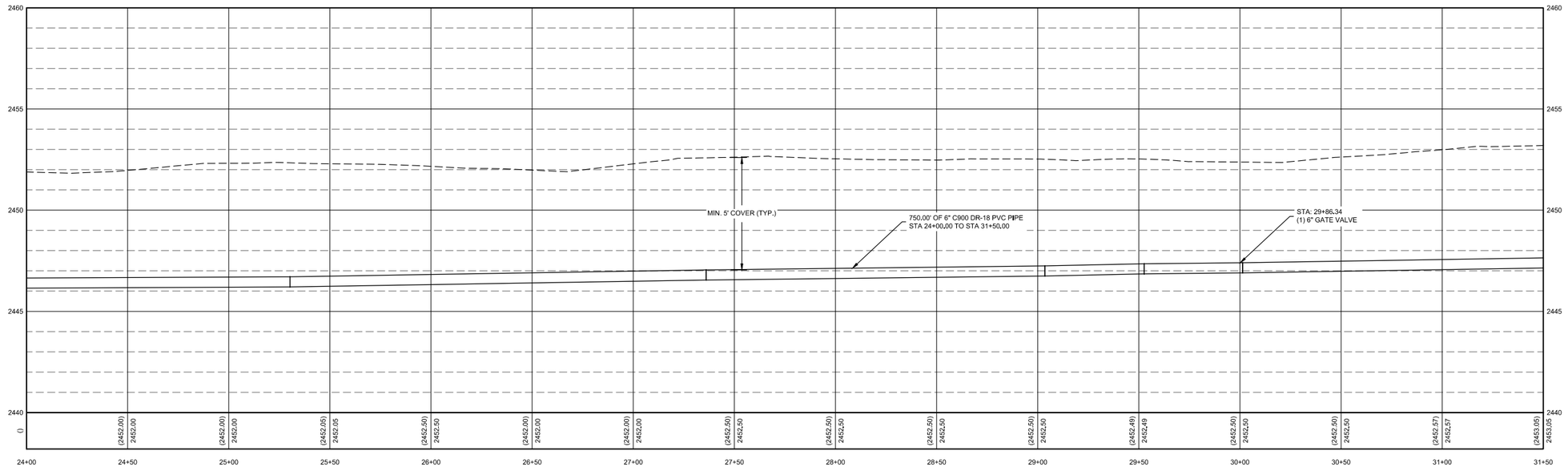
CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

0 15 30 60 90

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



IRRIGATION FORCE MAIN PIPING PLAN VIEW



IRRIGATION FORCE MAIN PROFILE VIEW: STA = 24+00.00 TO STA = 31+50.00

SCALE: HORIZ. 1"=30', VERT. 1"=3'

DRAFT
PROFESSIONAL ENGINEER REGISTERED STATE OF SCOTT G. M.

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

NO.	DESCRIPTION	DATE

REVISIONS

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)

Wastewater Improvements

IRRIGATION FORCEMAIN PLAN & PROFILE 3

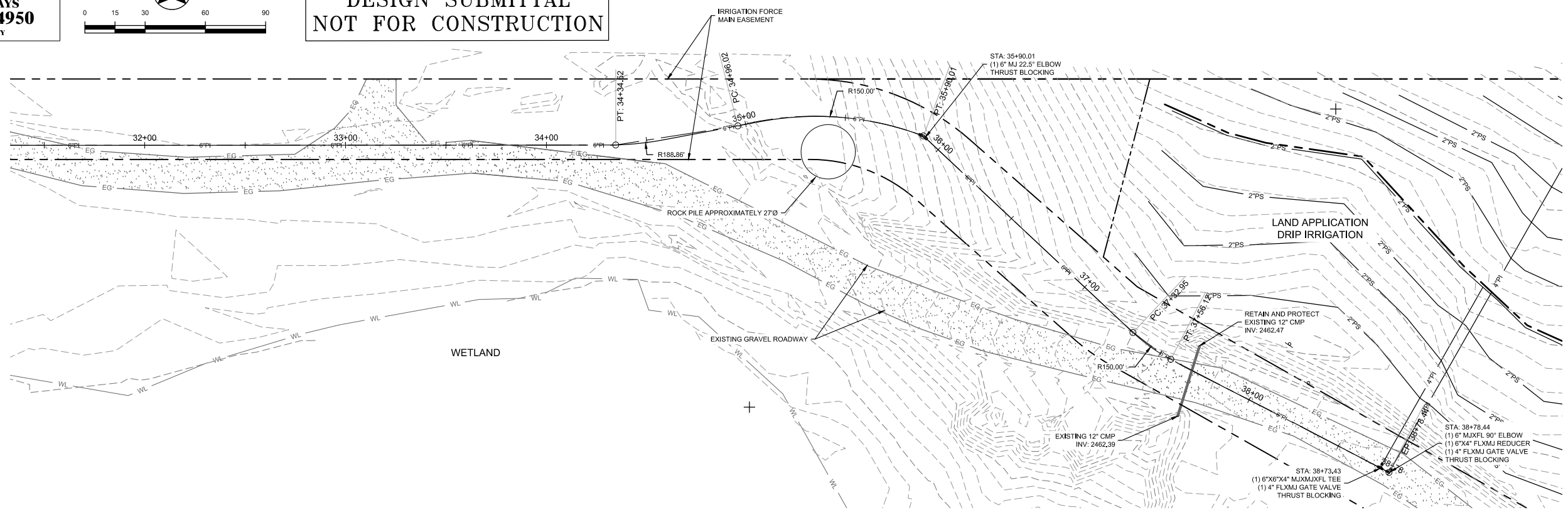
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C4.03

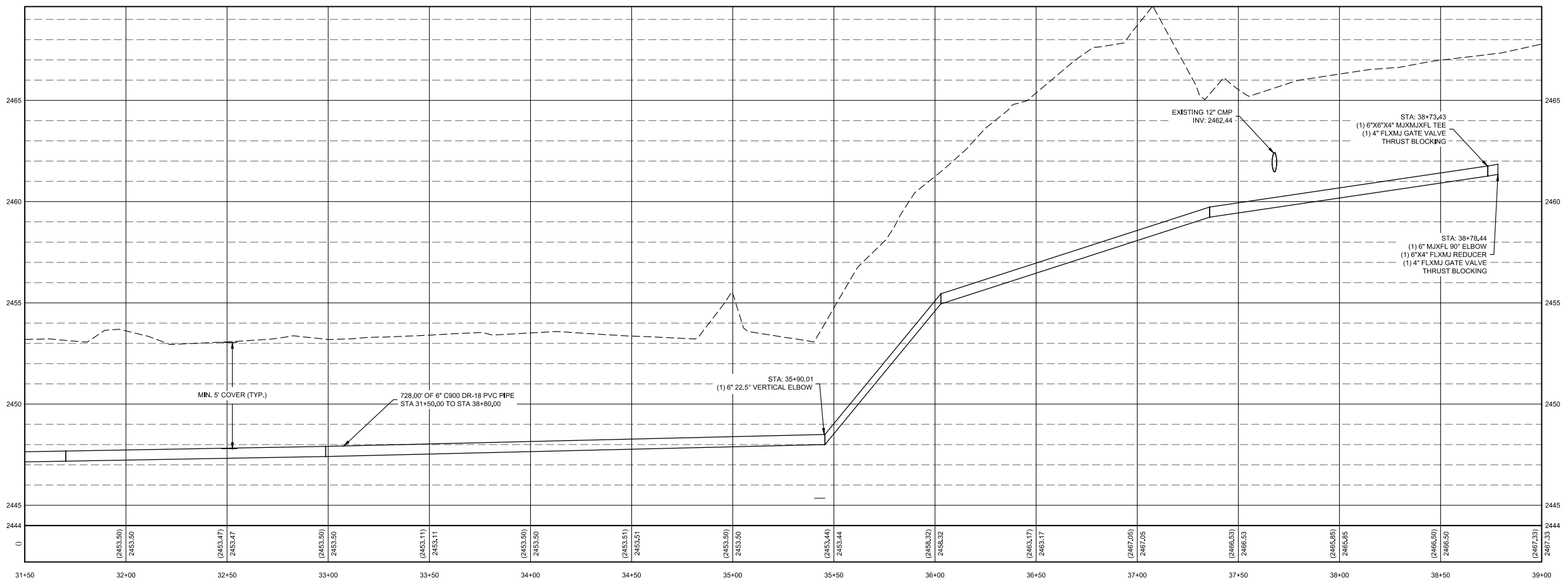
CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

0 15 30 60 90

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



IRRIGATION FORCE MAIN PIPING PLAN VIEW



IRRIGATION FORCE MAIN PROFILE VIEW: STA ▪ 31+50.00 TO STA ▪ 38+78.00

SCALE: HORIZ. 1"=30', VERT. 1"=3'

DRAFT
SCOTT G. M. — STATE OF — REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

NO.	DESCRIPTION	DATE
	REVISIONS	

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
IRRIGATION FORCEMAIN PLAN & PROFILE 4

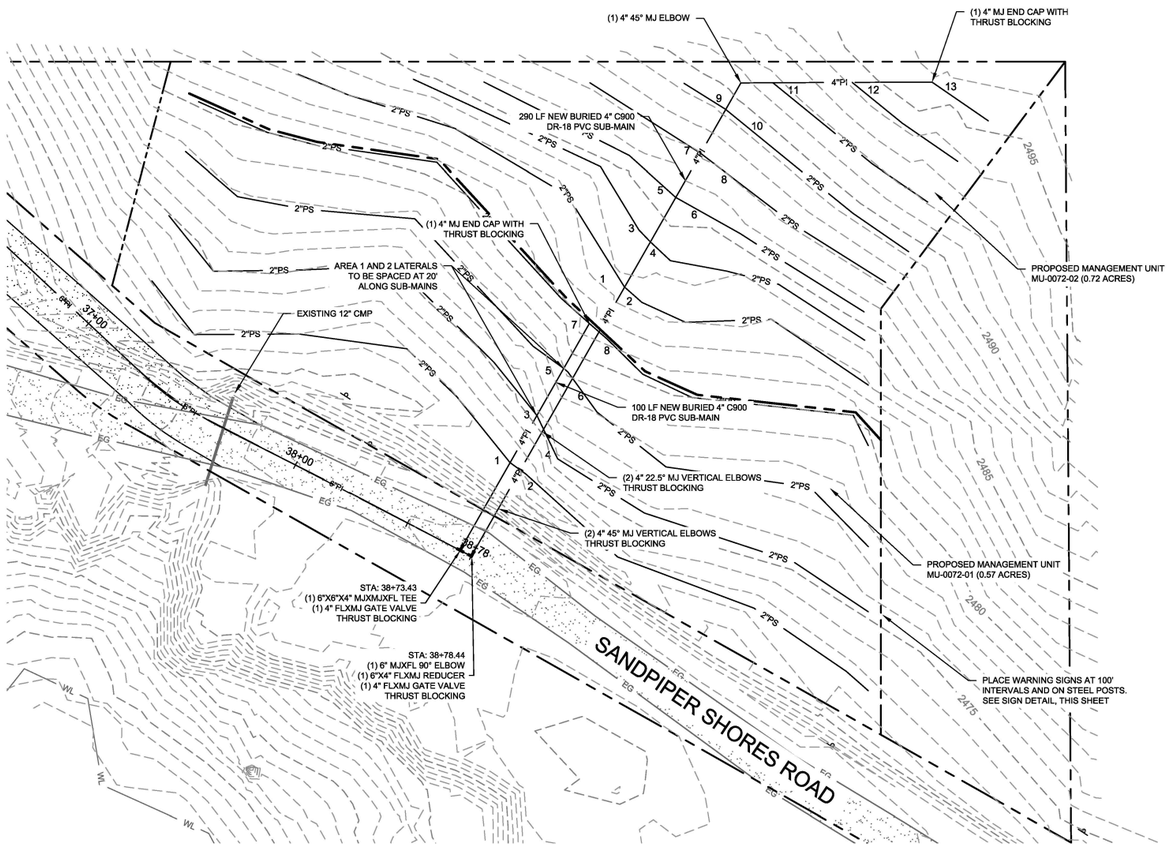
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C4.04

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

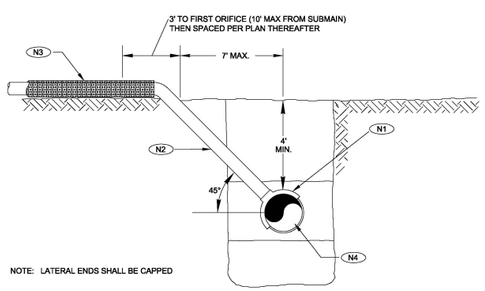
0 15 30 60 90

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

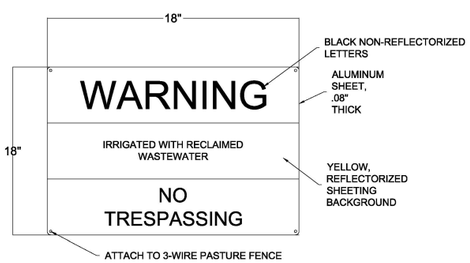


LAND APPLICATION IRRIGATION PLAN

N1 4" X 2" STAINLESS STEEL SERVICE SADDLE
N2 2" DR-17 HDPE PIPE (TYP. LATERAL)
N3 3" "ADS" PERFORATED TUBING (TYP. LATERAL COVER)
N4 4" C900 DR-18 PVC PIPE.



SUB-MAIN LATERAL CONNECTION DETAIL



IRRIGATION WARNING SIGN DETAIL

GENERAL NOTES:

1. VARIATIONS IN LATERAL LENGTHS SHOWN MAY BE REQUIRED DUE TO FIELD CONDITIONS. CONTRACTOR SHALL PLACE ALL LATERALS, COORDINATE ANY LENGTH ADJUSTMENT WITH THE ENGINEER, AND ALLOW THE ENGINEER TO ADJUST THE ORIFICE SPACING ACCORDINGLY BEFORE DRILLING HOLES.
2. ALL LATERALS SHALL BE 2" DR-17 HIGH DENSITY POLYETHYLENE (HDPE) PIPE. LATERALS SHALL BE ENCASED IN 3" "ADS" PERFORATED TUBING.
3. ALL ORIFICES SHALL BE 1/8", SPACED AS SHOWN IN THE ABOVE TABLES, OR AS PROVIDED AFTER ACTUAL LATERAL PLACEMENT AND LENGTHS ARE DETERMINED. CARE SHALL BE TAKEN TO USE A CORRECTLY SIZED, STRAIGHT DRILL BIT. HOLES SHALL BE DRILLED USING A DRILL PRESS OR GUIDE INSTEAD OF FREEHAND. ORIFICES SHALL BE POINTED DOWN TO ALLOW FOR DRAINAGE TO AVOID FREEZING.
4. SUB-MAIN SHALL BE 4" C900 DR-18 PVC PIPE.
5. CLEARING FOR LATERAL PLACEMENT SHALL BE LIMITED TO REMOVAL OF UNDERBRUSH, LOGS, ETC. TO ALLOW FOR PLACEMENT OF LATERALS AT AS FLAT A GRADE AS POSSIBLE. VARIATION IN ELEVATION ALONG A SINGLE LATERAL SHALL BE KEPT TO A MINIMUM (IDEALLY LESS THAN 1') BY FOLLOWING THE CONTOUR OF THE SLOPE.
6. BURIED PIPING SHALL BE INSTALLED WITH A MINIMUM OF 4 FEET OF COVER AND SHALL INCLUDE TYPE 1 BEDDING PER THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (I.S.P.W.C.).
7. PRESSURE TEST SHALL CONSIST OF PRESSURIZING SUB MAINS TO 150 PSI. PROJECT REPRESENTATIVE ENGINEER SHALL WITNESS TEST FOR 2 HRS MINIMUM. ALLOWABLE LEAKAGE IS AS DETERMINED FROM THE BELOW FORMULA FROM THE MOST CURRENT EDITION OF ISPWC.
   7.1. ALLOWABLE LEAKAGE FORMULA:

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

Q= QUANTITY OF MAKE UP WATER IN GALLONS PER HOUR
L= LENGTH OF PIPE BEING TESTED, IN FT.
D= NOMINAL DIAMETER OF PIPE BEING TESTED, IN IN.
P= AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST, IN POUNDS PER SQUARE IN (PSI)

8. JOINT RESTRAINTS SHALL BE EBBA SERIES 2000 PV OR APPROVED EQUAL.

Laterals	Length (ft.)	Elev. (ft.)	Approx. Flow (gpm)	Head (ft.)	Orifice Size (in)	Orifice Flow (gpm)	Orifices Required (#)	Orifices Used (#)	Orifice Spacing (ft.)	Flow/ Lat (gpm)
1	173	2473	13.02	20.2	0.125	0.84	15.45	15	11.51	12.64
2	170	2473	12.84	20.2	0.125	0.84	15.23	15	11.35	12.64
3	182	2475	13.73	18.1	0.125	0.80	17.23	17	10.71	13.55
4	157	2475	11.86	18.1	0.125	0.80	14.87	15	10.48	11.96
5	182	2478	13.71	15.7	0.125	0.74	18.44	18	10.10	13.39
6	147	2478	11.10	15.7	0.125	0.74	14.93	15	9.81	11.16
7	186	2481	14.02	12.9	0.125	0.67	20.87	21	8.85	14.11
8	129	2481	9.73	12.5	0.125	0.66	14.68	15	8.60	9.94
TOTAL	1326								TOTAL	99.38 gpm

AREA 1 LATERAL ORIFICE SPACING

Laterals	Length (ft.)	Elev. (ft.)	Approx. Flow (gpm)	Head (ft.)	Orifice Size (in)	Orifice Flow (gpm)	Orifices Required (#)	Orifices Used (#)	Orifice Spacing (ft.)	Flow/ Lat (gpm)
1	160	2481	14.99	26.7	0.125	0.97	15.47	15	10.67	14.53
2	108	2483	10.16	24.4	0.125	0.92	10.99	11	9.86	10.17
3	117	2483	10.99	24.4	0.125	0.92	11.89	12	9.78	11.10
4	96	2484	8.96	23.2	0.125	0.90	9.93	10	9.57	9.03
5	89	2484	8.36	23.2	0.125	0.90	9.26	9	9.91	8.13
6	87	2486	8.18	21.8	0.125	0.87	9.35	9	9.70	7.87
7	52	2486	4.86	21.4	0.125	0.87	5.61	6	8.64	5.20
8	90	2488	8.39	19.7	0.125	0.83	10.08	10	8.95	8.32
9	19	2488	1.81	19.7	0.125	0.83	2.18	2	9.66	1.66
10	92	2490	8.61	17.6	0.125	0.79	10.95	11	8.36	8.65
11	78	2490	7.26	17.6	0.125	0.79	9.23	9	8.61	7.08
12	52	2492	4.90	15.3	0.125	0.73	6.69	7	7.47	5.13
13	27	2495	2.54	12.8	0.125	0.67	3.79	4	6.78	2.68
TOTAL	1068								TOTAL	99.54 gpm

AREA 2 LATERAL ORIFICE SPACING

DRAFT
SCOTT G. M. STATE OF IDAHO REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/JJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
DRIP IRRIGATION SYSTEM

ATTENTION: 0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C4.05

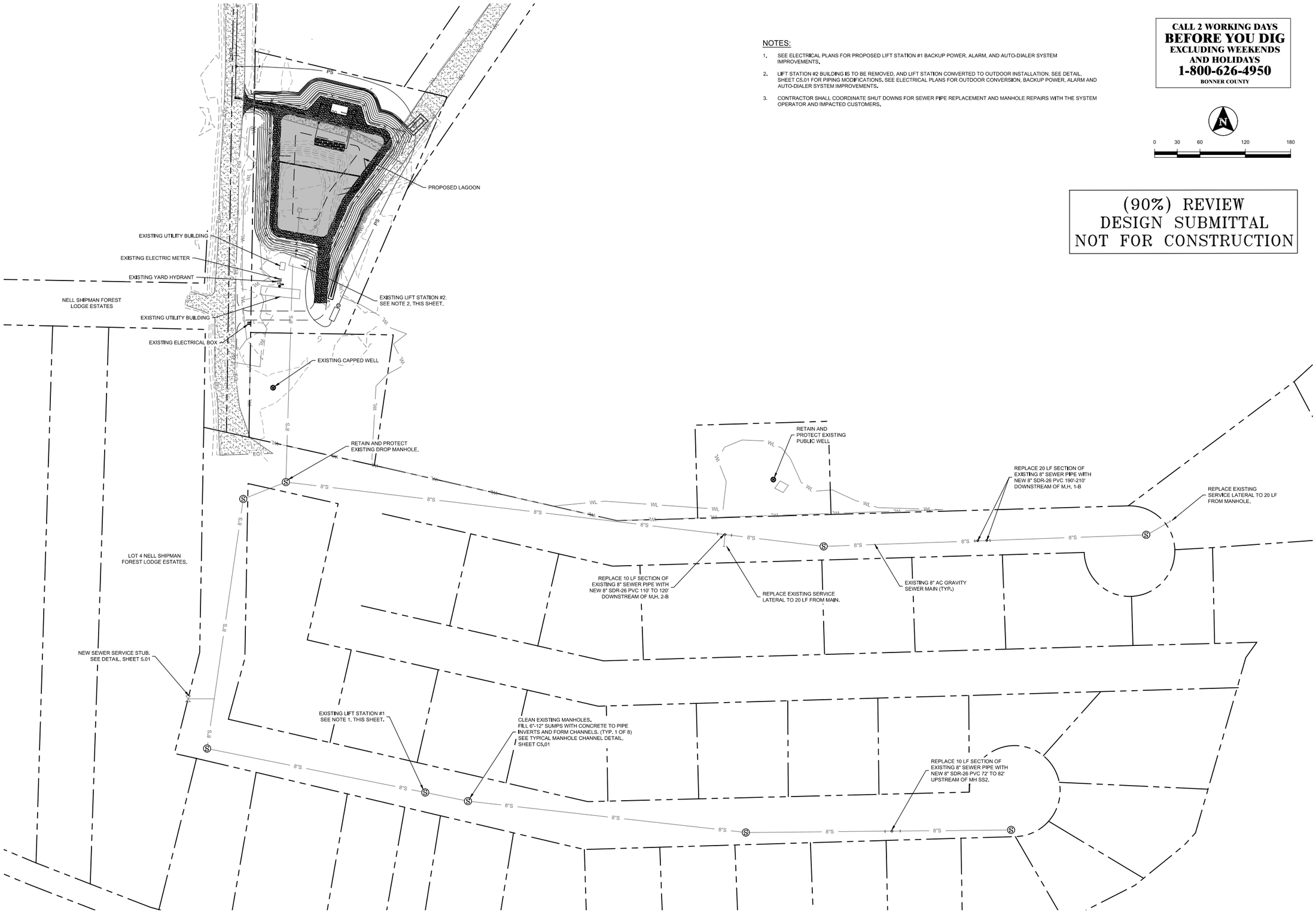
NOTES:

1. SEE ELECTRICAL PLANS FOR PROPOSED LIFT STATION #1 BACKUP POWER, ALARM, AND AUTO-DIALER SYSTEM IMPROVEMENTS.
2. LIFT STATION #2 BUILDING IS TO BE REMOVED, AND LIFT STATION CONVERTED TO OUTDOOR INSTALLATION, SEE DETAIL, SHEET C5.01 FOR PIPING MODIFICATIONS. SEE ELECTRICAL PLANS FOR OUTDOOR CONVERSION, BACKUP POWER, ALARM AND AUTO-DIALER SYSTEM IMPROVEMENTS.
3. CONTRACTOR SHALL COORDINATE SHUT DOWNS FOR SEWER PIPE REPLACEMENT AND MANHOLE REPAIRS WITH THE SYSTEM OPERATOR AND IMPACTED CUSTOMERS.

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS AND HOLIDAYS
1-800-626-4950
BONNER COUNTY

0 30 60 120 180

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



DRAFT
SCOTT G. M
STATE OF IDAHO
REGISTERED PROFESSIONAL ENGINEER

BORDER SIZE: 22"x34"
DESIGNED: SGM
DRAWN: MCK
CHECKED: SGM/ZJT
APPROVED: SGM

REVISIONS

NO.	DESCRIPTION	DATE

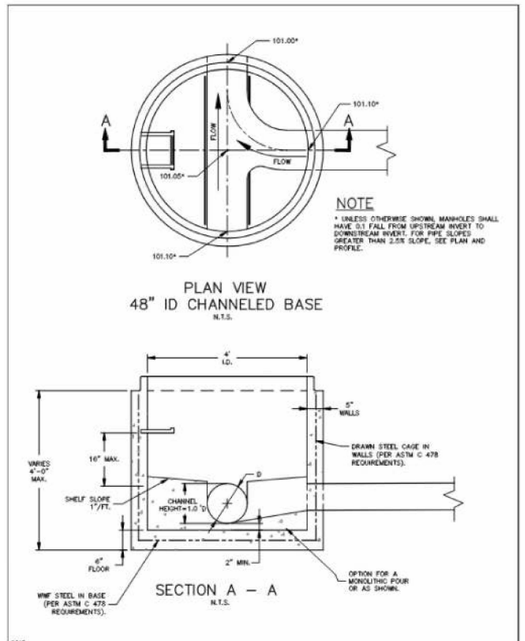
T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3844 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
COLLECTION SYSTEM IMPROVEMENTS

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

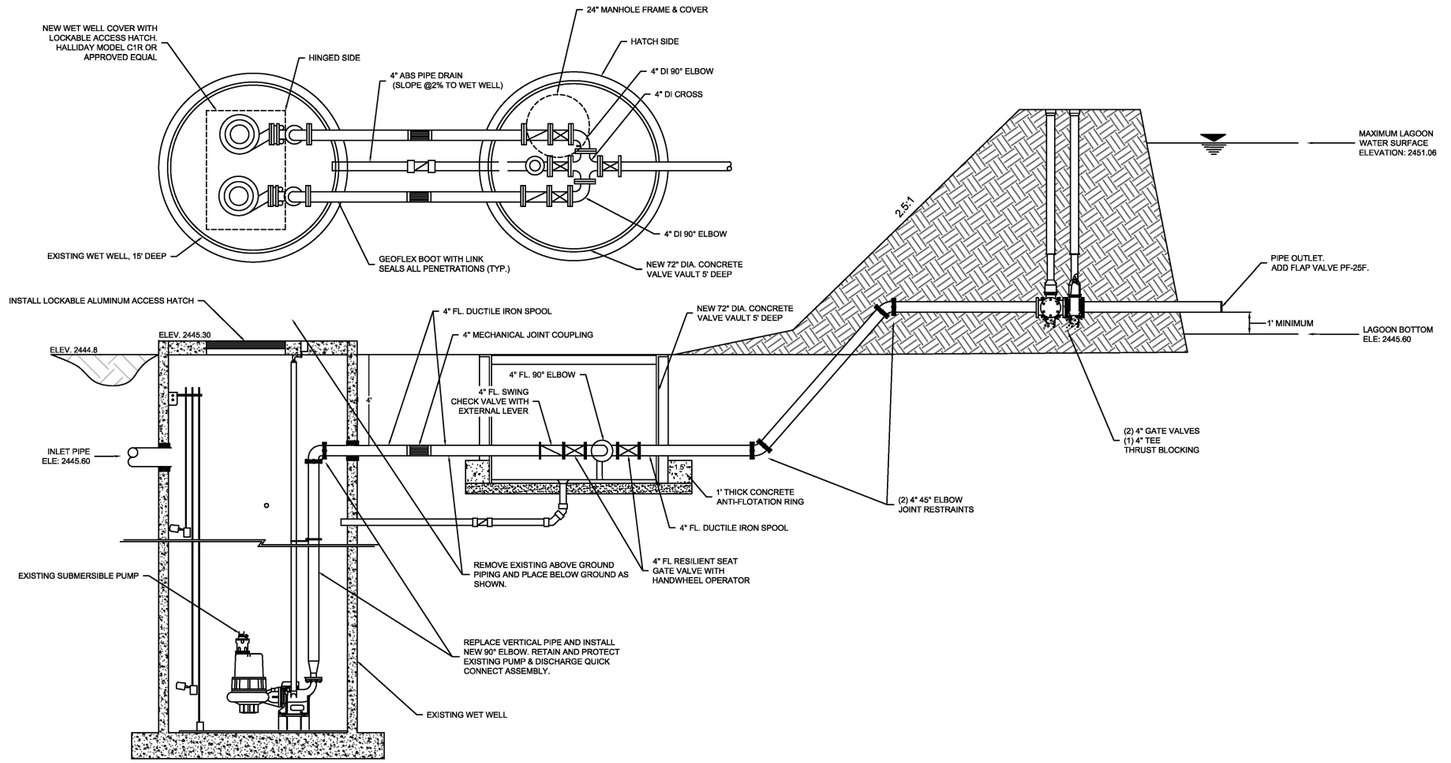
DATE: February 2020
PROJECT: 180380
SHEET: C5.00

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



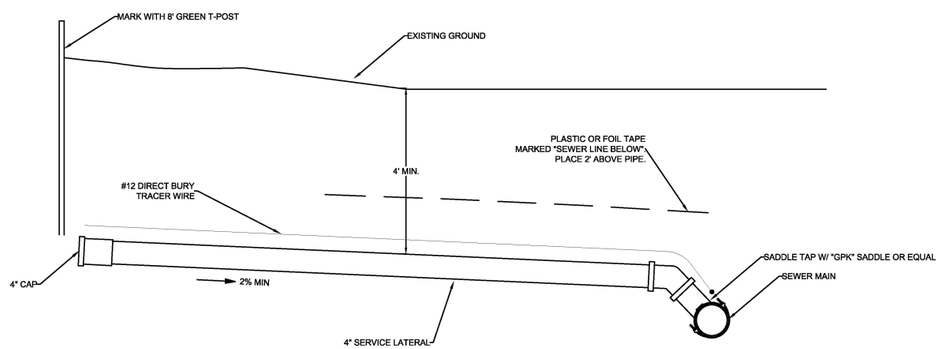
MANHOLE CHANNEL DETAIL

SCALE: N/A



LIFT STATION #2 DISCHARGE PIPING MODIFICATIONS

SCALE: N/A



SEWER SERVICE DETAIL

SCALE: N/A

LIFT STATION #2 INTERIOR CONFIGURATION

LIFT STATION #2 EXTERIOR DISCHARGE PIPE TO LAGOON

J:\180380\0_ACAD\WD\SHEETS\180380-C-COLLECTION SYSTEM DETAILS.DWG, 2/27/2020

DRAFT
PROFESSIONAL ENGINEER REGISTERED STATE OF IDAHO SCOTT G. M

BORDER SIZE 22"x34"
DESIGNED SGM
DRAWN MCK
CHECKED SGM/JJT
APPROVED SGM

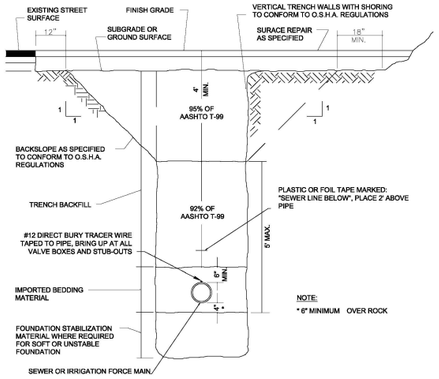
REVISIONS
NO. | DESCRIPTION | DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
COLLECTION SYSTEM DETAILS

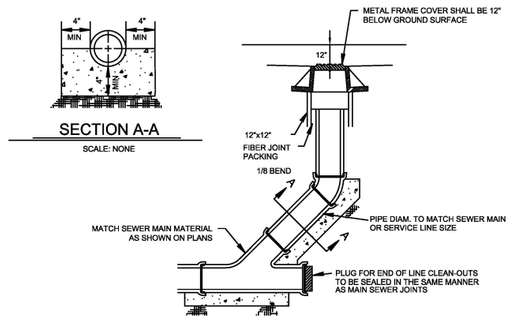
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C5.01



TYPICAL TRENCH DETAIL

SCALE: NTS

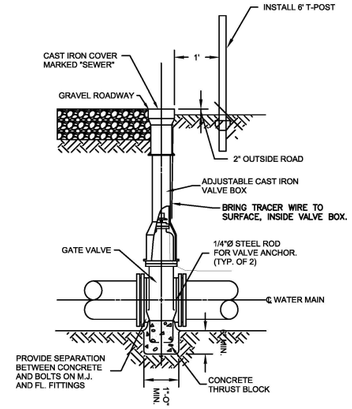


NOTES:

CONTRACTOR SHALL MARK ALL CLEAN OUT LOCATIONS WITH WOOD LATHE CLEARLY LABELED AFTER INSTALL AND BACKFILL. CONTRACTOR SHALL NOTIFY OWNER & ENGINEER ONCE COMPLETE, SO THAT OWNER MAY FIELD LOCATE CLEAN OUTS FOR FUTURE USE.

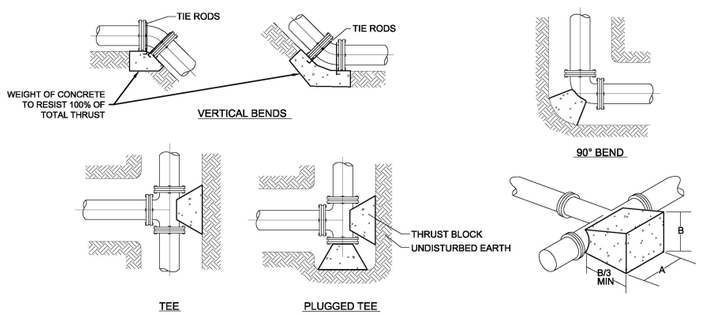
GRAVITY SEWER CLEAN-OUT

SCALE: N/A



TYPICAL GATE VALVE INSTALLATION

SCALE: NTS



DIMENSIONS FOR THRUST BLOCKING/RESTRAINED LENGTH (R)															
FITTING SIZES	TEES			90° BEND			45° BEND & WYES			REDUCERS, 22-1/2° AND SMALLER BENDS			VALVES & PLUGS		
	A	B	R* (BRANCH)	A	B	R	A	B	R	A	B	R	A	B	R
3"	1'-5"	1'-0"	1'	1'-7"	1'-2"	6'	1'-0"	1'-0"	3'	1'-0"	0'-8"	1'	1'-5"	1'-0"	20'
4"	1'-8"	1'-3"	1'	1'-10"	1'-7"	8'	1'-9"	0'-11"	3'	1'-7"	0'-7"	2'	1'-8"	1'-3"	24'
6"	2'-0"	1'-11"	1'	2'-6"	2'-3"	11'	1'-11"	1'-8"	4'	1'-10"	1'-2"	2'	2'-0"	1'-11"	34'
8"	2'-9"	2'-7"	1'	3'-2"	3'-0"	14'	2'-5"	2'-1"	6'	1'-10"	1'-7"	3'	2'-9"	2'-7"	45'
10"	3'-4"	3'-3"	1'	4'-0"	3'-10"	17'	3'-0"	2'-9"	7'	2'-2"	1'-11"	3'	3'-4"	3'-3"	54'
12"	4'-0"	3'-10"	1'	4'-8"	4'-8"	20'	3'-8"	3'-3"	8'	2'-7"	2'-3"	4'	4'-0"	3'-10"	63'

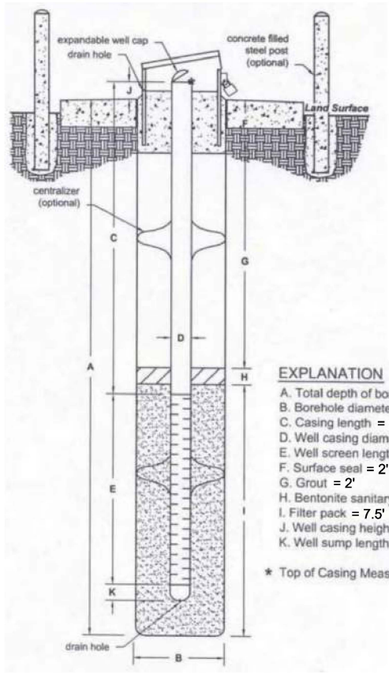
NOTES:

1. THE BEARING AREAS LISTED IN THE ABOVE TABLE ARE BASED ON 200 PSI MAIN PRESSURE AND 2000 P.S.F. SOIL BEARING PRESSURE. SOILS SUCH AS SILTS AND SOFT CLAYS HAVE LOWER SAFE BEARING CAPACITIES AND WILL REQUIRE LARGER THRUST BLOCKING. THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER PRIOR TO PLACING THRUST BLOCKS IN QUESTIONABLE SOILS.
2. CONCRETE THRUST BLOCKS SHALL BE 3000 PSI CONCRETE POURED IN PLACE AGAINST UNDISTURBED EARTH.
3. ALL CONCRETE SHALL BE PLACED SO THAT PIPE, FITTINGS, JOINTS AND BOLTS WILL BE ACCESSIBLE FOR REPAIRS. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE BEFORE PLACING CONCRETE.
4. JOINT RESTRAINTS MAY BE INSTALLED, WITH THE ENGINEER'S APPROVAL, AT LOCATIONS WHERE PROPER THRUST BLOCKING AGAINST UNDISTURBED EARTH CANNOT BE ACHIEVED. JOINT RESTRAINTS SHALL BE EBBA SERIES 2000 PV OR APPROVED EQUAL. THE LENGTH OF PIPE TO BE RESTRAINED FROM THE FITTING OR VALVE SHALL BE AS LISTED UNDER "R" IN THE ABOVE TABLE. RESTRAINT RINGS FOR PVC PIPE BELLS SHALL BE EBBA SERIES 1600 OR APPROVED EQUAL.
5.* JOINTS FOR A MINIMUM OF 10' ALONG THE RUN MUST BE RESTRAINED FOR THE BRANCH "R" VALUE TO BE VALID.

STANDARD THRUST BLOCK DETAILS

SCALE: NTS

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



TYPICAL MONITORING WELL

SCALE: NTS

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

REVISIONS

NO.	DESCRIPTION	DATE

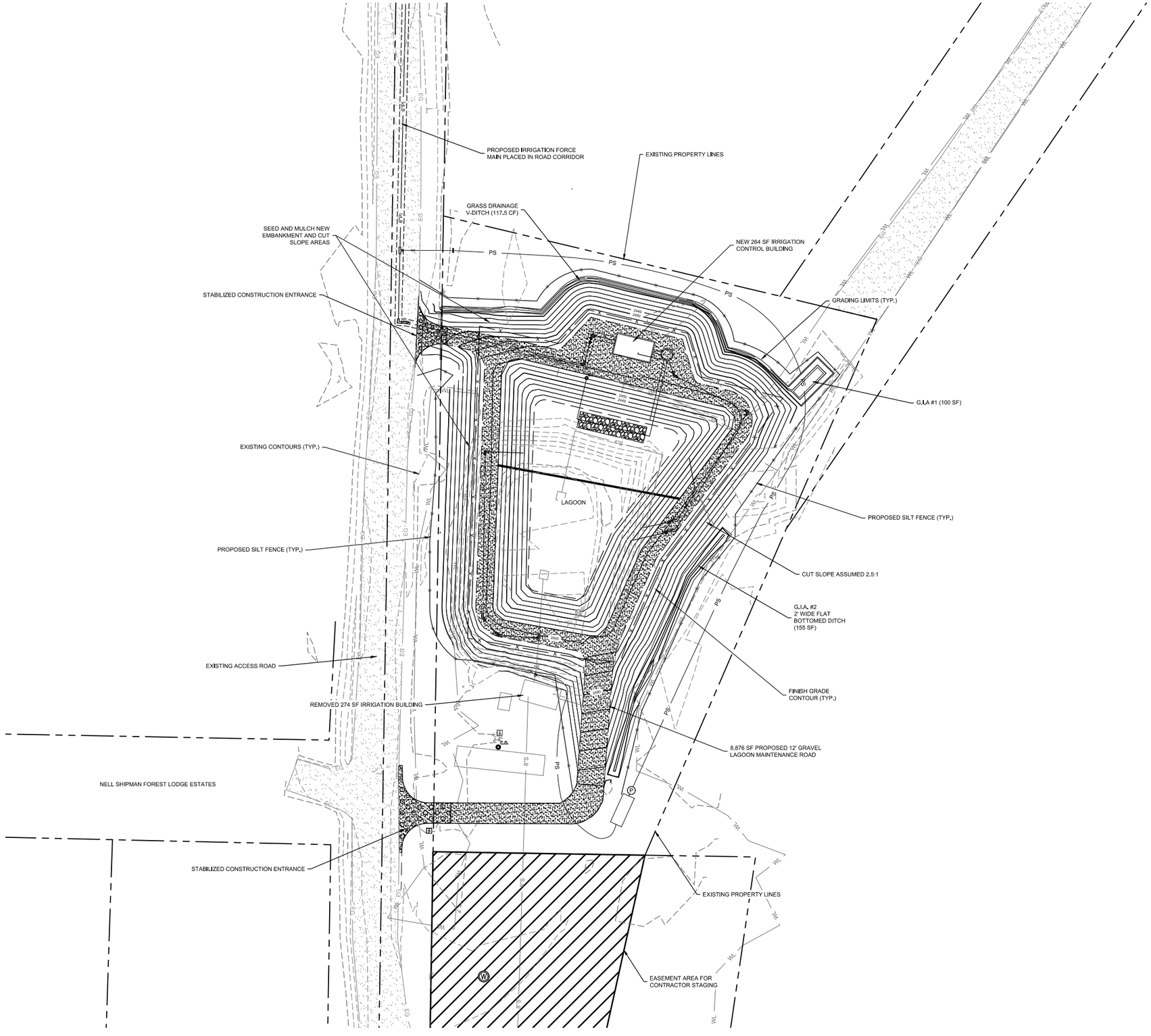
BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

DRAFT
STATE OF SCOTT G. M. REGISTERED ONAL ENGINEER

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
GENERAL DETAILS

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C6.00



0 15 30 60 90

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT
PROFESSIONAL ENGINEER
REGISTERED
STATE OF
SCOTT G. M

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.T-O-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)

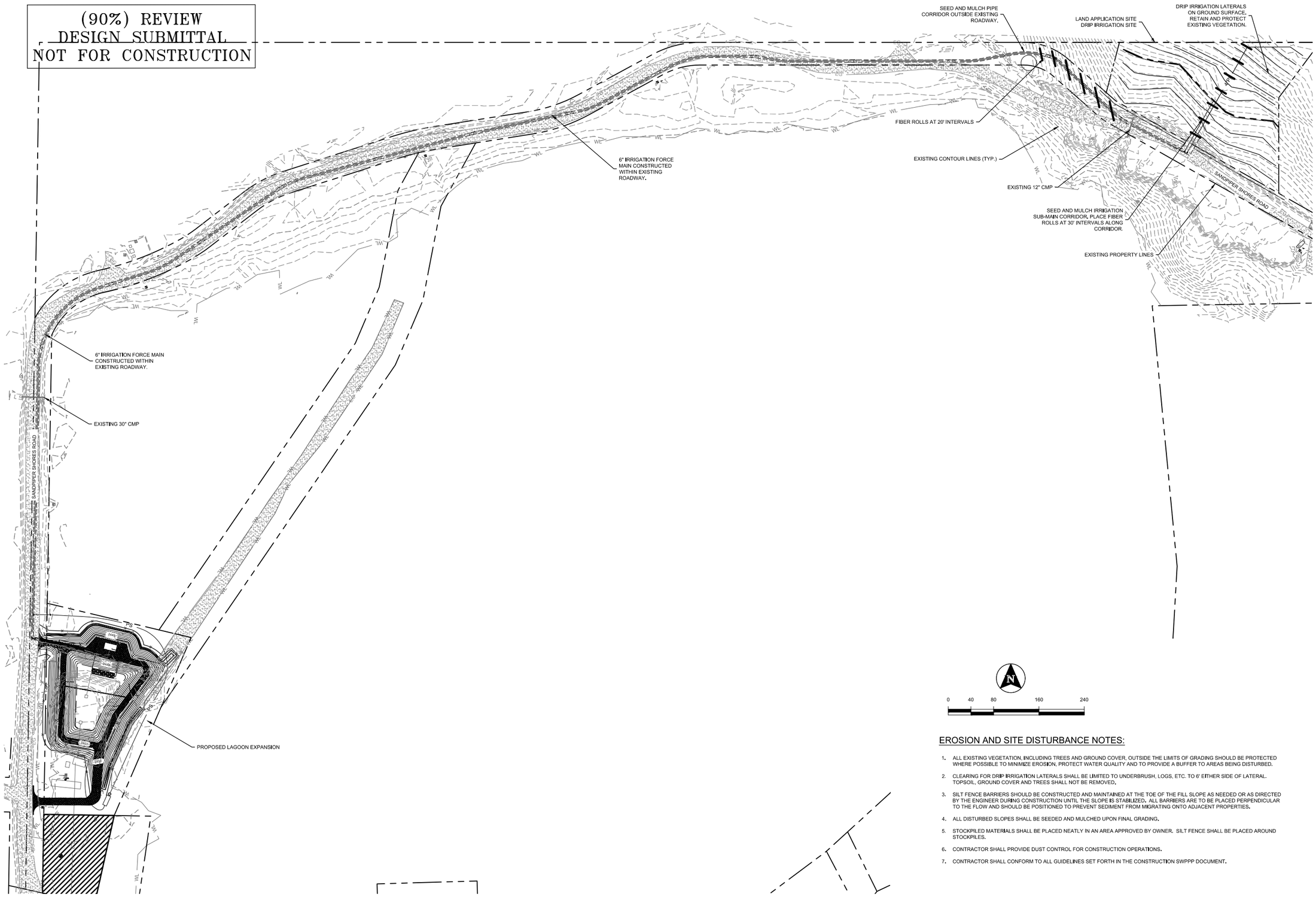
Wastewater Improvements

STORMWATER & EROSION CONTROL PLAN 1

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE:	February 2020
PROJECT:	180380
SHEET:	C7.00

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION



EROSION AND SITE DISTURBANCE NOTES:

1. ALL EXISTING VEGETATION, INCLUDING TREES AND GROUND COVER, OUTSIDE THE LIMITS OF GRADING SHOULD BE PROTECTED WHERE POSSIBLE TO MINIMIZE EROSION, PROTECT WATER QUALITY AND TO PROVIDE A BUFFER TO AREAS BEING DISTURBED.
2. CLEARING FOR DRIP IRRIGATION LATERALS SHALL BE LIMITED TO UNDERBRUSH, LOGS, ETC. TO 6' EITHER SIDE OF LATERAL. TOPSOIL, GROUND COVER AND TREES SHALL NOT BE REMOVED.
3. SILT FENCE BARRIERS SHOULD BE CONSTRUCTED AND MAINTAINED AT THE TOE OF THE FILL SLOPE AS NEEDED OR AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION UNTIL THE SLOPE IS STABILIZED. ALL BARRIERS ARE TO BE PLACED PERPENDICULAR TO THE FLOW AND SHOULD BE POSITIONED TO PREVENT SEDIMENT FROM MIGRATING ONTO ADJACENT PROPERTIES.
4. ALL DISTURBED SLOPES SHALL BE SEEDED AND MULCHED UPON FINAL GRADING.
5. STOCKPILED MATERIALS SHALL BE PLACED NEATLY IN AN AREA APPROVED BY OWNER. SILT FENCE SHALL BE PLACED AROUND STOCKPILES.
6. CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS.
7. CONTRACTOR SHALL CONFORM TO ALL GUIDELINES SET FORTH IN THE CONSTRUCTION SWPPP DOCUMENT.

DRAFT
PROFESSIONAL ENGINEER
REGISTERED
STATE OF
SCOTT G. M

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

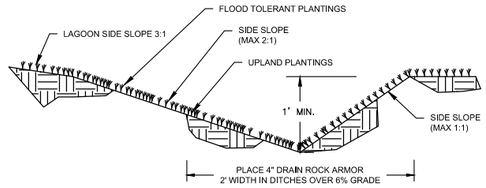
NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
STORMWATER & EROSION CONTROL PLAN 2

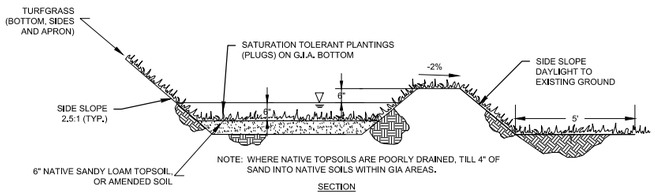
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C7.01



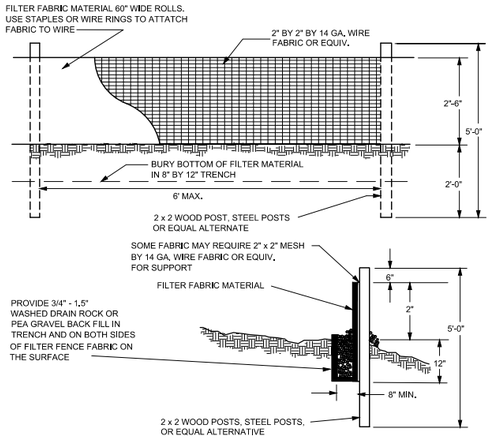
TYPICAL INTERCEPTOR V-DITCH DETAIL

SCALE: NTS



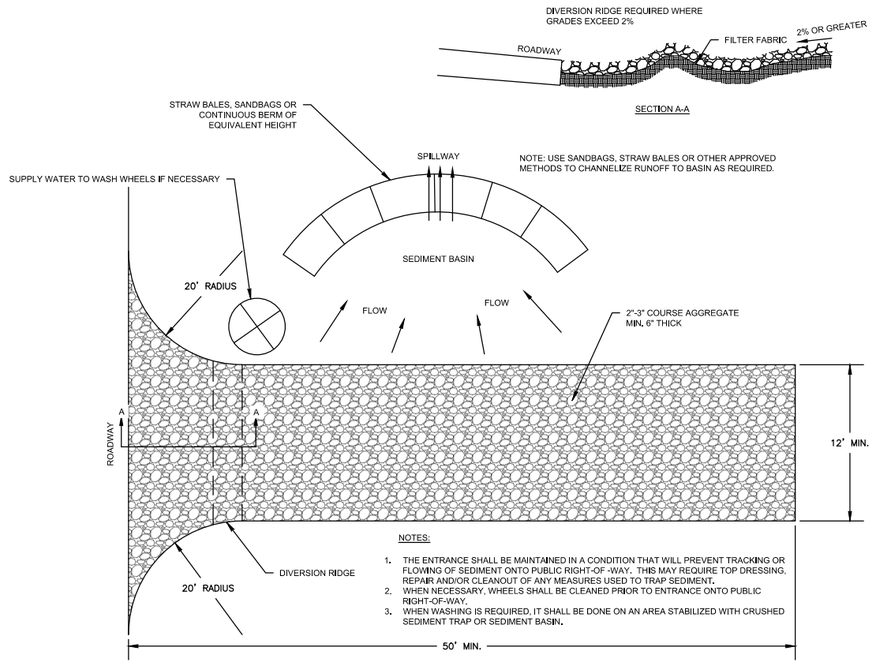
GRASSY INFILTRATION AREA

SCALE: NTS



SILT FENCE DETAIL

SCALE: NTS



STABILIZED CONSTRUCTION ENTRANCE

SCALE: NTS

CALL 2 WORKING DAYS
BEFORE YOU DIG
EXCLUDING WEEKENDS
AND HOLIDAYS
1-800-428-4950
KOOTENAI COUNTY

(90%) REVIEW
DESIGN SUBMITTAL
NOT FOR CONSTRUCTION

DRAFT
PROFESSIONAL ENGINEER
REGISTERED
STATE OF IDAHO
SCOTT G. M

BORDER SIZE	22"x34"
DESIGNED	SGM
DRAWN	MCK
CHECKED	SGM/ZJT
APPROVED	SGM

REVISIONS

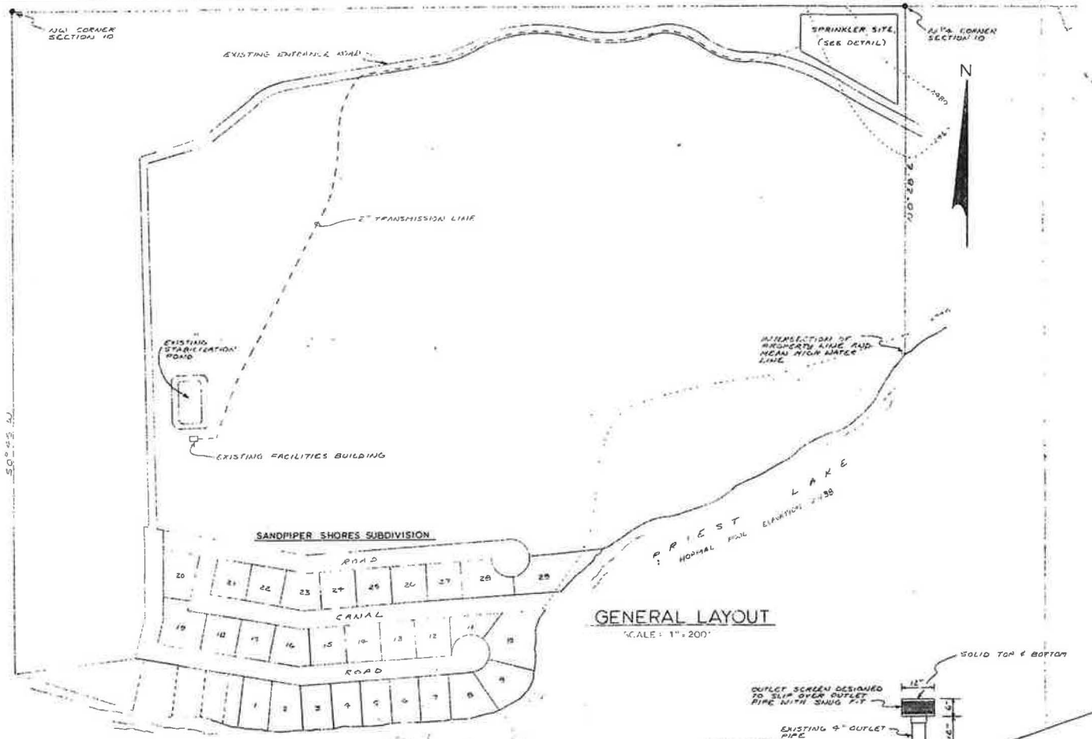
NO.	DESCRIPTION	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
7950 MEADOWLARK WAY, STE. A
COEUR d' ALENE, IDAHO 83815
PHONE: (208) 762-3644 WWW.TO-ENGINEERS.COM
BOISE • CODY • COEUR D'ALENE • HEBER CITY
MERIDIAN • NAMPA • SPOKANE

Sandpiper Shores Master Utility (SSMU)
Wastewater Improvements
EROSION CONTROL PLAN DETAILS

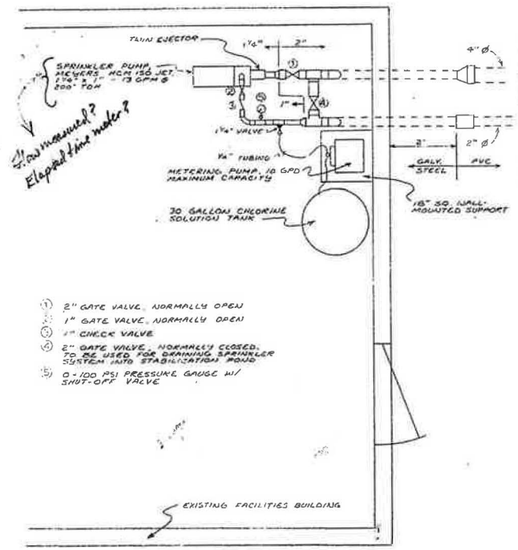
ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE
1" ON 22x34 SHEET or 1/2" ON
11x17 SHEET, THEN DRAWING IS
NOT TO SCALE

DATE: February 2020
PROJECT: 180380
SHEET: C7.02



GENERAL LAYOUT

SCALE: 1" = 200'



BUILDING AND EQUIPMENT

SCALE: 1/2" = 1'

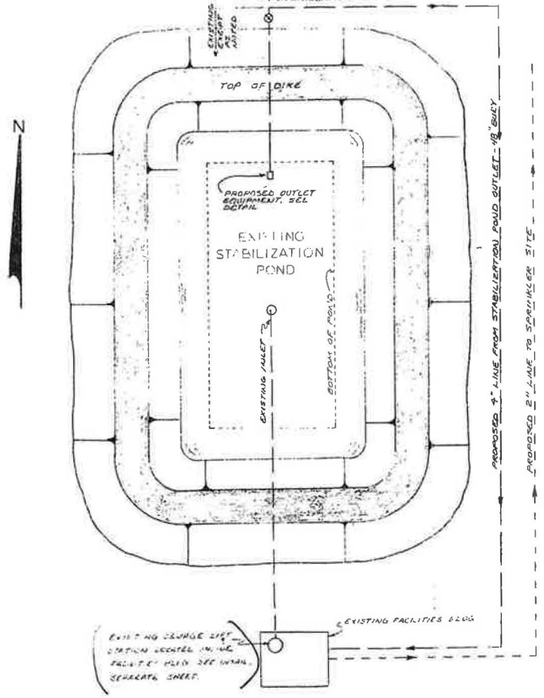
CONSTRUCTION NOTES:

1. EFFLUENT DISPOSAL SYSTEM CONSTRUCTION SHALL CONFORM TO STATE OF IDAHO DIVISION OF ENVIRONMENT REQUIREMENTS.
2. TRANSMISSION PIPELINE SHALL BE 2 INCH SCHEDULE 40 OR ASTM CL. 160 PVC WITH SOLVENT WELD JOINTS. COMPRESSION COUPLINGS SHALL BE INSTALLED AT MAXIMUM OF 500 FOOT INTERVALS TO ALLOW EXPANSION/CONTRACTION OF PIPELINE.
3. ABOVE GROUND PIPING WHERE SHOWN ON THE DRAWING SHALL BE STANDARD WEIGHT GALVANIZED STEEL PIPE.
4. MINIMUM STANDARDS FOR GATE VALVES AND CHECK VALVES SHALL BE 125 POUNDS. BURIED GATE VALVES SHALL HAVE 2 INCH OPERATOR NUT OR CAST IRON HAND WHEEL. BURIED GATE VALVES SHALL INCLUDE CAST IRON VALVE BOX WHERE LOCATED IN ROADWAY OR PLASTIC VALVE BOX WHERE LOCATED ELSEWHERE. VALVE BOXES SHALL BE MARKED "SEWER."
5. PIPE INSTALLATION SHALL CONFORM TO ALL APPLICABLE SECTIONS OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) AND TO THE RECOMMENDED PRACTIVES LISTED IN ASTM D2321. THE TRANSMISSION PIPELINE SHALL BE PLACED AT A MINIMUM DEPTH OF 48 INCHES IN ROADWAYS AND 42 INCHES ELSEWHERE. PIPELINE SHALL BE PRESSURE TESTED AT 100 PSI FOR 1 HOUR, WITH A MAXIMUM ALLOWABLE PRESSURE LOSS OF 5 PSI FOR THIS TIME PERIOD.
6. EFFLUENT SPRINKLER PUMP SHALL BE A MEYERS HOM 150 JET, 1-1/4" x 1", 13 GPM @ 200 FT. TDH OR EQUAL, AND SHALL INCLUDE A TWIN EJECTOR AS SHOWN. PUMP SHALL BE PLUMBED AS SHOWN AND SHALL BE ELECTRICALLY CONNECTED TO 230 VOLTS WITH AN "ON-OFF" SWITCH. ELECTRICAL WORK AND EQUIPMENT SHALL CONFORM TO THE IDAHO STATE ELECTRICAL CODE, NESC, NEMA AND IEEE.
7. CHLORINATION EQUIPMENT SHALL INCLUDE A METERING PUMP, SOLUTION TANK AND ALL NECESSARY CONNECTIONS AND APPURTENANCES. PUMP SHALL BE RATED AT 0.15 TO 10.0 GPD @ 100 PSI AND SHALL BE A LIQUID METRONICS INC. MODEL A17 METERING PUMP OR EQUAL. METERING PUMP SHALL ACTIVATE AUTOMATICALLY UPON ACTIVATION OF THE EFFLUENT SPRINKLER PUMP. SOLUTION TANK SHALL BE 30 GALLON MINIMUM. INTAKE AND DISCHARGE TUBING AND APPURTENANCES SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
8. SPRINKLER HEADS SHALL BE THE IMPACT TYPE WITH 1/8 INCH DIAMETER NOZZLES. SPRINKLER RISERS SHALL BE SUPPORTED WITH A 2 INCH PIPE INSTALLED AND SECURED AS SHOWN.

SPRINKLER SITE DESCRIPTION:

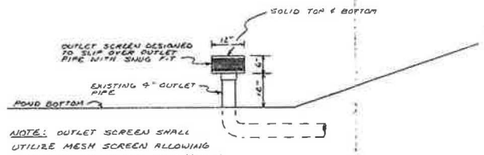
BEGINNING AT A POINT WHICH IS S 89°27' W, 25 FEET AND S 0°28' W, 25 FEET FROM THE NORTH 1/4 CORNER OF SECTION 10, TOWNSHIP 62 NORTH, RANGE 4 WEST, B.M., ALL IN BONNER COUNTY, IDAHO; THENCE S 89°27' W, 290 FEET; THENCE S 0°28' W, 105 FEET; THENCE S 60°39'54" E, 331.1 FEET; THENCE N 0°28' E, 270 FEET TO THE POINT OF BEGINNING. SAID SITE CONTAINING APPROXIMATELY 1.25 ACRES.

PLANS & SPECIFICATIONS
By: [signature] Engineer/Sanitarian
These plans and/or specifications have been reviewed for compliance with Idaho Dept. of Health and Welfare regulations. This review does not relieve the owner, engineer, or the contractor of the responsibility to design or construct these facilities in compliance with all state and applicable federal laws and local laws, rules, regulations, or ordinances
Date: 1-29-88
Plans and/or specifications must be resubmitted for review if construction is not initiated on or before: 2-1-88
Refer to letter of 2/88 to Orville Bailey



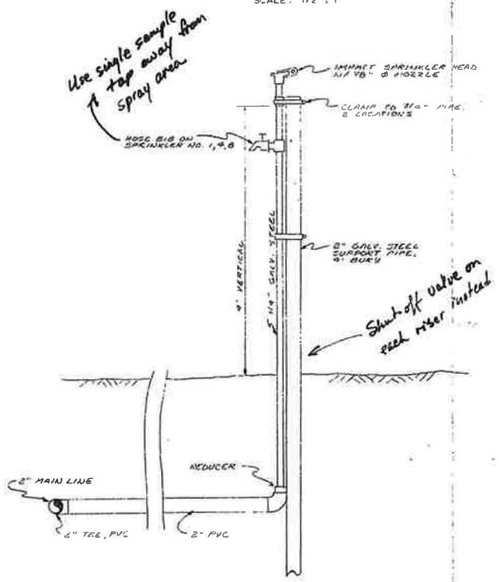
LAGOON SITE DETAIL

SCALE: 1" = 20'



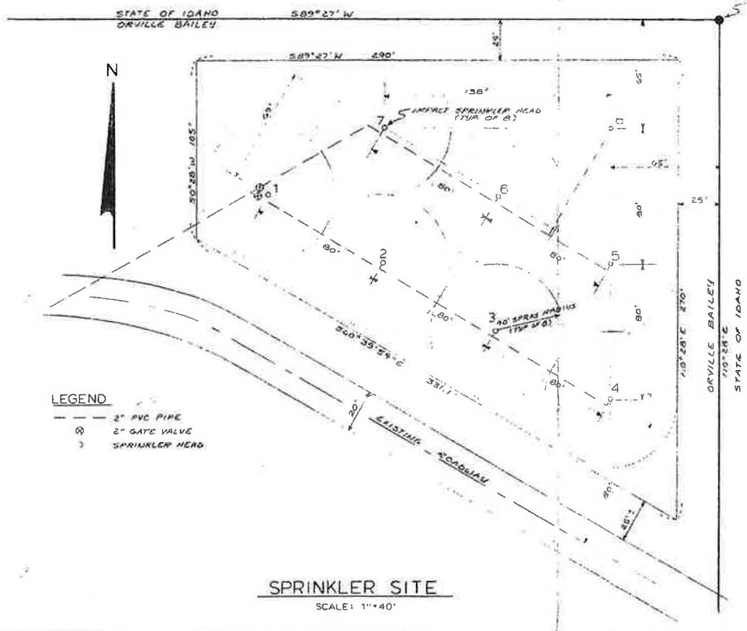
OUTLET SCREEN DETAIL

SCALE: 1/2" = 1'



SPRINKLER RISER DETAIL

SCALE: 1" = 1'



SPRINKLER SITE

SCALE: 1" = 40'

1/11/88 [signature]

NO.	DATE	REVISION	BY

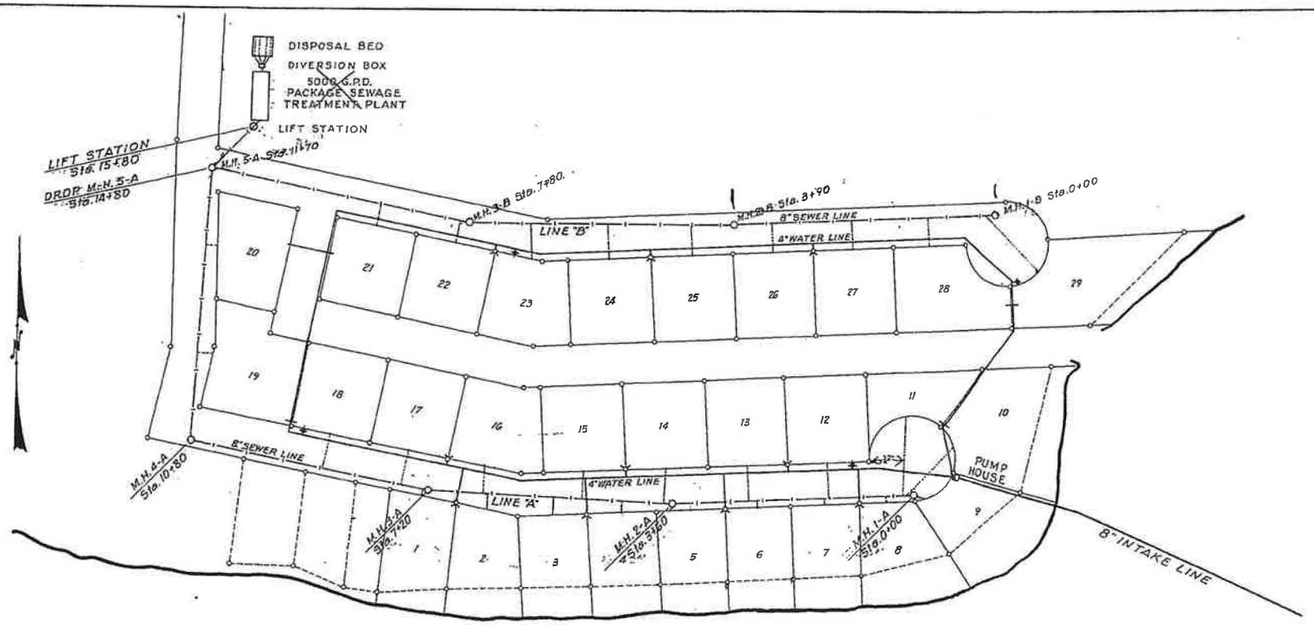
SHEET TITLE: SEWAGE EFFLUENT DISPOSAL SYSTEM

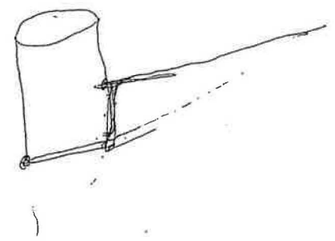
PROJECT: SANDPIPER SHORES SUBDIVISION

SCALE: AS SHOWN
DATE: 1-11-88
DRAWN BY: JVZ
CHECKED BY: EJE
PROJECT NO.
DRAWING NO.
SHTS: 1 OF 1 SHTS

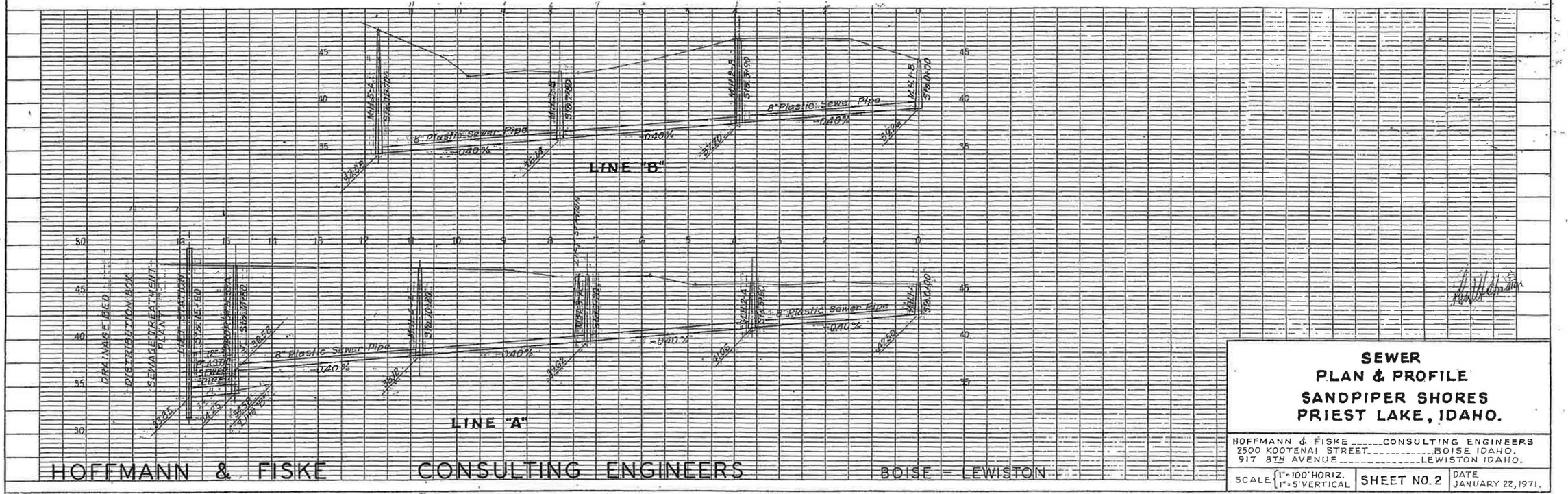
James A. Sewell & Associates
Consulting Engineers
NEWPORT, WASHINGTON 99156
(509) 447-3826

Blue Putty





PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NOTE BOOK
NO.
BY
DATE



PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
ALIGNMENT CHECKED
STRUCTURE NO.
NOTE BOOK
NO.
BY
DATE

SEWER
PLAN & PROFILE
SANDPIPER SHORES
PRIEST LAKE, IDAHO.

HOFFMANN & FISKE _____ CONSULTING ENGINEERS
2500 KOOTENAI STREET _____ BOISE IDAHO.
917 8TH AVENUE _____ LEWISTON IDAHO.

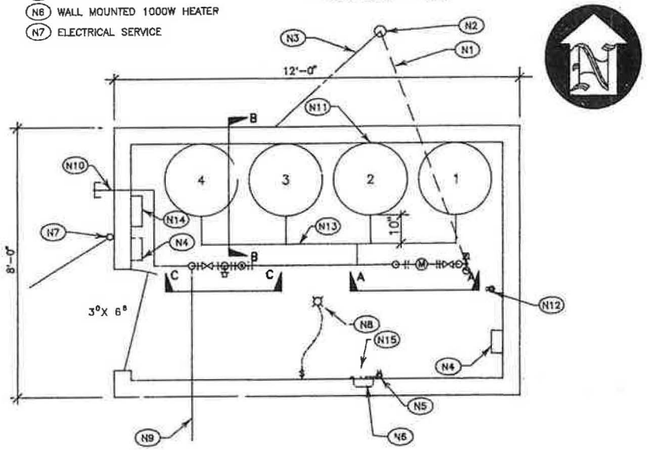
SCALE { 1"=100' HORIZ. / 1"=5' VERTICAL | SHEET NO. 2 | DATE JANUARY 22, 1971.

HOFFMANN & FISKE CONSULTING ENGINEERS BOISE - LEWISTON

PLATE I - PLAN - PROFILE U.P.R. & R.E. STANDARD

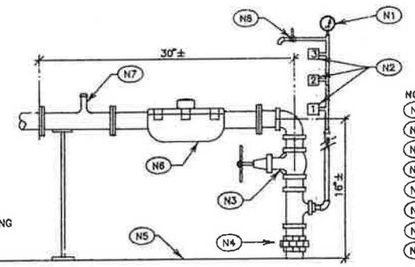
NOTES FOR PUMPHOUSE FLOOR PLAN

(N1) 3" COPPER PIPE
(N2) EXISTING WELL
(N3) URD ELECTRICAL
(N4) PUMP CONTROL PANEL
(N5) QUADPLEX OUTLET
(N6) WALL MOUNTED 1000W HEATER
(N7) ELECTRICAL SERVICE
(N8) 100 W. INCANDESCENT FIXTURE
(N9) 3" INCH COPPER PIPE TO 5' BEYOND FOUNDATION ADAPT TO CLASS 160 PVC AND EXTEND AND CONNECT TO MAIN LINE IN ROAD
(N10) 3" GALVANIZED STEEL BLOWOFF PIPE ELBOWED DOWN WITH CAP.
(N11) PMD 86 PRESSURE TANK: 86 GAL., 100 PSI MAX. WORKING PRESSURE (TYPICAL OF 4)
(N12) DUPLEX OUTLET ACTIVATED W/PUMP
(N13) 3" COPPER MANIFOLD
(N14) CIRCUIT BREAKER PANEL



PUMPHOUSE FLOOR PLAN

SCALE- 1/2"=1'-0"



PS 1 – PUMP ON ●40 PSI
PUMP OFF ●60 PSI.
PS 2 – ALARM ON – BELOW 20 PSI
PS 3 – ALARM ON – ABOVE 70 PSI

NOTES FOR SECTION A – A

(N1) PRESSURE GAUGE
(N2) PRESSURE SWITCHES.
(N3) 3" GATE VALVE.
(N4) UNION.
(N5) FLOOR.
(N6) 3" FLOW METER, 35–200 GPM FLOW RANGE.
(N7) 3" X 1" TEE WITH 1" LEG CAPPED
(N8) PETCOCK.

NOTE: ALL MAIN LINE PLUMBING TO BE 3" COPPER.

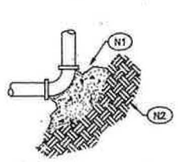
SECTION A – A

SCALE–1–1/2"=1'–0"

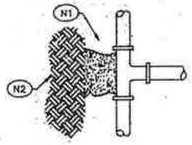
THRUST BLOCK SIZING

PIPE DIAMETER	MINIMUM BEARING AREA (SQ. FT.)				
	TEES AND ENDS	90° ELBOWS	45° ELBOWS	22–1/2° ELBOWS	11–1/4° ELBOWS
4" AND SMALLER	1.5	2.0	1.0	0.5	0.5
6"	3.0	4.0	2.0	1.5	1.0
8"	5.0	7.0	4.0	2.0	1.0
10"	8.6	11.0	6.0	3.0	1.5
12"	11.5	16.0	9.0	4.5	2.5

• BASED ON 200 PSI LINE PRESSURE, FIRM SAND–CLAY SOIL



ELBOW



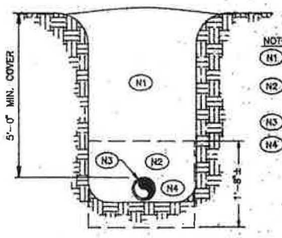
TEE

NOTE: CONCRETE SHALL BE PLACED TO ALLOW ACCESS TO FASTENERS USED IN CONNECTION

TYPICAL ELBOW AND TEE DETAIL

N.T.S

NOTE: TRENCH SIDE WALLS SHALL BE SLOPED AND/OR BRACED TO PROTECT WORKERS, ADJACENT PROPERTY, AND THE WORK

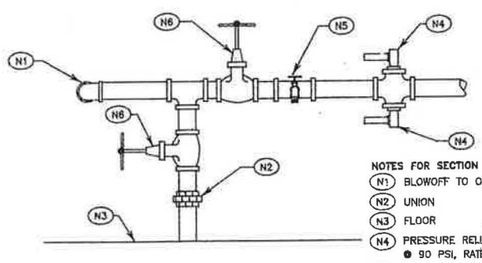


NOTES FOR TRENCH DETAIL

(N1) BACKFILL W/NATIVE MATERIAL TO DENSITY AS SPECIFIED
(N2) IN ROCK EXCAVATION, 12" ABOVE AND 6" BELOW PIPE SHALL BE BEDDED W/SAND.
(N3) WATER PIPE
(N4) AREA WITHIN 4" OF PIPE SHALL CONTAIN NO MATERIAL LARGER THAN 3/4".

TYPICAL PIPELINE TRENCH DETAIL

N.T.S

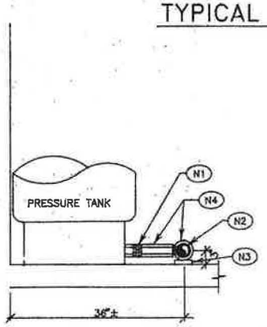


NOTES FOR SECTION C – C

(N1) BLOWOFF TO OUTSIDE
(N2) UNION
(N3) FLOOR
(N4) PRESSURE RELIEF VALVES, OPEN ● 90 PSI, RATED ● 25 GPM
(N5) 3"X 3/4" TEE: W/3/4" HOSE BIB FOR SAMPLING
(N6) 3" GATE VALVES

SECTION C – C

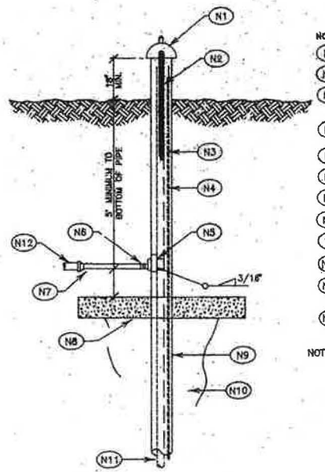
SCALE–1–1/2"=1'–0"



NOTES FOR SECTION B – B

(N1) UNION
(N2) 3" MANIFOLD.
(N3) TREATED WOOD SUPPORT BLOCK
(N4) PIPE INSULATION

SECTION B – B



NOTES FOR STANDARD WELL DETAIL

(N1) VENT CAP.
(N2) RIGID ELECTRICAL CONDUIT TO PUMP CONTROL PANEL.
(N3) LOW LEVEL PROTECTION PROBE, SET 5' ABOVE PUMP INTAKE. PROVIDE 10 MIN. TIME DELAY FOR PUMP RESTART. PROVIDE AMP MONITOR AS ALTERNATE.
(N4) NYLON DEPTH TEST TUBE TO PUMP INTAKE. PROVIDE DEPTH GAUGE IN CONTROL PANEL AND CONNECT.
(N5) WELD–ON PITLESS ADAPTER WELDED BY CERTIFIED WELDER.
(N6) (2) 90° EL. TO PROVIDE SWING JOINT.
(N7) 2" GALVANIZED STEEL PIPE ADAPTED TO 3".
(N8) 1' THICK X 5' ACROSS CONCRETE SEAL, ROUND OR SQUARE.
(N9) 6" CASING, DEPTH AS REQUIRED WITH WELL SCREEN SELECTION BASED ON SOIL ANALYSIS.
(N10) CLAY SEAL, DOWN TO MINIMUM OF 18' FROM SURFACE.
(N11) 2" GALVANIZED STEEL DROP PIPE, DEPTH AS REQUIRED. SUBMERSIBLE PUMP LOCATED WITH LOWER END OF PUMP MOTOR 5' ABOVE SCREEN SEAL.
(N12) 3" GALVANIZED STEEL PIPE TO SYSTEM.

NOTE: INSTALL (2) LINE SIZED CHECK VALVES, 150 LB.; ONE AT PUMP DISCHARGE, THE SECOND APPROXIMATELY 21' ABOVE FIRST.

STANDARD WELL DETAIL

N.T.S.

WATER SYSTEM SPECIFICATIONS:

GENERAL – WATER SYSTEM CONSTRUCTION SHALL CONFORM TO STATE OF IDAHO STATE DIVISION OF ENVIRONMENTAL QUALITY (DEQ) REQUIREMENTS AND THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC). ALL MATERIALS SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS.

DESIGN – WATER SYSTEM DESIGN INCLUDES THE FOLLOWING:
NORMAL OPERATING PRESSURE RANGE = 40 – 80 PSI
DESIGN NUMBER OF CONNECTIONS = 34
MAXIMUM INSTANTANEOUS DEMAND (M.I.D.) FLOWRATE = 81 GPM

WELL PUMP – EXISTING PUMP WAS TESTED AT 55 GPM AND WILL BE UPGRADED WHEN SUBDIVISION DEMAND REQUIRES IT.

PIPE – WATER PIPE IS STANDARD WEIGHT COPPER IN PUMPHOUSE AND TO 5' BEYOND PUMPHOUSE FOUNDATION, UNLESS OTHERWISE SHOWN. ALL REMAINING PIPE MAY BE PVC. WATER PIPE 2" IN DIAMETER AND SMALLER SHALL CONFORM TO ASTM D2241 SCHEDULE 40 PVC, U.O.N. WATER PIPE LARGER THAN 2" SHALL CONFORM TO ASTM CLASS 160 FOR PVC.

PIPE FITTINGS – PIPE FITTINGS ARE STANDARD WEIGHT COPPER OR PVC, CONFORMING TO THE PIPE MATERIAL REQUIREMENTS.

VALVES – GATE VALVES SHALL BE BRASS BODIED GATE VALVES, 150 PSI RATED.

PIPE TRENCH – TRENCHING SHALL CONFORM TO THE TYPICAL TRENCH DETAIL SHOWN AND ISPWC SECTION 301.

BACKFILL AND COMPACTION – PIPE BACKFILLING SHALL COMPLY WITH ISPWC SECTION 304. COMPACT ALL BACKFILL TO TOP OF TRENCH TO 90% DENSITY IN OPEN GROUND, AND 95% DENSITY IN ROADWAYS, IN ACCORDANCE WITH ASTM D1557, METHOD D, IN MAXIMUM NINE–INCH LOOSE LIFTS.

PIPE BEDDING – PIPE BEDDING SHALL COMPLY WITH ISPWC SECTION 303.

TRENCH PROTECTION – TRENCH PROTECTION SHALL CONFORM TO ISPWC SECTION 302.

PIPE INSTALLATION – PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MFR'S RECOMMENDATIONS AND ISPWC SECTION 400. ALL PIPE SHALL BE LAID ON A STRAIGHT GRADE WITH NO LOCAL HIGH POINTS. PIPE SHALL NOT BE INSTALLED UNTIL TRENCH HAS BE COMPLETELY DEWATERED BELOW THE BASE OF THE BEDDING COURSE.

THRUST BLOCKS – THRUST BLOCKS SHALL BE PROVIDED AS SHOWN ON THE DRAWING, AND IN ACCORDANCE WITH ISPWC SECTION 400.

PRESSURE TEST – AFTER COMPLETE INSTALLATION, INCLUDING SERVICE CONNECTIONS, THE PIPELINE SHALL BE PRESSURE TESTED TO A PRESSURE OF 120 PSI. PRESSURE SHALL BE MAINTAINED UNTIL THE ENGINEER HAS DETERMINED THAT THE SECTION OF PIPE, VALVES AND FITTINGS ARE WATER–TIGHT. IF THERE ARE NO VISIBLE LEAKS AND THE TEST PRESSURE IS MAINTAINED WITHOUT PUMPING FOR TWO HOURS, AND THE PRESSURE DROP STABILIZES AND IS LESS THAN FIVE (5) POUNDS, THE PIPELINE WILL BE ACCEPTED AS A WATERTIGHT INSTALLATION. PRESSURE TEST SHALL CONFORM TO ISPWC SECTION 406.

DISINFECTION – AFTER COMPLETE INSTALLATION, INCLUDING SERVICE CONNECTIONS, ALL WATER LINES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C601 AND ISPWC SECTION 407. WATER SHALL BE FED SLOWLY INTO THE LINES WITH CHLORINE APPLIED IN AMOUNTS TO PRODUCE A DOSAGE OF 50 PARTS PER MILLION. THE SOLUTION SHALL BE HELD IN THE LINES FOR A PERIOD OF 24 HOURS. AT THE BEGINNING OF THE CHLORINATION PROCESS, ALL VALVES AND ACCESSORIES SHALL BE OPERATED AND CHLORINE SOLUTION FLUSHED THROUGH ALL SERVICES. AFTER CHLORINATION THE WATER SHALL BE FLUSHED FROM THE LINES AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER TESTS ARE EQUAL BACTERIALLY TO THE PERMANENT WATER SOURCE.

HORIZONTAL SEPARATION – WATER AND SEWER MAINS SHALL BE SEPARATED BY NO LESS THAN TEN (10) FEET HORIZONTAL DISTANCE, IN ACCORDANCE WITH IDAPA 16.01.880.i.e. IF TEN FOOT SEPARATION CANNOT BE MAINTAINED, MAINS SHALL BE LAID TO SIX (6) FEET MINIMUM HORIZONTAL DISTANCE BETWEEN OUTER WALLS OF PIPES, WITH FOUR (4) INCH THICK CONCRETE ENCASEMENT OF SEWER, OR CONSTRUCTION OF SEWER TO WATER MAIN STANDARDS. THE WATER MAIN SHALL BE EIGHTEEN (18) INCHES MINIMUM ABOVE THE SEWER MAIN.

VERTICAL SEPARATION & CROSSINGS – NORMAL VERTICAL SEPARATION BETWEEN THE NEW WATER LINE AND ANY SEWER LINE SHALL BE EIGHTEEN (18) INCHES. IF VERTICAL SEPARATION IS LESS THAN EIGHTEEN (18) INCHES, OR WHEN IT IS NECESSARY FOR THE WATER LINE TO CROSS UNDER A SEWER LINE, THE WATER LINE OR SEWER LINE SHALL BE ENCASED IN A PVC CASING PIPE WITH TIGHT JOINTS. THE CASING PIPE SHALL EXTEND TO A POINT WHICH IS TEN (10) FEET PERPENDICULAR FROM THE CROSSED PIPE. THE PVC CASING PIPE SHALL MEET THE PRESSURE PIPE SPECIFICATIONS. THE ENDS OF THE CASING PIPE SHALL BE SEALED BY AN APPROVED SEALING METHOD.

REGISTERED PROFESSIONAL ENGINEER 11/22 3998 STATE OF IDAHO CIVIL

ENGINEER'S STAMP

No.	DATE	REVISION	DRN/CHK'D
1	11–17–93	AS BUILT	KTA/EJE

James A. Sewell and Associates
CONSULTING ENGINEERS
NEWPORT, WASHINGTON 99156
(509) 447–3626

SHEET TITLE: PUMPHOUSE PLAN, SECTIONS, DETAILS AND SPECIFICATIONS

PROJECT: SANDPIPER SHORES SUBDIVISION WATER SYSTEM
PRIEST LAKE, IDAHO

DATE: 6–30–93
SCALE: AS SHOWN
DRAWN BY: KTA
CHECKED BY: EJE

SHEET 2 OF 2

APPENDIX E – WATER LEVEL & FLOW DATA

CONTENTS

MOTT MACDONALD

Project:	Priest Lake Water Management Project Thorofare Navigation		
Subject:	Appendix E Water Level & Flow Data	**Date:**	May 11, 2020

1 Available Data

The US Geologic Survey (USGS) collects discharge and water level data at various gages in the Priest River Basin, including Priest Lake and Priest River downstream of the outlet dam. The types of data and length of data records for each gage are summarized in the figure below.

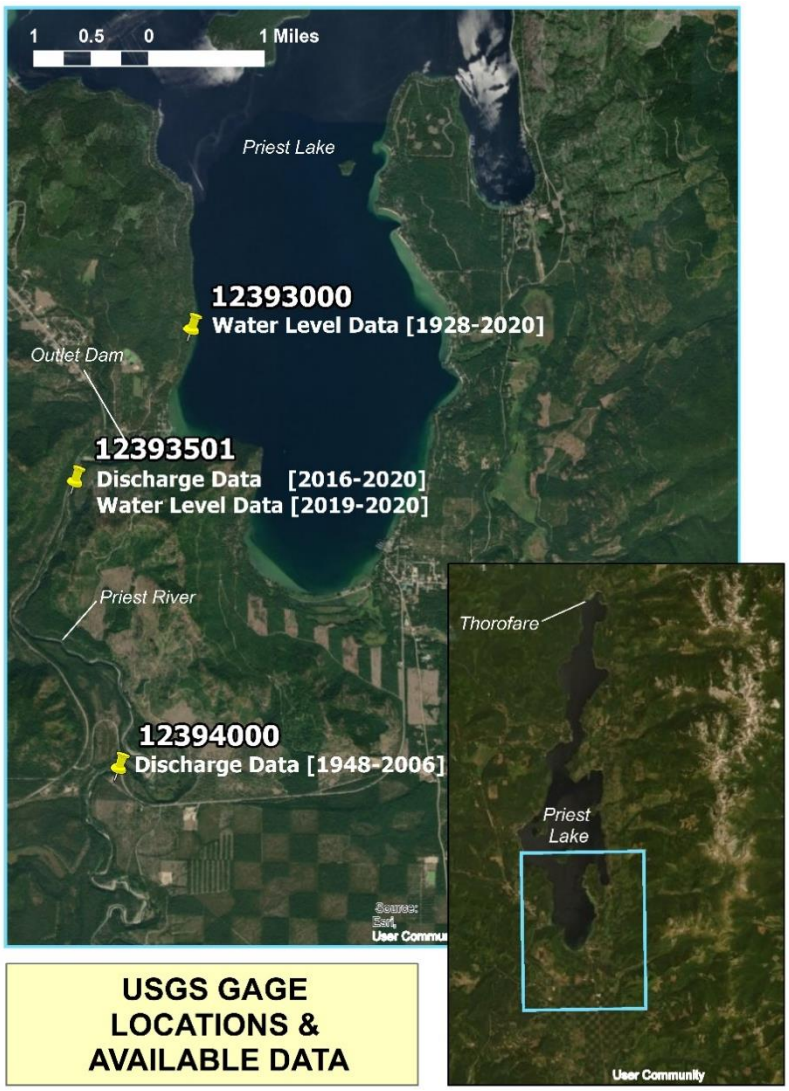


Figure 1. USGS Gages and Data Availability

2 Water Levels

USGS gage #12393000 provides a continuous data record of lake levels in Priest Lake relative to the Lake Datum (the vertical datum shown on Contract Drawings). The figure below summarizes daily statistics for water levels in Priest Lake for the post-dam construction time period (1978-2020). The figure shows the minimum, average, and maximum observed water levels for each day of the year during this time period. Table 1 provides water level statistics for months included in the In-Water Construction Period.

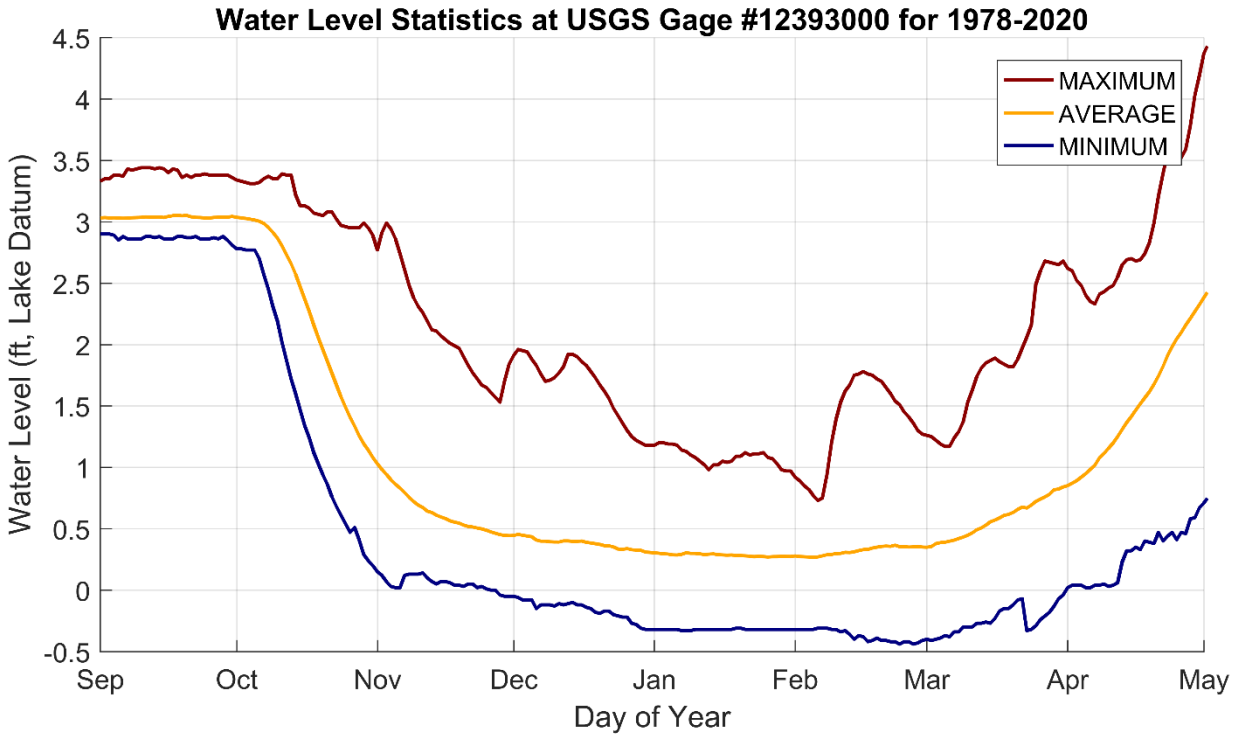


Figure 2. Daily Priest Lake water level statistics.

Table 1. Monthly Priest Lake water level statistics.

	MONTHLY LAKE WL STATISTICS FOR PERIOD 1978-2020 DATA FROM USGS GAGE #12393000 (FT, LAKE DATUM)						
	Nov.	Dec.	Jan.	Feb.	Mar.	Nov-March	
Min. WL	-0.1	-0.3	-0.3	-0.4	-0.4	Min Observed:	-0.4
Avg. WL	0.6	0.4	0.3	0.3	0.6	Avg Observed:	0.4
Max. WL	3.0	2.0	1.2	1.8	2.7	Max Observed:	3.0

3 Thorofare Discharge

- There are no USGS gages that measure discharge through the Thorofare.
- The only dataset available for Thorofare discharge is a combination of measured and modeled Thorofare flow rates for water years 1994-1995 from Idaho DEQ's *Phase 1 Diagnostic Analysis Priest Lake* (1997) and shown in Figure 3.
- Flow through the Thorofare can be estimated as approximately 40% of flow measured at USGS gage #12394000 (Idaho DEQ's Phase 1 Diagnostic Analysis Priest Lake, 1997). The 40% approximation is an estimate based on historical data, and the relationship between flow at the Thorofare and flow at USGS Gage #12304000 can be higher or lower than 40%, depending on recent precipitation and drainage within the Priest River Basin.
    - Priest River flow data at Gage #12394000 is available online at: https://waterdata.usgs.gov/nwis/dv?referred_module=sw&site_no=12394000

Source: Idaho DEQ's Phase 1 Diagnostic Analysis Priest Lake, 1997 and Mott MacDonald

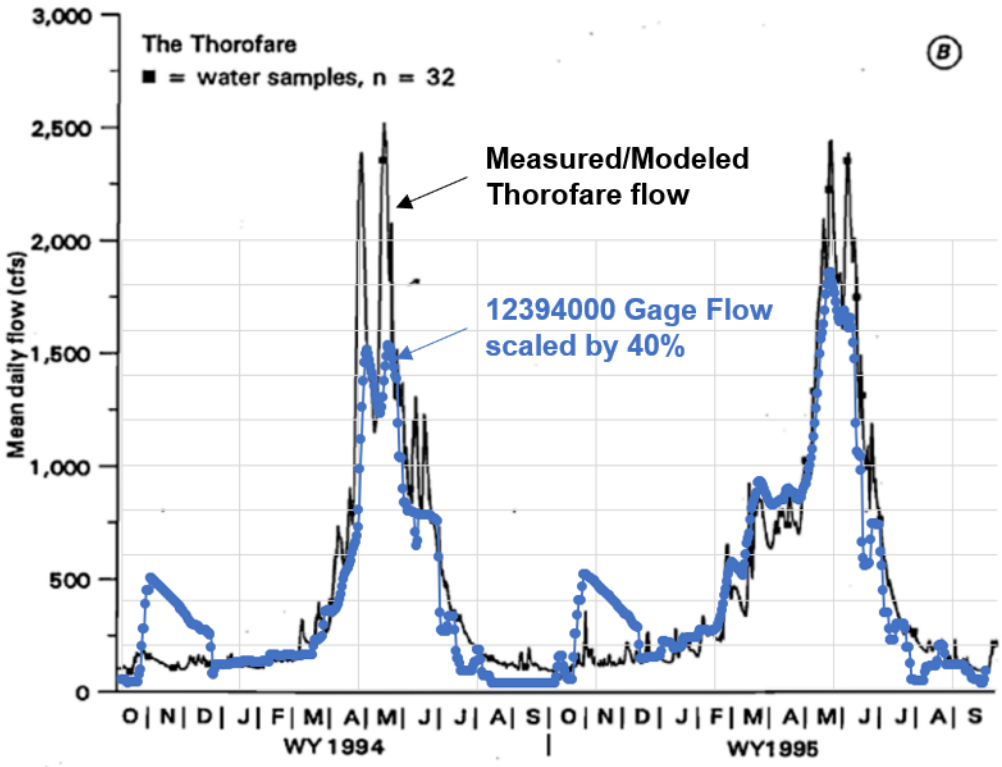


Figure 3. Measured/modeled daily discharge hydrograph for the Thorofare for water years 1994 and 1995. The blue line shows that flow through the Thorofare can be estimated by scaling flow measured at USGS Gage #12394000 by 40%.

- Since there is a longstanding data record at USGS Gage #12394000, the flows measured at this gage can be used as a proxy for flow through the Thorofare, when scaled by approximately 40%.

4 Design Flow Rates During Construction

- The Lake drawdown period is typically started during the first week in October. The duration of lake drawdown varies from year to year; but, historically, flow discharge through the Outlet Dam and lake water levels are regulated through the month of October and typically drawdown is completed by the first to second week in November.
- Based on the USGS data at Gage #12394000 on Priest River, an exceedance curve was developed to estimate the 2-year, 5-year, and 10-year peak flow events at Gage #12394000 (see Figure 5).
- The peak flow events were estimated for two periods of the In-Water Construction Window:
    - November 1st – December 14th – this period is characterized by higher discharge rates due to remnant effects of lake drawdown.
    - December 15th – March 15th – this period is characterized by lower discharge rates.
- Discharge at the Thorofare is estimated to be 40% of that observed at USGS Gage #12394000. Therefore, the following peak flow rates at the Thorofare were estimated for each time period:

Table 2. Estimated Thorofare Peak Flow Rates.

	2-YEAR	5-YEAR	10-YEAR
NOVEMBER 1 TO DECEMBER 14:	614 CFS	820 CFS	965 CFS
DECEMBER 15 TO MARCH 15:	432 CFS	557 CFS	886 CFS

- Note: For construction of the project, IWRB will operate the dam to fully complete the lake drawdown and complete gate regulated flow by October 31, resulting in a “run of the river” flow condition for the Priest Lake system starting on November 1.

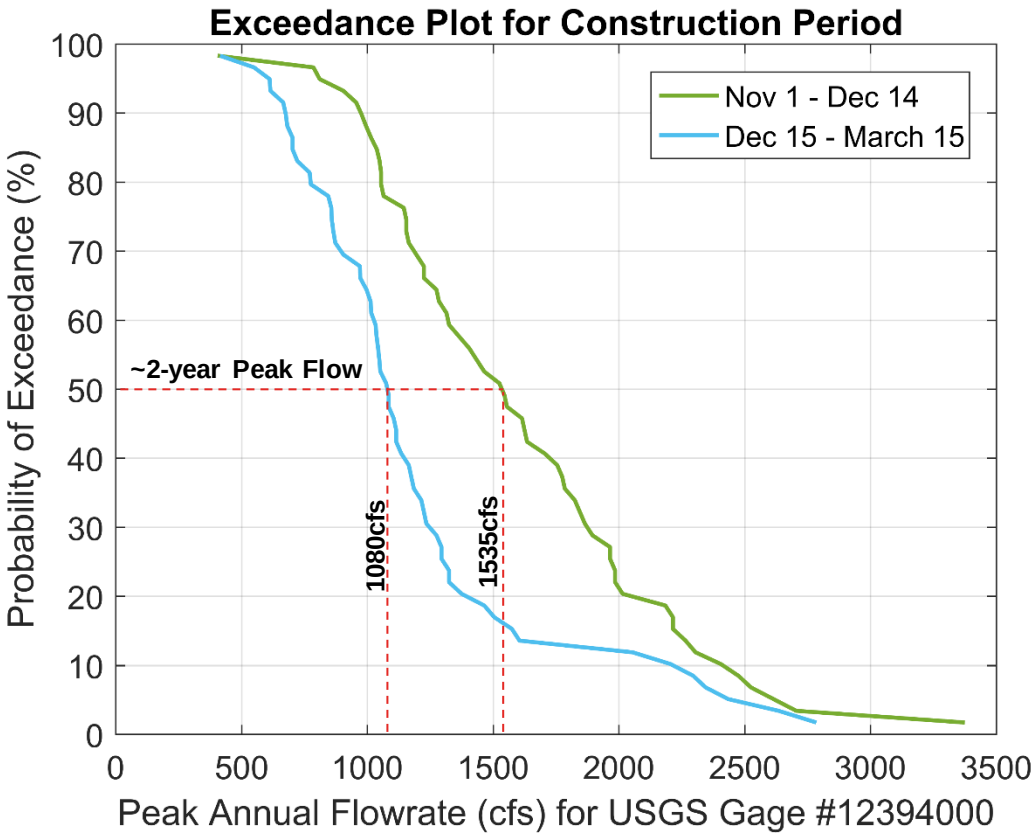


Figure 5. Exceedance Plots for USGS Gage #12394000 for the earlier part of the In-Water Construction Window (Nov 1st – Dec 14th) and the later part of the In-Water Construction Window (Dec 15th – March 15th)[1]. The 2-year discharge rates at Gage #12394000 are shown. The corresponding discharge rates at the Thorofare were estimated based on this data and are shown in Table 2.

[1] Note: values shown have been adjusted to account for daily variation in flow rates (e.g. the possibility that the maximum flow rate may exceed the daily averaged value).