

## Information for File #2011-04739-SEW

**Applicant:** Dakota County, c/o Lynn Thompson

**Corps Contact:** Sarah Wingert, U.S. Army Corps of Engineers, 180 5<sup>th</sup> Street East, Suite 700, St. Paul, Minnesota 55101-1678; [sarah.e.wingert@usace.army.mil](mailto:sarah.e.wingert@usace.army.mil); (651)290-5358

**Primary County:** Dakota and Goodhue Counties

**Location:** Sections 11, 13, and 14, Township 112N., Range 18W.

**Information Complete On:** April 3, 2013

**Posting Expires On:** April 17, 2013

**Authorization Type:** Section 404 Letter of Permission (LOP-5-MN)

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act identified in Regulatory Guidance Letter 07-01. We have made a preliminary determination that the aquatic resources that would be impacted by the proposed project are regulated by the Corps of Engineers under Section 404 of the Clean Water Act. Our jurisdictional review and final jurisdictional determination could result in modifications to the scope of the project's regulated waterbody/wetland impacts and compensatory mitigation requirements identified above.

### PROJECT INVOLVES:

- 1) *A Listed State-Impaired Water:* The project involves work in Lake Byllesby, which is listed on Minnesota's 2010 303(d) List as impaired for aquatic recreation by nutrient/eutrophication biological indicators. The section of the Cannon River, which is adjacent to the project at the Lake Byllesby dam, is on the 2012 draft 303(d) List as impaired for aquatic consumption by PCBs in fish tissue.
- 2) *FEMA 100-Year Floodplain:* The project is partially within the 100-year floodplain of the Canon River/Lake Byllesby; this includes the work within the lake and around the dam.

### PROJECT DESCRIPTION AND PURPOSE:

Dakota County proposes to increase the capacity of the existing dam at Lake Byllesby. The Lake Byllesby dam outlets to the Cannon River and is considered a high-hazard dam due to its location approximately 1.5 miles upstream of the City of Cannon Falls. The purpose of the project is to meet the requirements of the Federal Energy Regulatory Commission (FERC), which requires that high-hazard dams have the capacity to safely pass 100% of the Inflow Design Flood (IDF) over the main section of the dam. The FERC-approved IDF, otherwise known as the Probable Maximum Flood (PMF), at the Lake Byllesby dam has a peak inflow rate

of 80,800 cubic feet per second. Currently, the existing dam can pass about 60,800 cubic feet per second at full operative capacity. To expand the capacity of the dam, Dakota County proposes to construct a new spillway. The new spillway design includes the installation of two 65-foot long, 13-foot tall crest gates with retaining wall structures that would outlet to a constructed bedrock spillway. Backhoe excavation would occur upstream of the proposed crest gates to provide hydraulic conveyance and capacity to the spillway, and downstream of the proposed crest gates to construct the bedrock spillway. Excavated materials would be dewatered in an upland staging area adjacent to the project, and then transported to an upland quarry site owned by Dakota County for temporary storage. The material would be tested and used for fill in future projects, if appropriate.

The project also includes modifications to the existing 1,150-foot perimeter dike, which is located along the northeastern boundary of Lake Byllesby and currently acts as an overflow outlet from the lake during extreme events. The goal of the dike modifications is to prevent the use of the dike as an overflow outlet during high water events and to divert water toward the new spillway, per FERC requirements. The existing dike contains an internal concrete wall and has a 22-foot wide roadway (Gerlach Way) on top of it. Dakota County proposes to construct a raised earthen berm on the east side of the dike; the berm would have a six-foot top width, 2.5:1 east sideslopes, and would be approximately three feet higher than the existing road elevation.

Finally, the project includes removal of the existing fuse plug, which is considered a “high hazard design concern” fuse plug. FERC requires that fuse plug systems at existing dams are evaluated for potential failure concerns, since fuse plug failures can result in large and dangerous water releases. Removal of the fuse plug eliminates concern for failure.

#### NAME, AREA AND TYPES OF WATERS (INCLUDING WETLANDS) SUBJECT TO LOSS:

As proposed, the project would impact a total of 0.97 acre of wetlands adjacent to Lake Byllesby and the Cannon River, and up to 0.89 acre of Lake Byllesby, for a total proposed impact of 1.86 acres to aquatic resources. Specifically, wetland impacts would result from the following:

- 1) Approximately 0.19 acre of a shallow marsh/deep marsh wetland (“Wetland 1”) adjacent to Lake Byllesby would be permanently filled for the construction of the berm east of the Gerlach Way perimeter dike.
- 2) Approximately 0.63 acre of a hardwood swamp wetland (“Wetland 2”) along the south side of the Cannon River and east of existing dam would be permanently impacted for the construction of a bedrock spillway downstream from the gate structures. The area would be cleared and grubbed and excavated to bedrock to create the bedrock spillway. Also, concrete retaining wall and riprap slope protection would be installed partially within this wetland.
- 3) Approximately 0.15 acre of shallow marsh wetland (“Wetland 3”) adjacent to Lake Byllesby would be impacted by excavation upstream of the gate structures for the purpose of increasing lake depth near the gates to improve the hydraulic coefficient of the gates. This area would become part of Lake Byllesby.

Finally, an approximately 450 foot-long temporary cofferdam would be installed in Lake Byllesby prior to the installation of the new crest gates, the removal of concrete bays at the face of the dam, the removal of the fuse plug, and the lake excavation work upstream of the new gate

structures. The cofferdam would either be a 12-foot wide, 12-foot tall sand bag structure built to an elevation of 859.0 feet (affecting approximately 5,415 square feet of the lake bottom), or an earthen structure with a four-foot top and 3:1 side slopes (affecting approximately 17,448 square feet of the lake bottom). The work area within the cofferdam would be dewatered.

Approximately 21,145 square feet (0.48 acre) of the lake bed below the estimated ordinary high water mark (OHWM, approximately 856.7 feet) would be affected by the excavation of approximately 6,939 cubic yards of material, to a lowest depth of 840 feet. Within this excavated footprint, approximately 3,965 square feet of riprap would be placed along the new lakeshore bank below the OHWM. Above the existing OHWM, an additional 12,641 cubic yards of material would be excavated upstream of the gate structures to create the needed hydraulic coefficient to the crest gates. This upland excavation would result in an addition of 39,000 square feet (0.90 acre) to Lake Byllesby. Riprap would extend along the bank of this new area. The cofferdam would be removed after the excavation and riprap work is complete.

The project would be split into three phases, with Phase 1 beginning in spring 2013. Phase 1 would include excavation work in Wetland 2 downstream of the dam to create the bedrock spillway, and would occur in spring and summer 2013. Phase II would occur in summer and fall 2013 and would involve the installation of concrete structures downstream of the existing fuse plug, including abutment walls, wing walls, etc. Phase III would occur in winter 2013/2014 and extend to summer 2014. This phase includes work affecting the lake and Wetland 3, such as cofferdam construction, dewatering, excavation, and riprap work in the lake. The work along the perimeter dike, which affects Wetland 1, would also occur in Phase III. Crest gate installation, fuse plug removal, and site restoration would also occur in Phase III. It is expected that the Phase III work in the lake would occur during lower winter pool levels (approximately 853.7 feet). Thus, a drawdown of Lake Byllesby would not be needed to complete the work in the lake.

#### ALTERNATIVES CONSIDERED:

The applicant considered several alternatives to the project outlined above. The first alternative is the “no-build” alternative, which would involve not building the new spillway and not raising the perimeter dike. This alternative would avoid impacts to wetlands and Lake Byllesby. This alternative was eliminated by the applicant because the applicant is being required by FERC to increase the capacity of the dam to safely pass 100% of the IDF, which would protect the City of Cannon Falls from a possible flood. Failing to raise the perimeter dike would not comply with the FERC requirement to pass 100% of the IDF over the Byllesby dam, since it would result in the dike being overtopped during a large storm event. Also, the event of the dike being overtopped may also result in damage to Gerlach Way and private property adjacent to the lake, such as Cannon Greens Golf Course.

The second alternative considered was to allow the fuse plug to remain in place. This alternative would involve the installation of two crest gate structures that would be smaller than the proposed alternative (45-foot long by 8.5-foot tall). This alternative would reduce wetland impacts as Wetland 3 near the fuse plug could remain undisturbed. This alternative was rejected because allowing the fuse plug to remain in place would not comply with FERC safety standards, and the possible premature failure of the fuse plug is a hazard to downstream river recreationalists, bridges, and properties.

A third alternative involved eliminating the use of the temporary coffer dam in the lake, which would require a lake drawdown to complete the work in the lake. This alternative was

rejected because it would involve modifying existing permits with the Minnesota Department of Natural Resources, and lowering the lake levels may disturb neighboring residents' use of the lake. Instead, the proposed lake work was planned to occur during winter pool levels, which are already drawn down three feet below normal pool levels per standard lake operations.

A fourth alternative considered was the installation of a sheet pile wall between Wetland 1 and Gerlach Way instead of the proposed earthen berm. This alternative would require an approximately 300-foot long, 40-foot tall (partially embedded) sheet pile wall, and would reduce or eliminate wetland fill impacts. This alternative was eliminated by the applicant for multiple reasons: 1) the cost of the 300-foot long sheet pile wall is over six times the expense of the earthen berm, and would be close to the high cost line item for the project, 2) the proximity of the sheet pile to the roadway would create a safety risk for vehicular traffic, and 3) the sheet pile wall may cut off the existing seepage between the lake and the wetland on either side of Gerlach Way.

Finally, a fifth alternative was considered to raise the elevation of the entire road (Gerlach Way) along the top of the perimeter dike. This alternative would not reduce the proposed wetland impacts. The applicant rejected this alternative due to a substantially greater cost compared to the proposed alternative.

COMPENSATORY MITIGATION: The applicant proposes to compensate for 0.97 acre of unavoidable adverse wetland impacts occurring in major watershed 39 (Cannon River watershed), Bank Service Area 8 by purchasing 1.94 acres of wetland credits through the Minnesota Wetland Bank, Account 1144 (Bachman bank site), which is located in major watershed 38 (Mississippi River-Lake Pepin watershed), Bank Service Area 8.

DRAWINGS: See attached.

2011-04739-SEW, Figure 1 of 10:  
Wetland and Lake Impact Locations

**Concerns for Water/Wetland Application and Permitting:**

**Impact #1.** Construction of a raised embankment located on the existing perimeter dike which will travel through an existing wetland. This wetland has been investigated by *Anderson Engineering*, and the report has been submitted with this application.

**Impact #2.** Construction of a new spillway requires the disturbance of existing wetlands. These wetland areas have been investigated by *McGhie and Betts Environmental Services*, and the report has been submitted with this application.

**Impact #3.** Construction of a new spillway will require excavation/dredging of materials within the existing lake upstream of the current fuse plug and future crest gate locations. A plan to mitigate the removals of this material will be included with this application.

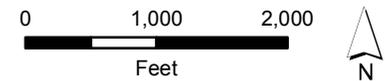


Construction will not effect lake level beyond normal DNR operating agreement - NO DRAWDOWN

No additional flow downstream during construction

Impact #3 - All spoils from upstream grading area in wet condition will be drained and mitigated on-site

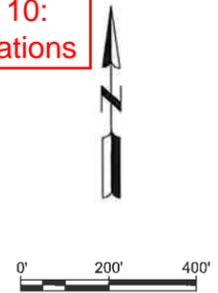
Site Locator Map - Byllesby Dam - Dakota County



2011-04739-SEW, Figure 2 of 10:  
Wetland and Lake Impact Locations

**AVRES ASSOCIATES**  
3433 OAKWOOD HILLS PARKWAY  
EAU CLAIRE, WISCONSIN 54701  
715.834.3161

PROJ. NO. 2011-04739-SEW  
DATE FEB 11 2013  
LCS: ELS: 429



- NOTES:**
- COUNTY QUARRY SITE MAY BE USED AS PERMANENT STOCKPILE LOCATION FOR CLEAN CONCRETE (NO REBAR), EARTH, AND ROCK FRAGMENTS
  - QUARRY MATERIALS CAN BE USED AS BORROW SITE IF MATERIALS MEET SPEC.
  - CONTRACTOR TO SUBMIT EROSION CONTROL AND STAGING PLAN FOR QUARRY.
  - MAXIMUM FILL HEIGHT IS LIMITED PER SPECIFICATIONS.
  - EARTH, CONCRETE & ROCK FRAGMENTS MUST BE IN SEPARATE STOCKPILES WITHIN QUARRY.
  - WITHIN QUARRY, TREES MAY BE CUT, PILES MAY BE MOVED, AND CONTOURS MAY BE BULLDOZED AS NEEDED FOR CONTRACTOR ACCESS.

These documents shall not be used for any purpose or project for which it is not intended. Avres Associates shall be held harmless by the client and third parties from all claims, damages, losses, costs, and expenses, including attorney fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or in whole, is prohibited.

DAKOTA COUNTY  
BYLLESBY DAM HYDROELECTRIC PROJECT  
SPILLWAY CAPACITY UPGRADE  
CANNON FALLS, MN

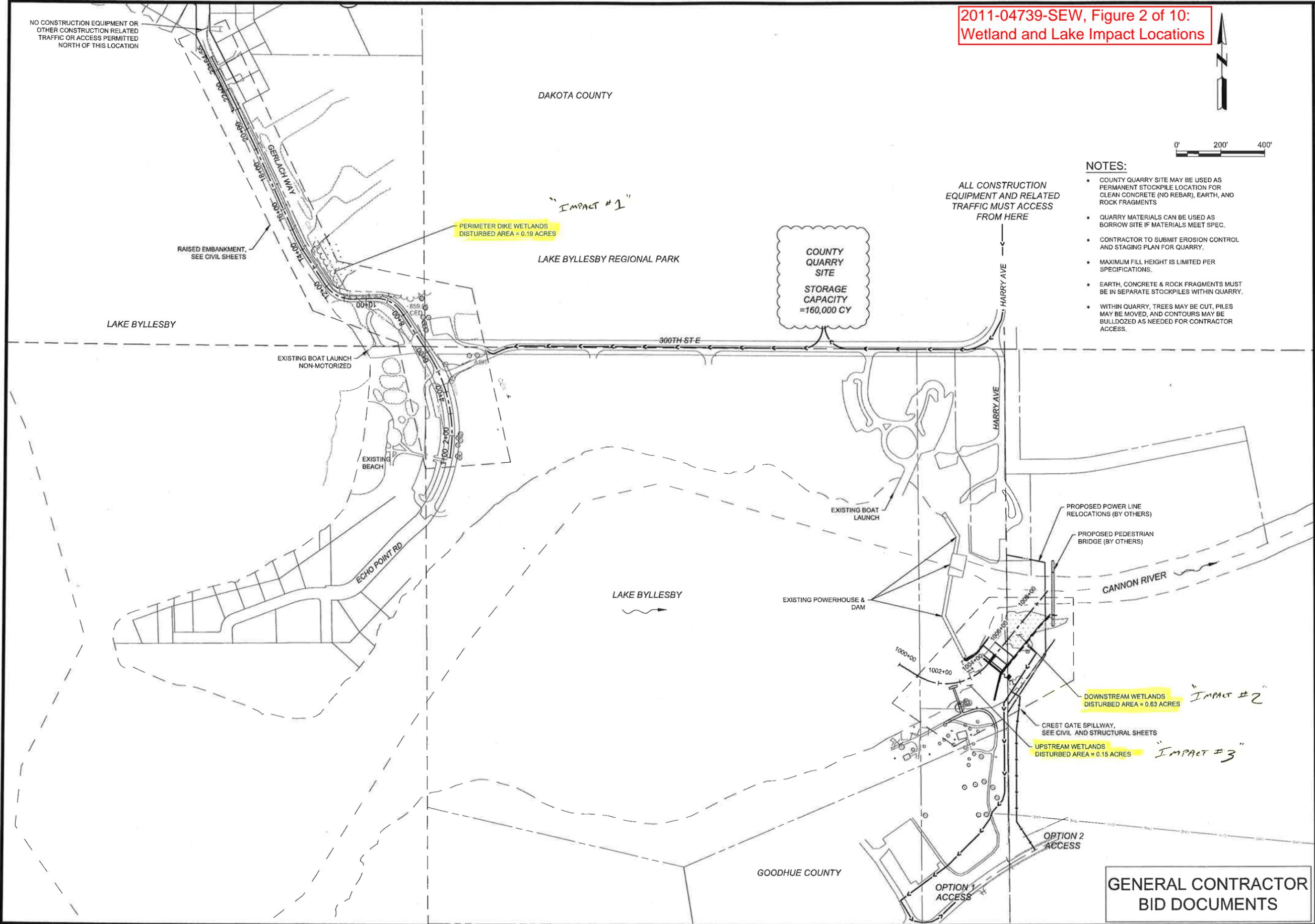
REVISION


FERC NO P-6299  
AYRES NO 26-0699.00  
DATE FEBRUARY 11, 2013  
DESIGNED BY PEH  
DRAWN BY AJS  
CHECKED BY JRB / TMR

DO NOT SCALE DRAWINGS

SHEET CONTENTS  
PROJECT SITE  
OVERVIEW

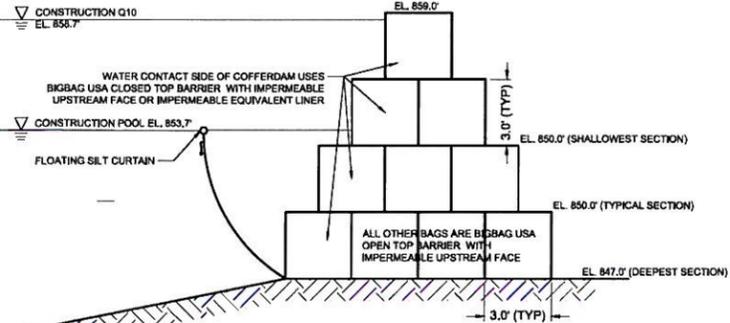
SHEET NO  
**G-004**



**GENERAL CONTRACTOR  
BID DOCUMENTS**

2:00PM 04/10/13 - LAKE BYLLESBY SPILLWAY CAPACITY UPGRADE PROJECT SITE OVERVIEW DWS  
 2/7/2013 4:11:13 PM

USE BIGBAG USA SYSTEM OR APPROVED EQUAL CAPACITY COFFERDAM SYSTEM  
(ALTERNATIVES MUST BE SUBMITTED WITH P.E. STAMP AND DESIGN COMPUTATIONS)



1 TYPICAL COFFERDAM SECTION  
1/4" = 1'

COFFER DAM ALIGNMENT				
NUMBER	LENGTH	RADIUS	LINE / CHORD DIRECTION	CHORD LENGTH
L1	137.23'		N11° 36' 31.30"W	
L2	166.51'		N56° 38' 55.25"E	
L3	167.39'		N46° 23' 45.83"E	

ALTERNATIVE ALIGNMENTS ARE ACCEPTABLE IF PROTECT WORK AREA

REMOVALS OF CONCRETE BAYS AT FKE OF DAM.

- NOTE:
- TEMPORARY DRAW DOWN FOR COFFER DAM CONSTRUCTION = EL. 853.70 DURING WINTER POOL (OCT 1 TO MAY 15)
  - Q10 DURING CONSTRUCTION ELEV. 858.70

**AVRES ASSOCIATES**  
3433 OAKWOOD HILLS PARKWAY  
EAU CLAIRE, WISCONSIN 54701  
715.834.3161

THIS REPORT, SPECIFICATIONS, AND DRAWINGS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NAME: SPILLWAY DAM HYDROELECTRIC PROJECT  
DRAWN BY: AJS  
CHECKED BY: JRB/TMR  
DATE: FEB 11 2013

2011-04739-SEW, Figure 3 of 10:  
Proposed Work in Lake Byllesby

These documents shall not be used for any purpose or project for which it is not intended. Avres Associates shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or abuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

PROPOSED WING WALL OUTSIDE OF PUBLIC WATERS IMPACTS (EXISTING PUBLIC WATERS)

TOTAL CUT VOLUME DIFF. @ EXS. NORMAL POOL = 6,939 CY

TOTAL CUT VOLUME = 19,581 CY

**COFFERDAM:**

TOTAL VOLUME OF BIG BAG SYSTEM = 1,294 CY

TOTAL VOLUME OF EARTHEN COFFERDAM W 3:1 SIDE SLOPES & 4' TOP = 6,521 CY

20130213 10:17 AM

DAKOTA COUNTY  
BYLLESBY DAM HYDROELECTRIC PROJECT  
SPILLWAY DAM CAPACITY UPGRADE  
CANNON FALLS, MN

REVISION


PERC NO: P-6299  
AYRES NO: 26-0699 00  
DATE: FEBRUARY 11, 2013  
DESIGNED BY: PEH  
DRAWN BY: AJS  
CHECKED BY: JRB/TMR

DO NOT SCALE DRAWINGS

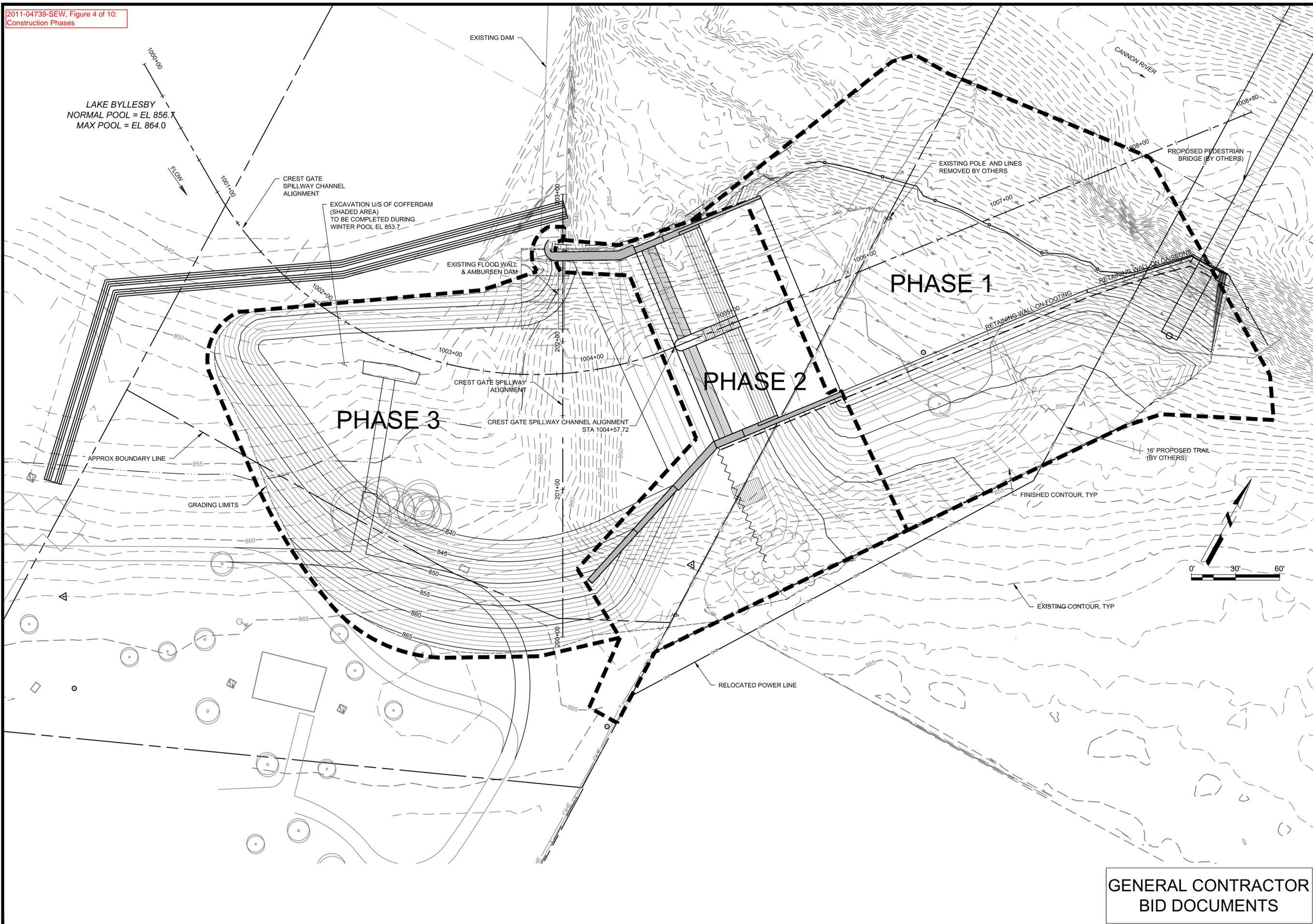
SHEET CONTENTS  
COFFER DAM PLAN & SECTION

SHEET NO

GENERAL CONTRACTOR  
BID DOCUMENTS

C-301





I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: PETER EDWARD HAUG  
SIGNATURE: *[Signature]*  
DATE: FEB 11, 2013 LICENSE #: 4809

These documents shall not be used for any purpose or project for which it is not intended. Ayres Associates shall be indemnified by the client and hold harmless from all claims, damages, liabilities, losses, and expenses, including attorneys' fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

DAKOTA COUNTY  
 BYLLESBY DAM HYDROELECTRIC PROJECT  
 SPILLWAY CAPACITY UPGRADE  
 CANNON FALLS, MN

REVISION

FERC NO.: P-6299  
 AYRES NO.: 26-0699.00  
 DATE: FEBRUARY 11, 2013  
 DESIGNED BY: PEH  
 DRAWN BY: AJS  
 CHECKED BY: JRB / TMR

DO NOT SCALE DRAWINGS  
SHEET CONTENTS  
CONSTRUCTION SEQUENCING

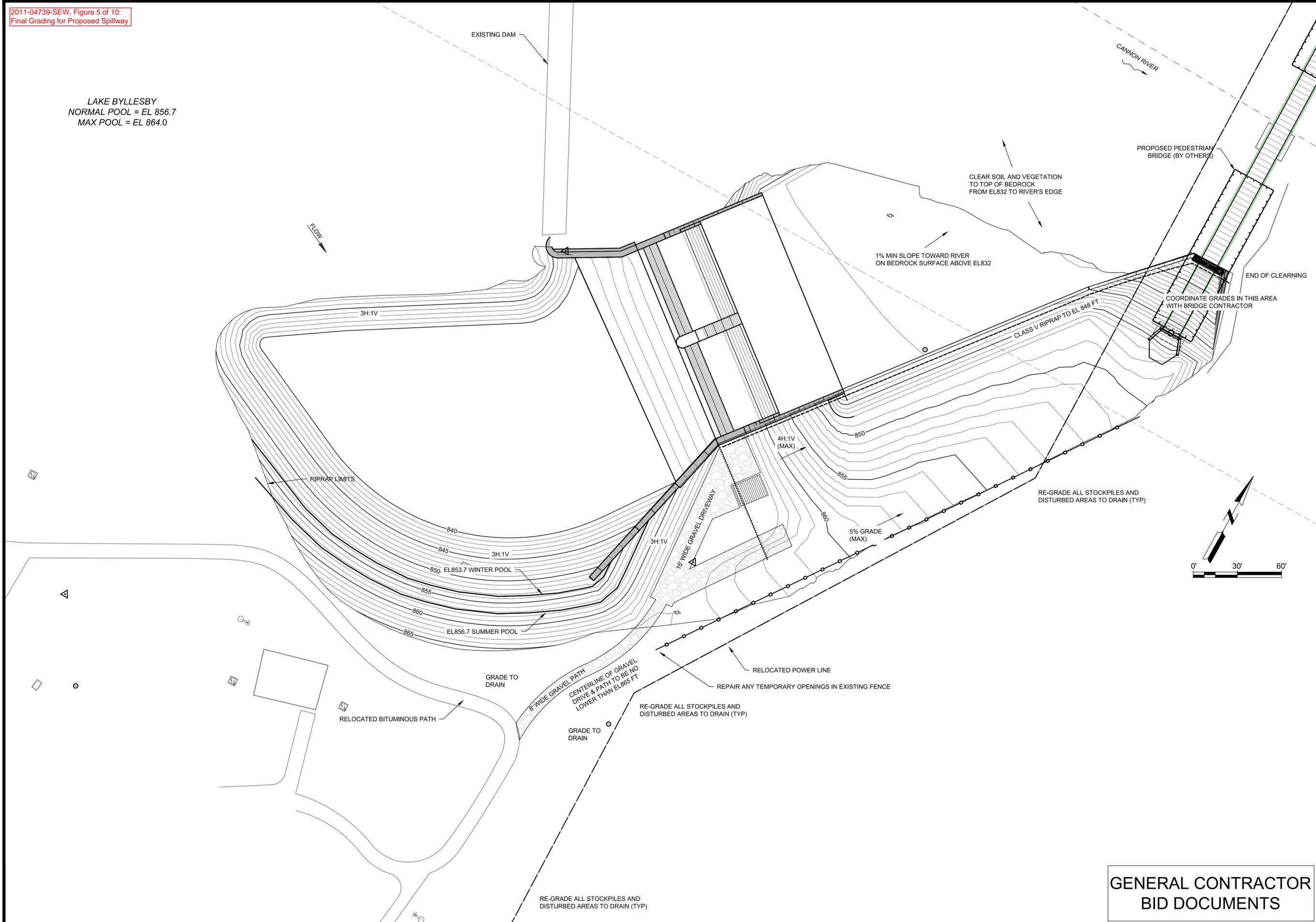
SHEET NO.

**GENERAL CONTRACTOR  
BID DOCUMENTS**

**G-005**

Z:\040426-0096\00 - LAKE BYLLESBY\LAKE BYLLESBY SPILLWAY\CONSTRUCTION SEQUENCING.DWG 2/7/2013 4:53:06 PM

LAKE BYLLESBY  
NORMAL POOL = EL 856.7  
MAX POOL = EL 864.0



These documents shall not be used for any purpose or project for which it is not intended. Ayres Associates shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.

DAKOTA COUNTY  
BYLLESBY DAM HYDROELECTRIC PROJECT  
SPILLWAY CAPACITY UPGRADE  
CANNON FALLS, MN

REVISION

FERC NO.: P-6299  
AYRES NO.: 26-0699.00  
DATE: FEBRUARY 11, 2013  
DESIGNED BY: PEH  
DRAWN BY: AJS  
CHECKED BY: JRB / TMR

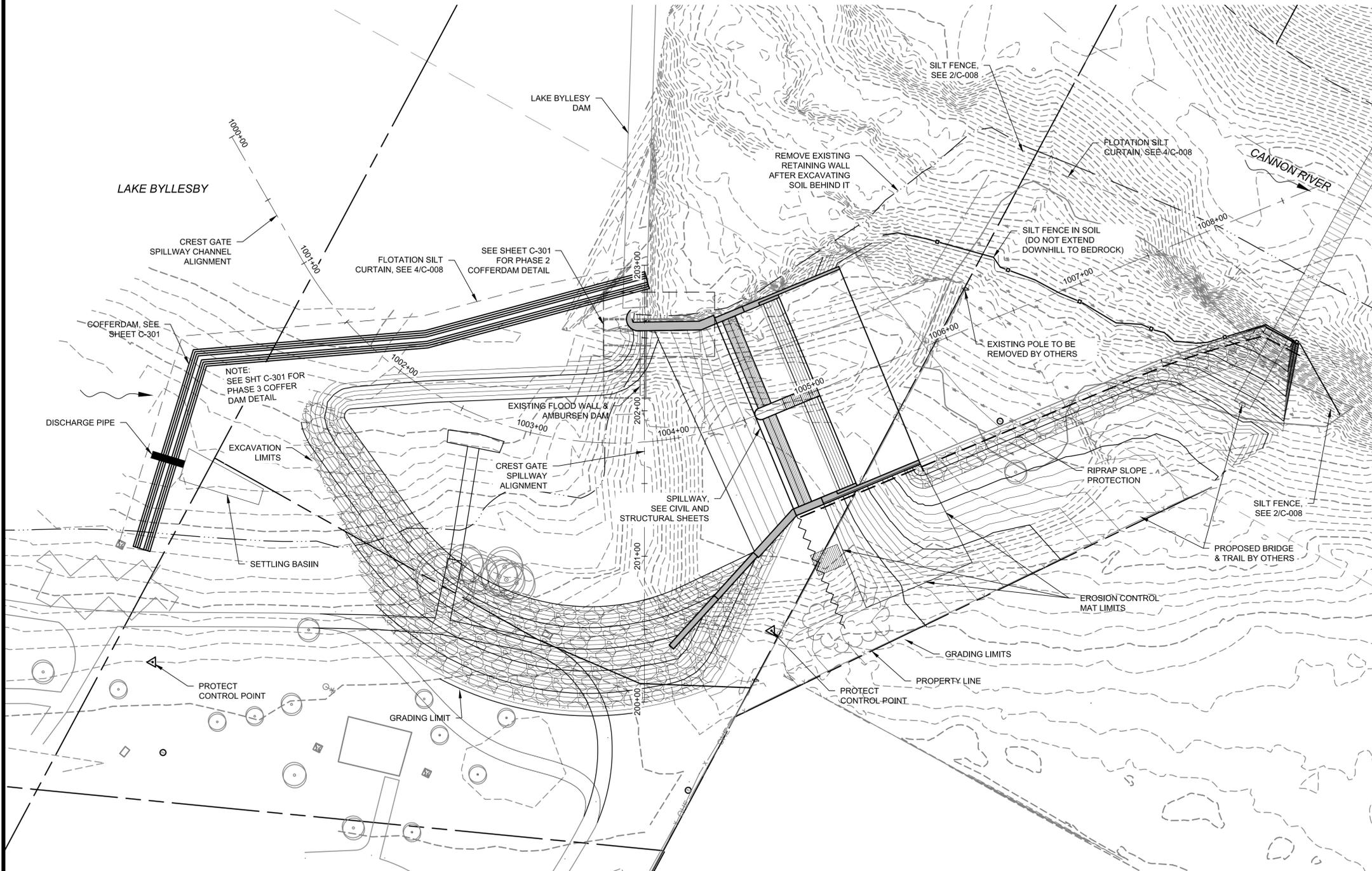
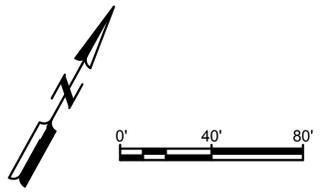
DO NOT SCALE DRAWINGS

SHEET CONTENTS  
FINAL GRADING PLAN

SHEET NO.

GENERAL CONTRACTOR  
BID DOCUMENTS

G-008



**EROSION & SEDIMENT CONTROL NOTES:**

1. THE OWNER AND CONTRACTOR SHALL ALLOW REGULATORY AGENCIES TO CONDUCT ONSITE INSPECTIONS.
2. THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), MUST BE MADE AVAILABLE UPON REQUEST DURING AN ONSITE INSPECTION.
3. EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) DEVICES SHALL BE INSTALLED AND FUNCTIONING PRIOR TO BEGINNING CONSTRUCTION. THE TERM CONSTRUCTION REFERS TO ANY REGULATED EARTH DISTURBING ACTIVITY INCLUDING DEMOLITION.
4. ALL EPSC DEVICES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) DAYS UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED.
5. SOIL DISTURBANCE SHOULD BE LIMITED TO AREAS BEING ACTIVELY WORKED.
6. ALL EPSC DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO PREVENT EROSION AND/OR CONTROL OFFSITE SEDIMENTATION.
7. TO SECURE THE PROJECT SITE, LOCATE LIMITS OF CONSTRUCTION, PROTECT AREAS THAT ARE TO REMAIN UNDISTURBED, AND PREVENT MIGRATION OF CONSTRUCTION DEBRIS. ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND AREAS NOT REQUIRING SILT FENCING. ANY ACCUMULATION OF CONSTRUCTION DEBRIS ON PUBLIC ROADWAYS OR ADJACENT PROPERTIES SHALL BE REMOVED WITHIN 24 HOURS. CARE SHALL BE TAKEN WHEN INSTALLING CONSTRUCTION FENCING TO NOT OBSCURE ONCOMING TRAFFIC AT INTERSECTIONS, ADJACENT TO DRIVEWAYS AND THE PROJECT CONSTRUCTION ENTRANCE.
8. DURING THE COURSE OF CONSTRUCTION ACTIVITIES, EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE USED TO PREVENT SEDIMENT ACCUMULATION ON PUBLIC ROADWAYS (INCLUDING STREET GUTTERS), SEDIMENT LADEN RUNOFF ENTERING INTO EXISTING STORMWATER SYSTEM INLETS, REGULATED WATERS OR DEPOSITING ON ADJACENT PROPERTIES, AND AIRBORNE DUST MIGRATION OFF-SITE. ANY ACCUMULATION OF SEDIMENT FROM THE PROJECT SITE ON PUBLIC ROADWAYS OR ADJACENT PROPERTIES SHALL BE REMOVED WITHIN 24 HOURS BY PROPER METHODS.
9. ALL NEW AND EXISTING STORMWATER STRUCTURES, AFFECTED BY THIS PROJECT, SHALL BE INSPECTED AND MAINTAINED FREE OF ACCUMULATED DEBRIS AND SEDIMENT.
10. DISPOSAL OF ALL RECOVERED SEDIMENT AND DEBRIS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CITY, STATE AND FEDERAL REGULATIONS.
11. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED AND MAINTAINED ON THE PROJECT SITE. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PUBLIC ROADWAYS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, BY SWEEPING OR VACUUMING, AS MAY BE REQUIRED.
12. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING CONSTRUCTION.
13. SILT FENCES SHALL BE CLEANED OR REPLACED WHEN SEDIMENT REACHES 1/3 HEIGHT OF THE FENCE OR WHEN THE SILT FENCE BECOMES INEFFECTIVE, WHICHEVER COMES FIRST.
14. TEMPORARY DIVERSION BERMS AND/OR DITCHES SHALL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT AREAS FROM RUNOFF AND/OR TO DIVERT SEDIMENT LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
15. THE CONTRACTOR SHALL CONTROL DUST AS NECESSARY USING DUST CONTROL BMPs INCLUDING PROJECT PHASING, VEGETATIVE COVER, MULCH, SPRINKLING WATER, BARRIERS AND/OR COVERS.
16. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORMWATER DISCHARGES.
17. THE SITE SHALL BE CONSIDERED PERMANENTLY STABILIZED WHEN ALL SURFACE DISTURBING ACTIVITIES ARE COMPLETE AND EITHER OF THE TWO FOLLOWING CRITERIA ARE MET:  
[A.] A UNIFORM (E.G., EVENLY DISTRIBUTED, WITHOUT LARGE BARE AREAS) PERENNIAL VEGETATIVE COVER WITH A DENSITY OF AT LEAST 70% OF THE NATIVE BACKGROUND VEGETATIVE COVER FOR THE AREA HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS NOT COVERED BY PERMANENT STRUCTURES, OR  
[B.] EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS MULCH, RIPRAP, GABIONS OR GEOTEXTILES AS APPROPRIATE) HAVE BEEN EMPLOYED.

**DAKOTA COUNTY**  
**BYLLESBY DAM HYDROELECTRIC PROJECT**  
**SPILLWAY DAM CAPACITY UPGRADE**  
 CANNON FALLS, MN

REVISION


FERC NO.: P-6299  
 AYRES NO.: 26-0699.00  
 DATE: FEBRUARY 11, 2013  
 DESIGNED BY: PEH  
 DRAWN BY: AJS  
 CHECKED BY: JRB / TMR  
 DO NOT SCALE DRAWINGS

SHEET CONTENTS  
 EROSION & SEDIMENT CONTROL PLAN  
 SPILLWAY

SHEET NO.

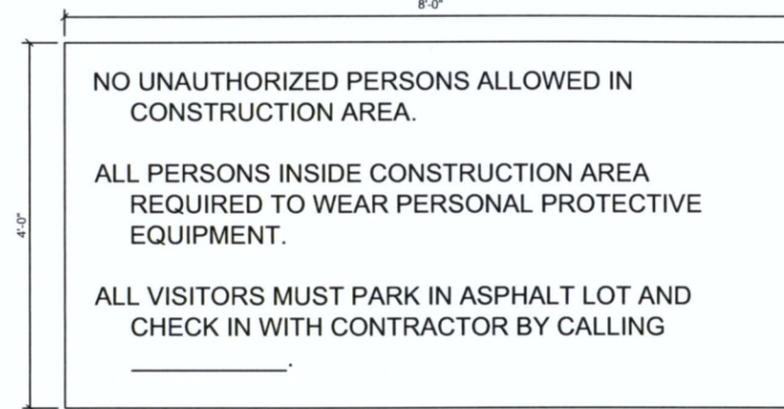
**GENERAL CONTRACTOR  
 BID DOCUMENTS**

**C-007**

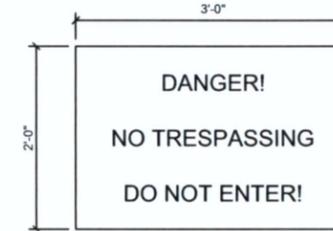
DETAIL: SIGN A



DETAIL: SIGN B



DETAIL: SIGN C



**NOTES:**

- CONTRACTOR TO RESTORE PARKING LOT, ASPHALT PATH, TURF, AND FENCES AT COMPLETION OF PROJECT.
- CONTRACTOR TO LOCK GATE NIGHTLY.

These documents shall not be used for any purpose or project for which it is not intended. Ayres Associates shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.



DAKOTA COUNTY  
BYLLESBY DAM HYDROELECTRIC PROJECT  
SPILLWAY CAPACITY UPGRADE  
CANNON FALLS, MN

REVISION


FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

FERC NO. P-6299  
AYRES NO. 26-0699.00  
DATE: DEC. 13, 2012  
DESIGNED BY: PEH  
DRAWN BY: AJS  
CHECKED BY: JRB / TMR

DO NOT SCALE DRAWINGS  
SHEET CONTENTS  
CONSTRUCTION  
ACCESS - OPTION 2

SHEET NO.

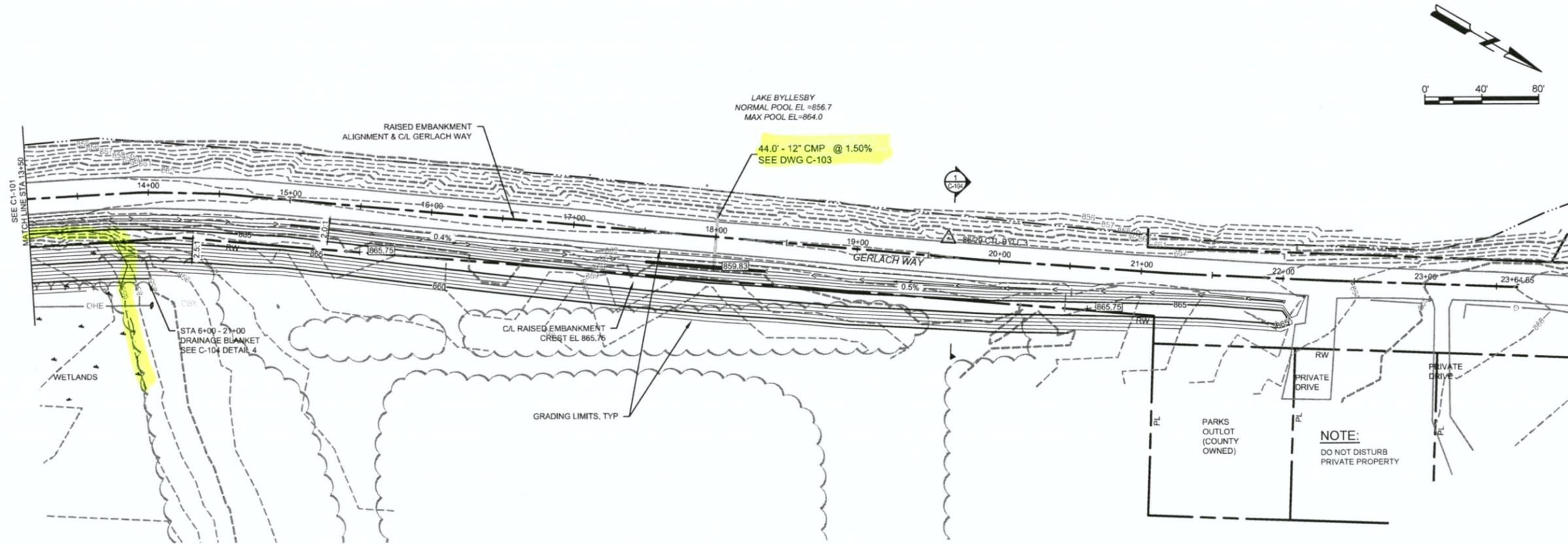
FERC REVIEW COPY

C-001



2011-04739-SEW, Figure 9 of 10:  
Wetland Impacts at Perimeter Dike

These documents shall not be used for any purpose or project for which it is not intended. Ayres Associates shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or as a whole, is prohibited.



DAKOTA COUNTY  
BYLLESBY DAM HYDROELECTRIC PROJECT  
SPILLWAY CAPACITY UPGRADE  
CANNON FALLS, MN

REVISION

FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

FERC NO: P-6299  
AYRES NO: 26-0699.00  
DATE: DEC. 13, 2012  
DESIGNED BY: PEH  
DRAWN BY: AJS  
CHECKED BY: JRB / TMR

DO NOT SCALE DRAWINGS  
SHEET CONTENTS  
RAISED EMBANKMENT  
GRADING PLAN

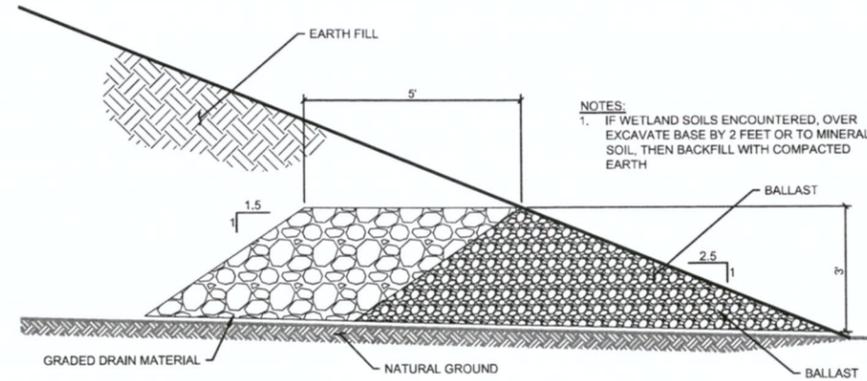
SHEET NO.

FERC REVIEW COPY

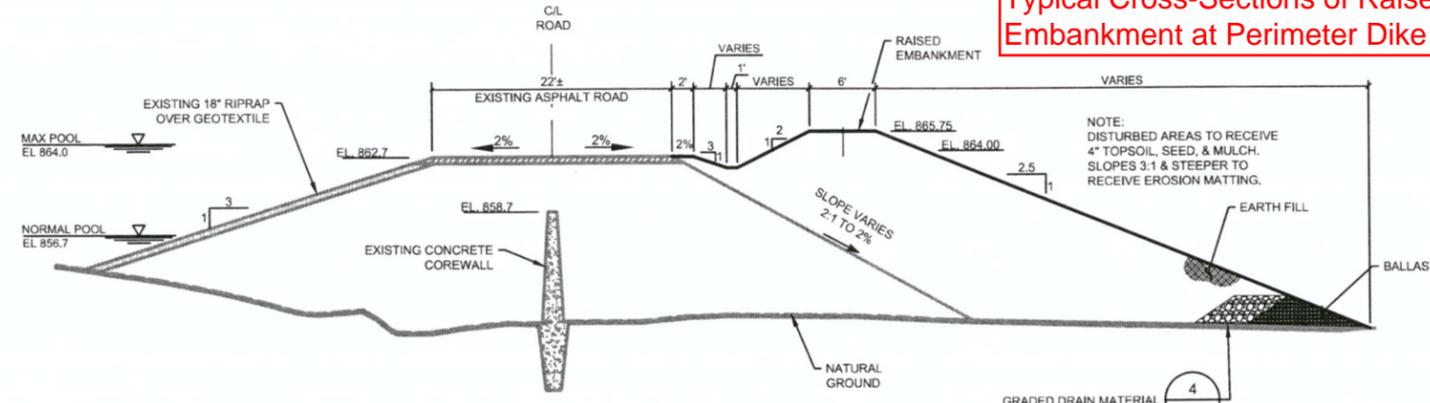
C-102

2011-04739-SEW, Figure 10 of 10:  
 Typical Cross-Sections of Raised  
 Embankment at Perimeter Dike

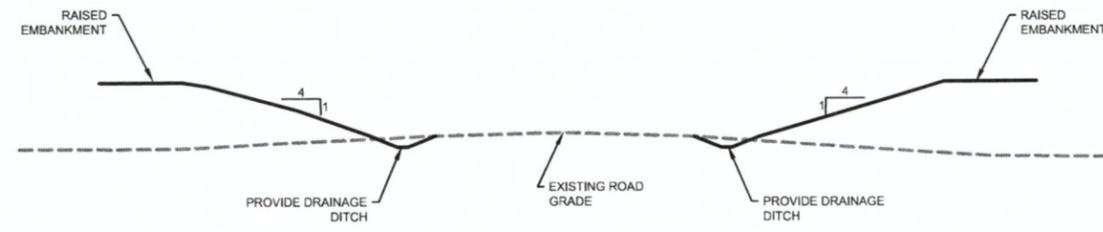
**AYRES ASSOCIATES**  
 3433 OAKWOOD HILLS PARKWAY  
 EAU CLAIRE, WISCONSIN 54701  
 715.834.3161



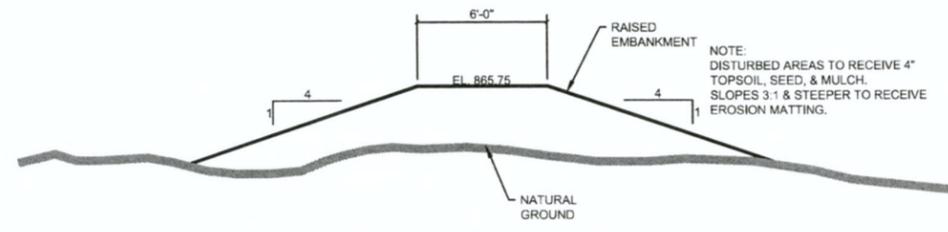
4 DRAINAGE BLANKET  
 0 1' 2' 4'



1 PERIMETER DAM TYPICAL SECTION FOR RAISING EMBANKMENT  
 0 4' 8' 16'



2 SOUTH RAISED EMBANKMENT @ 300TH ST E  
 0 4' 8' 16'



3 TYPICAL SECTION FOR RAISING GROUND SOUTH OF PERIMETER DAM  
 0 4' 8' 16'

These documents shall not be used for any purpose or project for which it is not intended. Ayres Associates shall be indemnified by the client and held harmless from all claims, damages, liabilities, losses, and expenses, including attorney's fees and costs, arising out of such misuse or reuse of the documents. In addition, unauthorized reproduction of these documents, in part or in whole, is prohibited.

DAKOTA COUNTY  
 BYLLESBY DAM HYDROELECTRIC PROJECT  
 SPILLWAY CAPACITY UPGRADE  
 CANNON FALLS, MN

REVISION

FOR REVIEW ONLY  
 NOT FOR CONSTRUCTION

FERC NO. P-6299  
 AYRES NO. 26-0699  
 DATE DEC. 13, 2012  
 DESIGNED BY JRB/TMR  
 DRAWN BY  
 CHECKED BY

RAISED EMBANKMENT  
 TYPICAL SECTIONS  
 SHEET CONTENTS

SHEET NO. C-104

FERC REVIEW COPY

Z:\DONOR\0960\00 - LANE BYLLESBY\LANE BYLLESBY SPILLWAY RAISED EMBANKMENT TYPICAL SECTIONS.DWG  
 12/13/2012 8:12:21 AM