

Ausable Freshwater Center

**Request for Proposals – Construction Services:
John Bliss Road Culvert Replacement
Town of Wilmington, Ausable River Watershed**

Released February 20, 2026

Responses due March 13, 2026

Construction slated for Summer 2026

Project funding provided by:

U.S. Fish and Wildlife Service
and
U.S. Environmental Protection Agency through NEIWPC in partnership with Lake
Champlain Basin Program

1. Overview

Our objective is to replace the existing culvert at the crossing of John Bliss Road over Pettigrew Brook in the Town of Wilmington (Lat: 44.422104°N, Long: 73.793137°W). The culvert is severely undersized and in poor condition. Our proposed project utilizes a culvert design developed by North Woods Engineering, PLLC (NWE) to replace the existing pipe with an aluminum plate arch, open-bottom culvert. The culvert will be installed on a foundation designed by Koontz Bryant Johnson Williams, Inc. (KBJW) The new structure will improve flood resilience for the Town of Wilmington and improve fish passage into an additional ¾ mile of high-quality habitat on Pettigrew Brook.

2. Project Description

Construction Summary:

With grant funds from the US Fish and Wildlife Service (USFWS) and the US Environmental Protection Agency under agreement with NEIWPC in partnership with the Lake Champlain Basin Program (LCBP), the site will be constructed in summer 2026. The contractor will follow plan sets (attached) by NWE and KBJW to construct the new culvert and its foundation with oversight by Ausable Freshwater Center (AFC) and USFWS staff. AFC will purchase the aluminum plate arch culvert, which will be delivered to the site during construction. The Town of Wilmington Highway Department is prepared to support the project by hauling materials, making department staff available during construction, and re-paving the road where the culvert will be replaced.

3. Project Roles

AFC serves as project manager coordinating planning, construction, budgets, and permitting. AFC's stream restoration staff will oversee installation of the new culvert under supervision of the USFWS. The hired contractor will remove the existing culvert and construct the new culvert and streambed per NWE, KBJW, AFC, and USFWS design specifications.

4. Scope of Work

Objective: Following the engineered plan sets, the construction contractor will secure the stream, remove the existing culvert, and excavate as needed to pour footers (or place pre-cast footers) and stem walls. Aluminum plate arch will be bolted, grouted, backfilled and tamped to manufacturer specifications at engineered road base height. If necessary, upstream and downstream grade controls for the new channel will be installed per the specifications of AFC to maintain the design slope of the streambed.

Work required includes:

- Contractor will assist in pre-construction planning, working with AFC, USFWS, and the Town of Wilmington to prepare the site for construction and stage materials. John Bliss Road will be closed for the duration of the project.
- Contractor will install necessary dewatering and will work with AFC and USFWS to properly secure stream to minimize risk of harm to aquatic resources.
- Contractor will remove existing culverts and road material. Material disposal will likely be coordinated with Town of Wilmington Highway Department.
- Contractor will coordinate with the Town of Wilmington Highway Department on hauling services and staffing during construction activities.
- Contractor will excavate as needed to pour footers and stem walls.
- Contractor will work with AFC/USFWS to set in-stream grade controls (if necessary) and to reconstruct streambed through the new crossing.
- Contractor will construct new culvert per design specifications. AFC will purchase the aluminum plate arch structure and arrange its delivery to the construction site.
- Contractor will regrade site access areas and prepare roadway for re-paving by the Town of Wilmington Highway Department.
- Contractor will perform all site stabilization and remove temporary controls.
- Contractor will prioritize, to the degree possible, the safety and water quality of the stream, its bed, banks and adjacent habitat, and its aquatic wildlife, consulting with AFC, USFWS, and permit authorities when necessary.
- See Appendix A for more guidance on construction.

5. Submittal Content – Qualifications

Respondents/Contractor shall submit information that addresses the following. Please answer each point fully but brevity is appreciated.

- i. Respondent's legal structure, areas of expertise, length of time in business, description of insurance, number of employees and contact information for the person authorized to contractually obligate the Respondent.
- ii. A lump sum cost estimate for services and materials to complete the project as outlined in Appendix A.
- iii. Staffing Plan. Respondent's capacity to provide services in the required timeframe, and key personnel to provide services and the proposed staffing plan.
- iv. Identify any Subconsultants, including a summary of their experience and technical skills.
- v. Contractor shall describe relevant experience with constructing culverts for aquatic organism passage - preferably projects overseen or designed by the USFWS, AFC, or similar organizations.

- vi. Contractor shall indicate whether they have experience with and capacity to do precision stone placement work efficiently.
- vii. Contractor shall indicate their availability to schedule work for Summer 2026 in consultation with project manager.

6. RFP Response Deadline and Selection Process

Responses to this RFP are due by close of business Friday, March 13, 2026.

Proposals should be sent by electronic mail, as a PDF file, to Gary Henry at gary@ausablecenter.org. with "John Bliss Road Culvert Replacement" in the subject line. Questions about the project should be emailed with a phone number included for quick response.

The Ausable Freshwater Center reserves the right to:

- i. Accept or reject any or all submissions.
- ii. Request qualified respondents to consider contracting only for certain elements of the project.
- iii. Waive or modify minor irregularities in the proposals received.
- iv. Negotiate with respondents, within the proposal requirements, to best serve the interests of the project partners.
- v. Amend specifications after their release, with due notice to all respondents to modify their submission to reflect those amendments.
- vi. Consider every offer or response as firm and not revocable for a period of 30 days unless offer is withdrawn in writing.
- vii. Award a contract for any or all parts of a proposal.

Responses may be shared with the USFWS and the Town of Wilmington. The selected contractor will be notified on or before Friday, March 20, 2026. Bids will be evaluated in general conformance, at minimum, with the following criteria: cost, experience, ability to complete the work in accordance with the project schedule, and proximity to construction site.

Appendix A – Design Plans

GENERAL NOTES

- SITE PLAN BASED ON SURVEY MAP BY A.L.L. LAND SURVEYING DATED 23 NOV 2023 AND SITE OBSERVATION AND MEASUREMENTS BY STAFF OF NORTH WOODS ENGINEERING, PLLC SPRING 2023.
- REFER TO SITE PLAN FOR LOCATIONS AND LOCAL ELEVATIONS OF PROJECT BENCHMARKS.
- CONTACT DIG SAFELY NEW YORK MIN TWO FULL WORKING DAYS PRIOR TO ANY EXCAVATION, NOT COUNTING THE DAY OF CALL IN.
- OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION AND FOLLOW ALL PERMIT CONDITIONS IN OBTAINED PERMITS, INCLUDING NOTIFICATION TO PERMIT AGENCIES OF WORK STARTING.
- CONTACT NORTH WOODS ENGINEERING, PLLC AT (518) 891-4975, MIN 2 DAYS PRIOR TO CONSTRUCTION.
- DISPOSE OF DEBRIS IAW NYS REGULATIONS AND MATERIAL DISPOSAL NOTES.
- REPAIR AND RESTORE ALL DISTURBED AREAS TO EXISTING CONDITIONS AT CONCLUSION OF CONSTRUCTION OPERATIONS.
- THE DESIGN, INSTALLATION, AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT MEASURES SHALL COMPLY WITH "NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" (AUGUST 2005) AND "NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL" (JANUARY 2015).

WETLAND PROTECTION NOTES

- TEMPORARY OR PERMANENT WETLAND DISTURBANCE WILL BE AVOIDED OR MINIMIZED WHERE POSSIBLE.
- SILT FENCE WILL BE ADDED AROUND THE PERIMETER OF ALL UNDISTURBED WETLAND AREAS.
- SNOW FENCING WILL BE USED TO CLEARLY MARK THE PERIMETER OF IDENTIFIED WETLANDS TO REMAIN UNDISTURBED.

EXISTING TREES

ID	TREE SPECIES	DBH	STATUS
T1	DOGWOOD CLUMP	1.5" DBH	TO BE REMOVED
T2	DOGWOOD CLUMP	2" DBH	TO BE REMOVED
T3	DODWOOD CLUMP	1.5" DBH	TO BE REMOVED
T4	ASH	8" DBH	TO BE REMOVED
T5	MAPLE	5" DBH	TO BE REMOVED
T6	POPLAR	6" DBH	TO BE REMOVED
T7	ASH	9" DBH	MAY REMAIN

TIE NOTES

- DISTANCES BELOW ARE FROM NORTH UTILITY POLE, ELEVATION 92.84

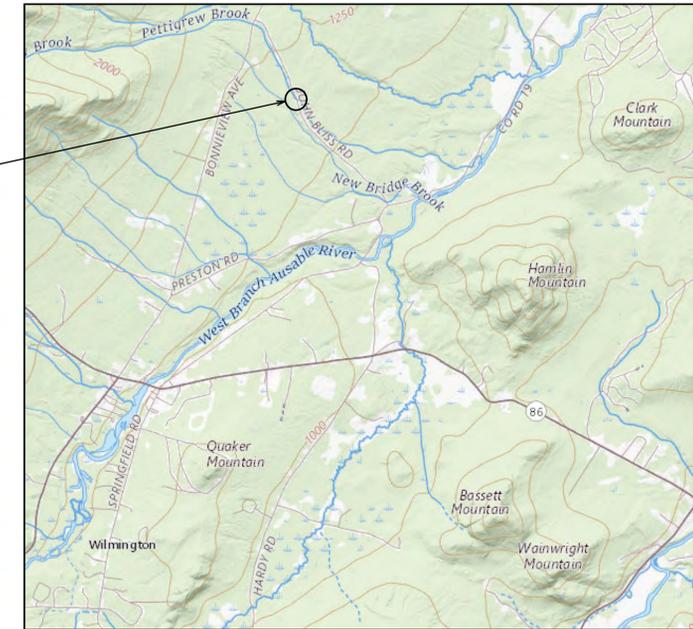
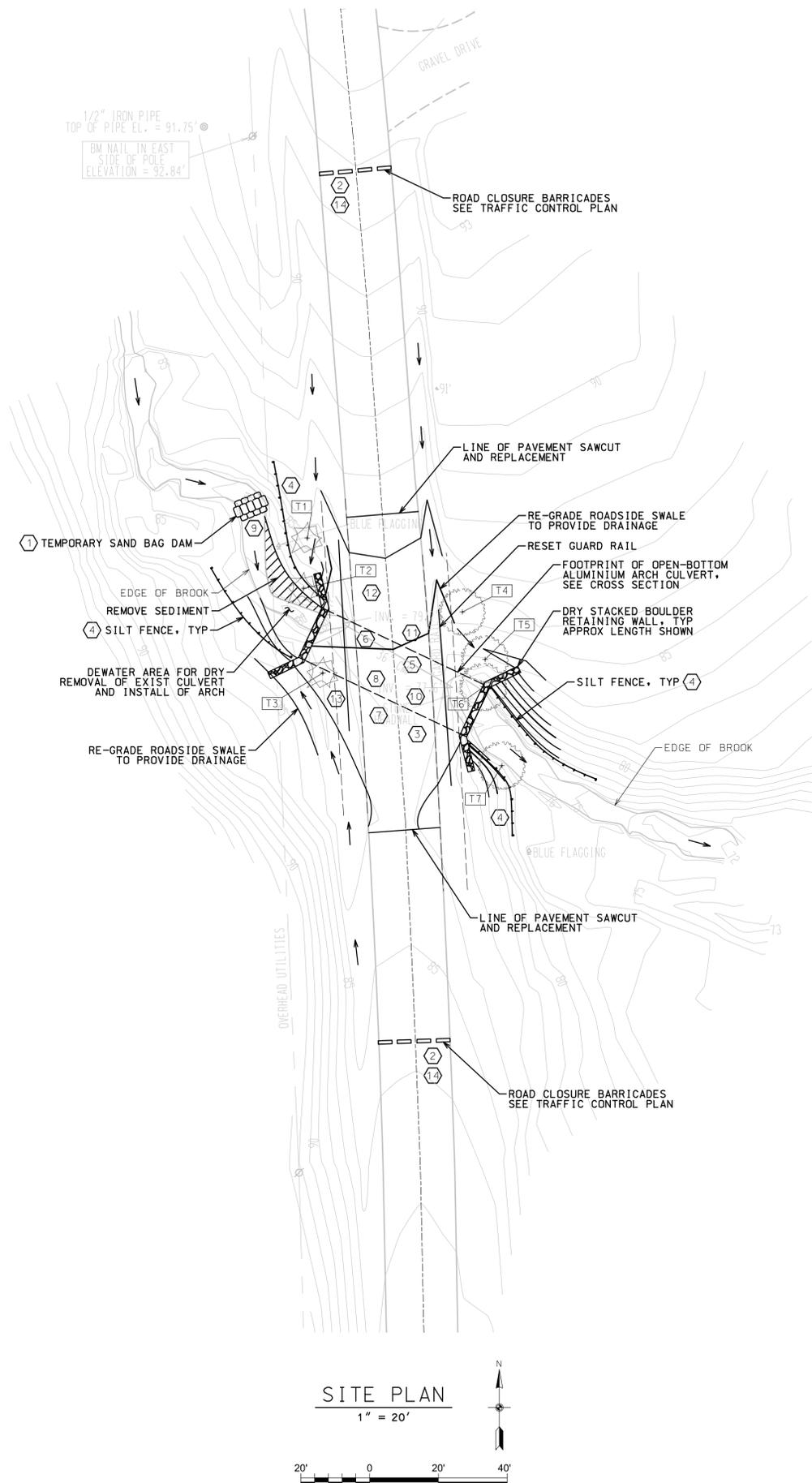
LOCATION	DISTANCE
NE CORNER OF ARCH	173.87'
NW CORNER OF ARCH	138.05'
SE CORNER OF ARCH	184.72'
SW CORNER OF ARCH	151.49'

- DISTANCES BELOW ARE FROM SOUTH UTILITY POLE, ELEVATION 92.23

LOCATION	DISTANCE
NE CORNER OF ARCH	151.04'
NW CORNER OF ARCH	163.64'
SE CORNER OF ARCH	135.24'
SW CORNER OF ARCH	149.18'

WORK ITEMS

- TEMPORARY DAM SHALL BE INSTALLED PRIOR TO THE START OF WORK, PROVIDE FOR CONTINUED WATER FLOW IN STREAM. SEE TEMPORARY DAM NOTES.
- INSTALL TRAFFIC CONTROL MEASURES PRIOR TO ANY WORK, INCLUDING, BUT NOT LIMITED TO, TEMPORARY SIGNALING AND SIGNS AS REQUIRED ON TRAFFIC CONTROL PLAN
- CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY SHORING TO PROTECT WORK AREA AS REQUIRED.
- INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO CONSTRUCTION.
- EXCAVATE TO EXPOSE EXISTING CULVERTS.
- REMOVE EXISTING CULVERTS AND PROPERLY DISPOSE OF.
- EXCAVATE AS NEEDED FOR FOUNDATION AND FOR ARCH INSTALLATION. INSTALL FOUNDATION ON UNDISTURBED SOILS.
- RECONSTRUCT STREAMBED UNDER THE INSTRUCTION OF THE AUSABLE RIVER ASSOCIATION.
- DISCONTINUE TEMPORARY STREAM FLOW SETUP, REMOVE TEMPORARY DAM AND RE-ESTABLISH NORMAL STREAM FLOW.
- INSTALL PLATE ARCH IAW MANUFACTURER'S INSTRUCTIONS.
- BACKFILL AND COMPACT AROUND PLATE ARCH. ALL COMPACTION SHALL BE TO MIN 95% MODIFIED PROCTOR (ASTM D1557).
- RE-GRADE ROAD SURFACE TO PROVIDE NEEDED COVER OVER ARCH, PROVIDING SMOOTH TRANSITIONS TO EXISTING ROAD SURFACE. PAVE APPROX 100' OF ROAD.
- RESTORE ALL DISTURBED AREAS TO PRE-EXISTING CONDITIONS AND REMOVE CONSTRUCTION DEBRIS.
- REMOVE TRAFFIC CONTROL AT CONCLUSION OF WORK EFFORTS.



TEMPORARY DAM/DEWATERING NOTES

- PLACE TEMPORARY DAM AS CLOSE TO WORK AS POSSIBLE WITHOUT INTERFERING WITH CONSTRUCTION OPERATIONS, IN APPROXIMATE LOCATION SHOWN ON SITE PLAN.
- TEMPORARY DAM SHALL BE INSTALLED WITH A MINIMUM OF 1' OF FREEBOARD.
- INSTALL TEMPORARY CULVERT FROM TEMPORARY DAM THROUGH WORK ZONE TO MAINTAIN STREAM FLOW AND TO CONDUCT WORK IN THE DRY. EXISTING CULVERT MAY BE USED AS TEMPORARY CULVERT.
- FOR DEWATERING INSIDE WORK ZONE, IF REQUIRED, PUMP WATER THROUGH A "DIRTBAG", OR EQUAL. ENSURE PUMP RATE DOES NOT EXCEED MANUFACTURER'S RATING.
- CHOOSE DEWATERING DISCHARGE AREA TO PREVENT EROSION AND SCOURING. SEE SITE PLAN FOR APPROVED DEWATERING DISCHARGE AREA.
- AFTER CONSTRUCTION OF THE STREAMBED, CAREFULLY REMOVE TEMPORARY CULVERT AND TEMPORARY DAM MATERIALS SO AS TO NOT IMPACT STREAMBED.
- REMOVE DEWATERING SEDIMENT BAG. RESTORE AREAS.

MATERIAL DISPOSAL NOTES

- ALL MATERIAL SHALL ONLY BE DISPOSSED OF IN AN UPLAND AREA AND PROPERLY STABILIZED TO PREVENT REENTRY OF ANY SOIL MATERIAL INTO WETLAND OR OTHER WATER BODIES.



WARNING: IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON UNLESS ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER AN ITEM IN ANY WAY. IF ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE DOCUMENT THEIR SEAL AND THE NOTATION "ALTERED BY FOLLOWED BY THEIR SIGNATURE AND THE DATE OF ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION."

PROJECT NAME
PETTIGREW BROOK CULVERT REPLACEMENT
JOHN BLISS ROAD, WILMINGTON, NY

LOCATION
WILMINGTON, NY

DATE	ISSUED FOR	REV
5.3.24	CONSTRUCTION	

DRAWN BY: JRG
CHECKED BY: JAG
PROJECT #: 23-008
ORIGINAL 24"x36"

TITLE
SITE PLAN

SHEET
C10





WARNING: IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY, IF ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE DOCUMENT THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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PETTIGREW BROOK CULVERT REPLACEMENT
 JOHN BLISS ROAD, WILMINGTON, NY

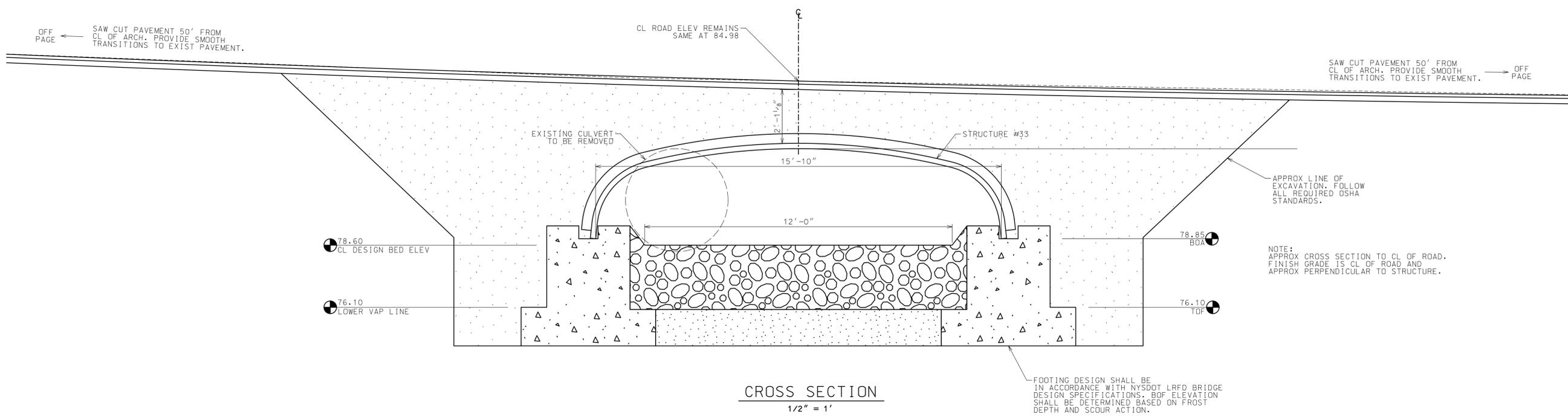
LOCATION
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DATE	ISSUED FOR	REV
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TITLE
CROSS SECTION

SHEET
C20



OFF PAGE ← SAW CUT PAVEMENT 50' FROM CL OF ARCH. PROVIDE SMOOTH TRANSITIONS TO EXIST PAVEMENT.

SAW CUT PAVEMENT 50' FROM CL OF ARCH. PROVIDE SMOOTH TRANSITIONS TO EXIST PAVEMENT. → OFF PAGE

GENERAL CONCRETE NOTES

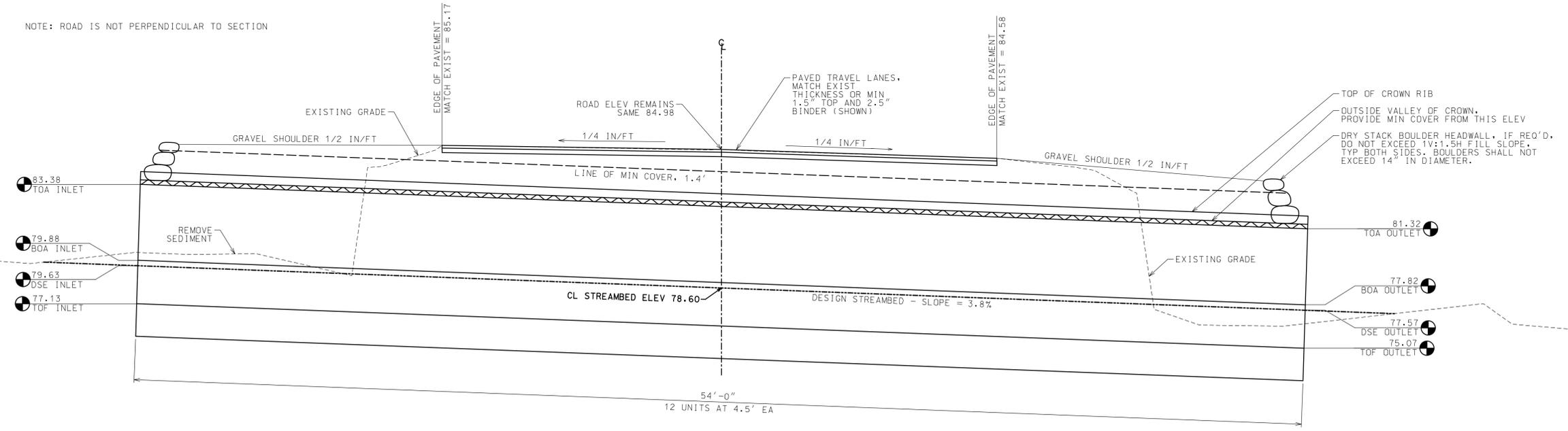
- ALL CONCRETE WORK SHALL COMPLY WITH THE LATEST RECOMMENDATIONS AND SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE (ACI) AND THE LOCAL BUILDING CODES.
- ALL CONCRETE SHALL BE NORMAL WEIGHT HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI. UND. WATER CEMENT RATIO TO BE KEPT TO A MINIMUM TO ENHANCE STRENGTH.
- ALL REINFORCING STEEL SHALL COMPLY WITH ASTM 615, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- LAP ALL BAR 30 DIAMETERS (MINIMUM) AT SPLICES, UND ON DRAWINGS. WELDED WIRE FABRIC TO BE LAPPED ONE FULL SPACING AT SIDES AND ENDS.
- WHERE CONTINUOUS BARS ARE SPECIFIED, INDICATED OR REQUIRED, THEY SHALL BE RUN CONTINUOUSLY AROUND CORNERS, DOWELED INTO INTERSECTING WALLS AND LAPPED AT NECESSARY SPLICES WITH SPLICES STAGGERED WHEREVER POSSIBLE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE SETTING SCREEDS AND FORMS. FORM RELEASE OIL TO BE APPROVED NON-TOXIC AND APPLIED TO FORMS PRIOR TO SET-UP.
- FOOTINGS SHALL REST ON SUITABLE UNDISTURBED SOIL OR COMPACTED GRANULAR FILL HAVING A MINIMUM BEARING CAPACITY OF 2000 PSF. ELEVATION OF FOOTINGS ARE SHOWN ON PLANS, BUT ARE SUBJECT TO REVISION WHEN TRUE SOIL CONDITIONS ARE EXPOSED BY EXCAVATION. THE ENGINEER SHALL BE NOTIFIED PROMPTLY OF ANY WEAK STRATA, WATER CONDITIONS OR OTHER POOR BEARING CONDITIONS.
- CONCRETE TEMPERATURES DURING THE FIRST SEVEN DAYS SHALL BE MAINTAINED BETWEEN 50 DEG F AND 90 DEG F. RAPID DRYING MUST BE PREVENTED.
- CONTRACTOR TO DESIGN, FURNISH AND INSTALL ALL TEMPORARY SHEETING, SHORING AND BRACING NECESSARY TO SAFELY COMPLETE THE CONSTRUCTION. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH OSHA STANDARDS.
- IF NECESSARY THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT AND CONTINUOUSLY DEWATER THE SITE TO FACILITATE THE CONSTRUCTION AND SAFE WORKING CONDITIONS.





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NOTE: ROAD IS NOT PERPENDICULAR TO SECTION



SECTIONAL ELEVATION
ALONG STREAM CENTERLINE
3/8" = 1'

MATERIAL NOTES

1. GRANULAR BEDDING TO BE NYS DOT ITEM 304.14 UNLESS SUITABLE SUBGRADE IS ENCOUNTERED. NOTIFY ENGINEER.
2. SELECT STRUCTURAL FILL TO BE NYS DOT ITEM 304.14.

PLATE ARCH NOTES

1. PLATE ARCH TO BE ALUMINUM BOX CULVERT BY CONTECH CONSTRUCTION PRODUCTS, STRUCTURE #33-EG, WITH A SPAN OF 15'-10", RISE OF 3'-6", AND AN AREA OF 46.8 SF. LENGTH SHALL BE 54'.
2. PLATE ARCH SHALL BE HS-25 RATED, MINIMUM.
3. PLATE ARCH SHALL BE PROVIDED COMPLETE WITH REINFORCING RIBS AND ALL ASSOCIATED HARDWARE.
4. PLATE ARCH SUPPLIER SHALL PROVIDE SHOP DRAWINGS, INSTALLATION INSTRUCTIONS, MANUFACTURER'S RECOMMENDATIONS, AND BOLT TIGHTENING REQUIREMENTS.

PLATE ARCH INSTALLATION NOTES

1. EXCAVATE AND PREPARE FOUNDATION SUBGRADE. INSTALL CONCRETE FOUNDATION.
2. BACKFILL FOUNDATION WITH SELECT STRUCTURAL FILL BACKFILL MATERIAL. BACKFILL MUST BE PLACED SYMMETRICALLY ON EACH SIDE OF THE FOUNDATION IN 6" TO 8" LOOSE LIFTS. COMPACT EACH LIFT TO MINIMUM 95% MODIFIED PROCTOR.
3. INSTALL STREAMBED STONES TO ELEVATION AS SHOWN.
4. SLOWLY RELEASE WATER FROM TEMPORARY DAM. MONITOR RELEASE OF WATER TO CONTROL SEDIMENT MOVEMENT. CONTINUE BYPASS FLOW UNTIL WATER IS FULLY FLOWING SAFELY THROUGH STRUCTURE.
5. INSTALL ALUMINUM PLATE ARCH STRUCTURE.
6. INSTALL SELECT STRUCTURAL FILL BACKFILL MATERIAL. BACKFILL MUST BE PLACED SYMMETRICALLY ON EACH SIDE OF THE CULVERT IN 6" TO 8" LOOSE LIFTS. COMPACT EACH LIFT TO MINIMUM 95% MODIFIED PROCTOR. SEE SECTION AND PROFILE FOR BACKFILL DEPTH AT STRUCTURE CROWN. DO NOT EXCEED 5' DEPTH OF BACKFILL AT STRUCTURE CROWN.
7. DO NOT LOAD STRUCTURE UNTIL MINIMUM OF 1.4' OF BACKFILL IS ACHIEVED.

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DRAWN BY: JRG
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PROJECT #: 23-008
ORIGINAL 24"x36"

TITLE

SECTIONAL ELEVATION

SHEET

C21





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EROSION &
SEDIMENT CONTROL
NOTES

SHEET

C31

MULCH STABILIZATION NOTES

- MULCH STABILIZATION SHALL BE COMPLETED WITHIN 14 DAYS OF FIRST DISTURBANCE AND IMMEDIATELY AFTER COMPLETION OF ROUGH GRADING ACTIVITIES.
- APPLY MULCHING MATERIAL. MULCH SHALL BE OAT OR WHEAT STRAW, FREE FROM WEEDS OR FOREIGN MATTER DETRIMENTAL TO PLANT LIFE, AND DRY.
- IN MID-SUMMER, LATE FALL, OR WINTER: APPLY 100 LB PER 1000 SF, PLUS TACKIFIER. IN SPRING OR EARLY FALL: APPLY 45 LB PER 1000 SF, PLUS TACKIFIER.
- INSTALL JUTE MATTING WITH OPEN WEAVE FOR SLOPES GREATER THAN 1:6, BUT LESS THAN 1:4. FOR SLOPES GREATER THAN 1:4 INSTALL CURLEX 1 CL BY AEC OR APPROVED EQUAL, UNO.

FINAL SEEDING NOTES

- PREPARE SUBSOIL TO ELIMINATE UNEVEN AREAS AND LOW SPOTS. MAINTAIN LINES, LEVELS, PROFILES AND CONTOURS. MAKE CHANGES IN GRADE GRADUAL. BLEND SLOPES INTO LEVEL AREAS.
- REMOVE FOREIGN MATERIALS, WEEDS, AND UNDESIRABLE PLANTS AND THEIR ROOTS.
- SPREAD TOPSOIL TO A MINIMUM DEPTH OF 4" OVER AREA TO BE SEEDDED.
- TYPICAL SEED MIXES FOR LAWN AREAS IS 15-40% KENTUCKY BLUEGRASS, 30-50% FINE FESCUE, 15-40% PERENNIAL RYEGRASS, 5-15% ANNUAL RYEGRASS AND 0-5% WHITE CLOVER. SEED MIXES FOR GENERAL RESTORATION IS 50-70% FINE FESCUE, 15-40% PERENNIAL RYEGRASS, 5-15% ANNUAL RYEGRASS AND 5-10% WHITE CLOVER. APPLY AT A RATE OF 350 LB/AC. PLACE SEED EVENLY IN TWO INTERSECTING DIRECTIONS AND RAKE LIGHTLY. ALTERNATE SEED MIXES MAY BE APPROPRIATE FOR SPECIFIC LOCATIONS AND SEASONS. CONFIRM WITH ENGINEER PRIOR TO SEEDING.
- APPLY MULCHING MATERIAL TO SEED AREA. MULCH SHALL BE OAT OR WHEAT STRAW, FREE FROM WEEDS OR FOREIGN MATTER DETRIMENTAL TO PLANT LIFE, AND DRY. REFER TO MULCH STABILIZATION NOTES FOR APPLICATION REQUIREMENTS.
- INSTALL JUTE MATTING WITH OPEN WEAVE FOR SLOPES GREATER THAN 1:6, BUT LESS THAN 1:4. FOR SLOPES GREATER THAN 1:4 INSTALL CURLEX 1 CL BY AEC OR APPROVED EQUAL, UNO.
- REAPPLY SEED UNTIL GRASS IS COMPLETELY ESTABLISHED.
- WHEN HYDROSEEDING SLOPES OVER 3:1, USE HYDROSEEDER TO APPLY SEED, FERTILIZER, WOOD FIBER MULCH (45 LB PER 1000 SF), AND MULCH TACKIFIER.
- FINAL SEEDING OPERATIONS TO COMMENCE WITHIN SEVEN DAYS OF FINAL CONSTRUCTION IN EACH AREA, AND BE COMPLETE WITHIN 14 DAYS.

STABILIZATION MAINTENANCE NOTES

- FERTILIZE IN EARLY WINTER WITH NITROGEN AT 40 LB/AC.
- FERTILIZE IN EARLY SPRING WITH 10-10-10 AT 150 LB/AC.
- KEEP MOWED HEIGHT TO 3" - 4".

CONSTRUCTION SPILL PREVENTION AND CONTROL PLAN

MATERIAL HANDLING PROCEDURES AND STORAGE REQUIREMENTS:

- RECYCLE, RECLAIM, OR REUSE PROCESS MATERIALS, THEREBY REDUCING THE AMOUNT OF PROCESS MATERIALS THAT ARE BROUGHT ON SITE.
- INSTALL LEAK DETECTION DEVICES, OVERFLOW CONTROLS, AND DIVERSION BERMS WHEN APPROPRIATE.
- DISCONNECT ANY DRAINS FROM AREAS THAT LEAD TO THE DRAINAGE OR STORMWATER SYSTEM.
- PERFORM PREVENTATIVE MAINTENANCE ON TANKS, VALVES, PUMPS, PIPES AND OTHER EQUIPMENT. EQUIPMENT THAT HAS LEAKS SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE.
- USE PROPER MATERIAL TRANSFER PROCEDURES OR FILLING PROCEDURES FOR TANKS AND OTHER EQUIPMENT.
- SUBSTITUTE LESS OR NON-TOXIC MATERIALS FOR TOXIC MATERIALS.

SPILL RESPONSE:

- PREVENT THE DISCHARGE OF POLLUTANTS FROM SPILLS AND LEAKS AND IMPLEMENT CHEMICAL SPILL AND LEAK PREVENTION AND RESPONSE PROCEDURES.
- IN THE EVENT OF A SPILL, FOLLOW CONTAINMENT PROCEDURES OUTLINED IN THE "CONSTRUCTION WASTE MANAGEMENT PLAN."
- FOR HAZARDOUS MATERIALS, FOLLOW CLEANUP INSTRUCTIONS ON PACKAGE. USE AN ABSORBENT MATERIAL SUCH AS SAWDUST OR KITTY LITTER TO CONTAIN THE SPILL.
- IN THE EVENT OF A SPILL, NOTIFY PROJECT SUPERINTENDENT, ENGINEER, AND LOCAL HIGHWAY DEPARTMENT STAFF. IN THE EVENT OF A HAZARDOUS MATERIAL SPILL ALSO NOTIFY THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, THE NYS POLICE, AND THE LOCAL FIRE DEPARTMENT.

CONSTRUCTION WASTE MANAGEMENT PLAN

STORAGE AND DISPOSAL OF CONSTRUCTION SITE WASTES:

- DESIGNATE A WASTE COLLECTION AREA ONSITE THAT DOES NOT RECEIVE A SUBSTANTIAL AMOUNT OF RUNOFF FROM UPLAND AREAS AND DOES NOT DRAIN DIRECTLY TO A WATERBODY.
- ENSURE THAT CONTAINERS HAVE LIDS SO THEY CAN BE COVERED BEFORE PERIODS OF RAIN, AND KEEP CONTAINERS IN A COVERED AREA WHENEVER POSSIBLE.
- SCHEDULE WASTE COLLECTION TO PREVENT CONTAINERS FROM OVERFILLING.
- CLEAN UP SPILLS IMMEDIATELY. FOLLOW PROCEDURES OUTLINED IN THE "CONSTRUCTION SPILL PREVENTION AND CONTROL PLAN". FOR HAZARDOUS MATERIALS, FOLLOW CLEANUP INSTRUCTIONS ON THE PACKAGE. USE AN ABSORBENT MATERIAL SUCH AS SAWDUST OR KITTY LITTER TO CONTAIN THE SPILL.
- COLLECT, REMOVE, AND DISPOSE OF ALL CONSTRUCTION SITE WASTES AT AUTHORIZED DISPOSAL AREAS.
- WASTEWATER FROM THE WASHOUT OF CONCRETE SHALL BE CONTAINED IN ACCORDANCE WITH STANDARD DETAIL.

DEWATERING

- DISCHARGE FROM DEWATERING ACTIVITIES SHALL BE MANAGED BY APPROPRIATE CONTROL MEASURES.

DISPOSAL OF HAZARDOUS MATERIALS:

- CONSULT LOCAL WASTE MANAGEMENT AUTHORITIES ABOUT THE REQUIREMENTS FOR DISPOSING OF HAZARDOUS MATERIALS.
- TO PREVENT LEAKS, EMPTY AND CLEAN ANY HAZARDOUS WASTE CONTAINERS BEFORE THEY ARE DISPOSED OF.
- THE ORIGINAL PRODUCT LABEL SHOULD NEVER BE REMOVED FROM THE CONTAINER, AS IT CONTAINS IMPORTANT SAFETY INFORMATION. FOLLOW THE MANUFACTURER'S RECOMMENDED METHOD OF DISPOSAL, WHICH SHOULD BE PRINTED ON THE LABEL.
- IF EXCESS PRODUCTS NEED TO BE DISPOSED OF, THEY SHOULD NEVER BE MIXED DURING DISPOSAL UNLESS SPECIFICALLY RECOMMENDED BY THE MANUFACTURER.

USE OF PETROLEUM PRODUCTS:

- STORE PETROLEUM PRODUCTS AND FUEL FOR VEHICLES IN COVERED AREAS WITH DIKES IN PLACE TO CONTAIN ANY SPILLS.
- IMMEDIATELY CONTAIN AND CLEAN UP ANY SPILLS WITH ABSORBENT MATERIAL.
- HAVE EQUIPMENT AVAILABLE IN FUEL STORAGE AREAS AND IN VEHICLES TO CONTAIN AND CLEAN UP ANY SPILLS THAT OCCUR.
- USE OF PESTICIDES:
- FOLLOW ALL FEDERAL, STATE, AND LOCAL REGULATIONS THAT APPLY TO THE USE, HANDLING, OR DISPOSAL OF PESTICIDES.
- DO NOT HANDLE THE MATERIALS ANY MORE THAN NECESSARY.
- STORE PESTICIDES IN A DRY, COVERED AREA.
- CONSTRUCT CURBS OR DIKES TO CONTAIN PESTICIDES IN CASE OF SPILLAGE.
- FOLLOW THE RECOMMENDED APPLICATION RATES AND METHODS.
- HAVE EQUIPMENT AND ABSORBENT MATERIALS AVAILABLE IN AREAS WHERE PESTICIDES ARE STORED AND USED IN ORDER TO CONTAIN AND CLEAN UP ANY SPILLS THAT OCCUR.

USE OF FERTILIZERS:

- APPLY FERTILIZERS AT THE MINIMUM RATE AND TO THE MINIMUM AREA NEEDED.
- WORK THE FERTILIZER DEEPLY INTO THE SOIL TO REDUCE EXPOSURE OF NUTRIENTS TO STORMWATER RUNOFF.
- APPLY FERTILIZER AT LOWER APPLICATION RATES WITH A HIGHER APPLICATION FREQUENCY.
- ENSURE THAT EROSION AND SEDIMENT CONTROLS ARE IN PLACE TO PREVENT FERTILIZERS AND SEDIMENTS FROM BEING TRANSPORTED OFF-SITE.

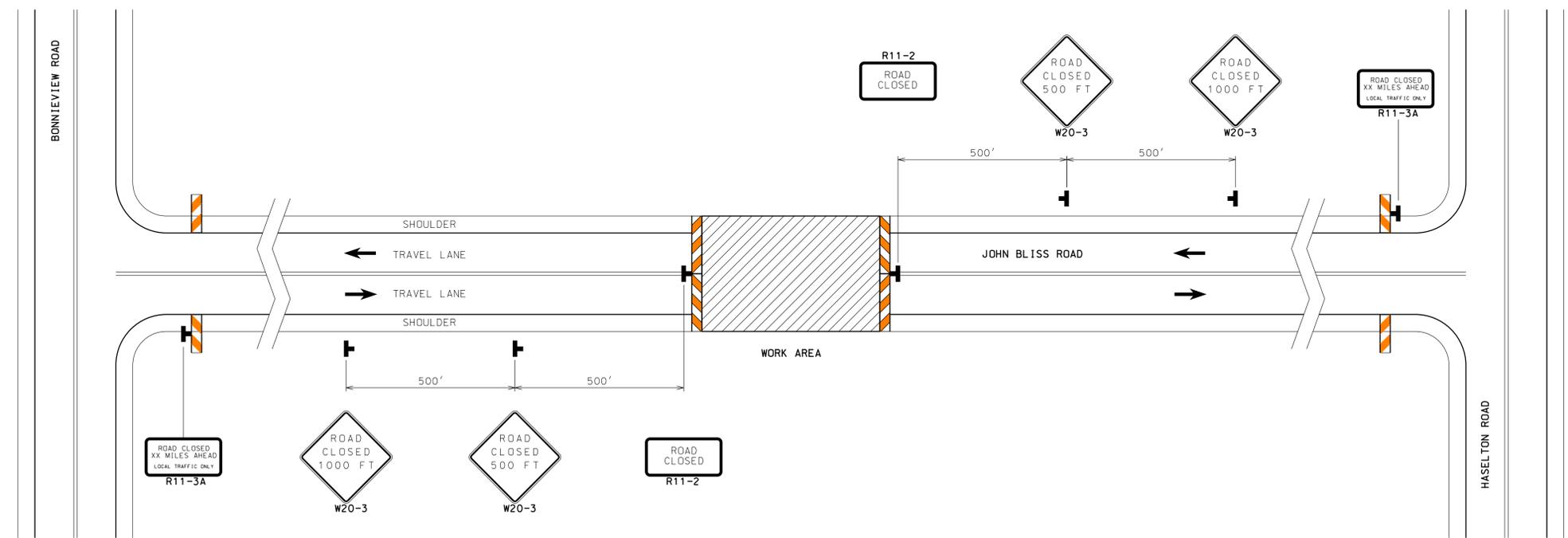
USE OF DETERGENTS:

- THE USE OF DETERGENTS IS NOT ALLOWED ON THE CONSTRUCTION SITE.
- EQUIPMENT AND VEHICLE WASHING SHALL ONLY OCCUR WITH CLEANWATER. THE DISCHARGE SHALL NOT VIOLATE WATER QUALITY STANDARDS.





WARNING: IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM IN ANY WAY. IF ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE DOCUMENT THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.



TRAFFIC CONTROL PLAN
2-LANE 2-WAY ROAD CLOSURE
 NTS

TRAFFIC NOTES

1. IF THE ROAD IS OPEN FOR SOME DISTANCE BEYOND THE INTERSECTION AND/OR THERE ARE SIGNIFICANT ORIGIN/DESTINATION POINTS BEYOND THE INTERSECTION, THE R11-3A ROAD CLOSED SIGN MAY BE LOCATED AT THE EDGE OF THE TRAVELED WAY.
2. ANY EXISTING SIGN, INCLUDING OVERHEAD SIGNS, WHICH CONFLICT WITH THE TEMPORARY TRAFFIC CONTROL SIGN LAYOUT SHALL BE COVERED, REMOVED, STORED, OR RESET ABOVE. BLANK COVERS USED TO COVER PORTIONS OF EXISTING SIGNS SHALL BE OF A COLOR AND REFLECTORIZED MATERIAL MATCHING THAT OF THE SIGN BEING PARTIALLY COVERED. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO SIGNS CAUSED BY THE METHODS USED TO TEMPORARILY REMOVE, REPLACE, RELOCATE, OR COVER SIGN PANELS OR SIGN TEXT, AT NO ADDITIONAL COST TO THE OWNER. ALL APPROPRIATE EXISTING SIGNS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND/OR LOCATION UNLESS OTHERWISE REPLACED IN THE CONTRACT DOCUMENTS.
3. ALL OPEN EXCAVATIONS SHALL BE BACKFILLED AT THE END OF EACH WORK DAY.
4. CONDITIONS REQUIRE ACCESS TO BE TEMPORARILY CLOSED, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE PROPERTY OWNER AT LEAST 24 HOURS IN ADVANCE. ALL ACCESS DRIVES SHALL BE OPEN FOR SAFE USE AT THE END OF EACH WORK DAY.
5. DISTANCES SHALL BE ADAPTED TO PREVAILING CONDITIONS.
6. UNLESS PARKED WITHIN A PROTECTED WORK ZONE, VEHICLES BELONGING TO THE CONTRACTOR OR THE CONTRACTOR'S WORKERS SHALL NOT BE PARKED WITHIN 30 FEET OF THE EDGE OF PAVEMENT ALONG A ROADWAY BEING USED BY THE GENERAL PUBLIC.
7. DURING WORK HOURS, NO CONSTRUCTION MATERIAL MAY BE STORED OR PLACED ON THE EDGE OF PAVEMENT OR WITHIN THE ROADSIDE CLEAR AREA (CURB-TO-CURB OR SHOULDER-TO-SHOULDER), EXCEPT IN A PROTECTED WORK ZONE.
8. PRIOR TO LEAVING THE WORK SITE EACH DAY, THE CONTRACTOR SHALL REMOVE OR PROTECT ANY PART OF THE WORK SITE THAT MAY BE CONSIDERED HAZARDOUS TO THE TRAVELING PUBLIC.
9. SIGNS THAT ARE NOT APPLICABLE AFTER WORKING HOURS SHALL BE REMOVED.
10. DURING NON-WORKING HOURS, CONSTRUCTION EQUIPMENT AND MATERIAL SHALL NOT BE STORED WITHIN 30 FEET OF THE EDGE OF PAVEMENT.
11. IN ADDITION TO THE REQUIREMENTS ON THIS SHEET, CONTRACTOR SHALL FOLLOW THE NOTES ATTACHED TO THE NYS DOT, COUNTY DPW, OR TOWN HIGHWAY WORK PERMIT, AS REQUIRED, INCLUDED IN THE PROJECT SPECIFICATIONS, AND ANY NEW TRAFFIC SAFETY REQUIREMENTS OF THE NYS DOT.

LEGEND

	WORK AREA
	SIGNS & POSTS
	ROAD BARRICADE

PROJECT NAME
PETTIGREW BROOK CULVERT REPLACEMENT
 JOHN BLISS ROAD, WILMINGTON, NY

LOCATION
WILMINGTON, NY

DATE	ISSUED FOR	REV
5.3.24	CONSTRUCTION	

DRAWN BY: JRG
 CHECKED BY: JAG
 PROJECT #: 23-008
 ORIGINAL 24"x36"

TITLE
TRAFFIC CONTROL PLAN

SHEET
C40





**KOONTZ BRYANT
JOHNSON WILLIAMS**

December 15, 2025

Ausable Freshwater Center
PO Box 8
Wilmington, NY 12997

Attn: Mr. Gary Henry, PG
Stream Restoration Manager

Re: Design of Cast-in-Place Concrete Pedestal Spread Footing Foundations for a Proposed
Contech ALBC; Pettigrew Brook Crossing of John Bliss Road, Wilmington, New York;
KBJW Report No. 37451-001-01

Mr. Henry:

Koontz Bryant Johnson Williams, Inc. (KBJW, formerly CBC Engineers and Associates, Ltd.) is pleased to submit our report for the above referenced project. The purpose of this report is to provide the design of spread footing foundations for the proposed ALBC structure. Others are responsible for all other aspects of the structure, including but not limited to the design of the structure itself, design of the project grading, layout and hydraulics, backfill, scour/abrasion/corrosion, any required end treatment, and the project geotechnical recommendations and scour considerations, and the only responsibility of KBJW is the above referenced work. The calculations, specifications, and shop drawings are included in this report. If you have any questions, please contact us.

Respectfully submitted,

Koontz Bryant Johnson Williams, Inc.

Rick L. Teachey, Jr., P.E.
Project Engineer

Mitchell T. Hardert, P.E.
Chief Engineer



RLT/MTH/mt
ec: Addressee (gary@ausablecenter.org)
1-File

TABLE OF CONTENTS

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SECTION I

TEXT



1.0 AUTHORIZATION

Authorization to proceed with this project was given by Mr. Gary Henry of Ausable Freshwater Center and work was to proceed in accordance with KBJW Quotation No. 37451-001, dated December 9, 2025, and the terms and conditions of the executed contract. All information relative to the proposed ALBC structure has been provided to KBJW by Ausable Freshwater Center (AFC) and Contech Engineered Solutions, LLC.

2.0 PROJECT DESCRIPTION

This project consists of an ALBC with a span of 15'-10" and a rise of 3'-6" proposed to be installed on John Bliss Road in Wilmington, New York. The height of cover over the structure is reported to be a maximum of 3.0 feet at 120 pcf with HS-25 live load.

TABLE 1
STRUCTURE CHARACTERISTICS

Structure Type	ALBC #33
Span (ft.-in.)	15'-10"
Rise (ft.-in.)	3'-6"
Max Height of Cover (ft.)	3.0' @ 120 pcf
Length (ft.-in.)	54'-0"
Live Load	HS-25
Foundation	Concrete Spread Footings

We have been provided with North Woods Engineering PLLC site drawings for the ALBC; their Project No. 23-008. The reported total length of the ALBC structure is 54 feet.

3.0 SOIL FOUNDATION CONDITION

We have been provided with a soils investigation report for the project prepared by North Woods Engineering PLLC dated August 25, 2025. As per the



geotechnical recommendations, the design of footings for the structure for this project has been performed for an allowable bearing capacity of 2,000 psf.

We have accordingly utilized an allowable bearing capacity of 2,000 psf for the evaluation of foundations for this project. A friction factor of 0.35 has also been used in the design. It should be noted that KBJW has not made any independent evaluation of the foundation and/or geotechnical conditions. We are relying totally on the information furnished to us as being correct and indicative of the foundation conditions at the actual structure location. We recommend that a geotechnical engineer examine the foundation materials once the foundation has been excavated, and that the bearing capacity and friction factor be field verified before the footings are constructed. All recommendations in the project geotechnical report should be followed during construction. The footings should be permanently buried to provide frost protection in accordance with the geotechnical report and regional design requirements. The evaluation and design of foundation improvement required to achieve an allowable bearing capacity of at least 2,000 psf, and a coefficient of friction of at least 0.35, and to protect against frost and scour and settlement, is the responsibility of others than KBJW.

4.0 DESIGN OF FOOTINGS

The load on a footing consists of the load on top of the structure carried by each leg of the structure, which is equal to the unit weight of the soil times the height of cover over the structure divided into each leg; plus the weight of the soil on the outside edges of the footing outside the structure, plus the weight of the structure itself, plus live load. The weight of the soil over the footings that is excavated can be deducted from the pressure at the bottom of the footing in consideration of the bearing capacity. The footing also must be designed for any horizontal thrust which is created by the angle of entry into the footing. The proposed ALBC structure enters the footing at an angle and there is, therefore, a horizontal component to the footing reaction. The horizontal portion of the reaction is directed



toward the outside of the structure. The maximum loading of the structure footing R_h (horizontal component) and R_v (vertical component) are as shown in Table 2 below.

TABLE 2
ALBC STRUCTURE FOOTING REACTIONS

Structure	ALBC (61)
R_h (plf)	600
R_v (plf)	5,549

Figure 1 shows the loads on the footings.

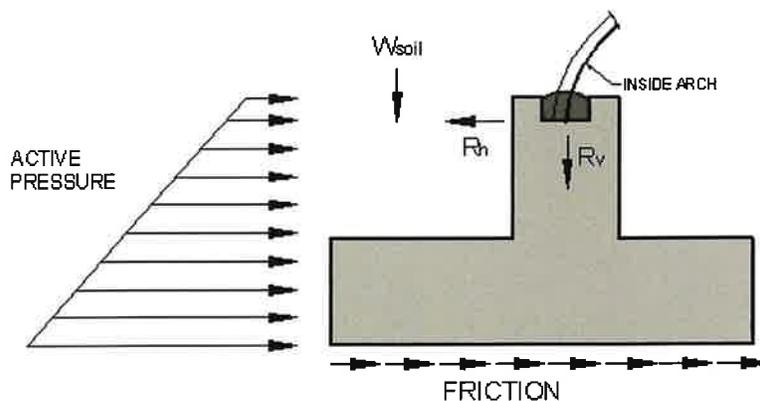


FIGURE 1

The footings have been designed for the above referenced loading. Based on an allowable bearing capacity of 2,000 psf, the width of the structure footings is to be 6'-0" with a minimum thickness of 24 inches below the pedestal. The steel required in the footing is #5 bars at 12" on center at the bottom, #5 bars at 12" on center at the top, with #5 longitudinal reinforcement bars evenly spaced around the perimeter of the footing, and #5 longitudinal reinforcement bars evenly spaced around the perimeter of the pedestal. The typical footing details are shown in the prints attached in Appendix B of this report.

5.0 SCOUR

It is beyond the scope of this report to evaluate scour and it is the



responsibility of others than KBJW. The depth of the footings should be evaluated for scour before the footings are constructed, and scour countermeasures (by others) provided as necessary to permanently protect the footings.

6.0 WARRANTY

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

This report has been prepared for the exclusive use of Ausable Freshwater Center and its designees, for specific application to the project herein described. Specific recommendations have been provided in the various sections of the report. The report shall, therefore, be used in its entirety. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. KBJW is not responsible for the independent conclusions, opinions or recommendations made by others.

SECTION II
SPECIFICATIONS



I - GENERAL

1.0 STANDARDS AND DEFINITIONS

1.1 **STANDARDS** - All standards refer to latest edition unless otherwise noted.

- 1.1.1 ASTM D-698-70 (Method C) "Standard Test Methods for Moisture. Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-lb (2.5 kg.) Rammer and 12-inch (305-mm) Drop".
- 1.1.2 ASTM D-2922 "Standard Test Method for Density of Soil and Soil Aggregate in Place by Nuclear methods (Shallow Depth)".
- 1.1.3 ASTM D-1556 "Standard Test Method for Density of Soil in place by the Sand-Cone Method".
- 1.1.4 ASTM D-1557 "Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort."
- 1.1.5 All construction and materials shall be in accordance with the latest AASHTO LRFD Bridge Design Specifications, DOT requirements and these specifications. In the case of duplicate specifications, the more stringent requirement shall govern.

1.2 **DEFINITIONS**

- 1.2.1 Owner - In these specifications the word "Owner" shall mean the owner of the ALBC.
- 1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Owner designated engineer.
- 1.2.3 Design Engineer - In these specifications the words "Design Engineer" shall mean KBJW, Inc.
- 1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any work under the terms of these specifications.
- 1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.
- 1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.



2.0 GENERAL CONDITIONS

- 2.1 The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein.

This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the observation of the Owner or his designated representative.

- 2.2 Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the owner can investigate the condition.

- 2.3 The construction shall be performed under the direction of an experienced engineer who is familiar with the design plan.



II - FOOTINGS FOR ALBC

1.0 EXCAVATION FOR FOOTINGS

- 1.1 Footing excavation shall consist of the removal of all material, of whatever nature, necessary for the construction of foundations.
- 1.2 It shall be the responsibility of the Contractor to identify and relocate all existing utilities which conflict with the proposed footing locations shown on the plan. The Contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities, and coordinate removal and installation of all utilities with the respective utility company.
- 1.3 The side of all excavations shall be cut to prevent sliding or caving of the material above the footings.
- 1.4 Excavated material shall be disposed in accordance with the plan established by the Engineer.
- 1.5 The footings are designed for an allowable bearing capacity of 2,000 psf. A friction factor of 0.35 has been utilized. These values shall be verified in the field before construction. The evaluation and design of any required foundation improvement to achieve the design allowable bearing capacity and friction factor, and to protect against frost and scour and settlement, is the responsibility of others than KBJW. All recommendations in the project geotechnical report shall be followed during construction.
- 1.6 The backfill on both sides of the pedestal footings shall be placed in an even manner to prevent unbalanced loading on the footings. The backfill shall be compacted as per the project specifications and the manufacturer's requirements.

2.0 CONCRETE FOOTING DIMENSIONS

- 2.1 The footings shall be reinforced in accordance with the construction drawings.
- 2.2 The concrete and steel for the footings shall meet the requirements of Section III of these specifications.



III - CONCRETE FOR ALBC FOOTINGS

1.0 CODES AND STANDARDS

- 1.1 Reinforced concrete shall conform to the requirements of AASHTO Standard Specifications for Highway Bridges, Division II - Construction, Section 8, "Concrete Structures", for Class A concrete, having a minimum compressive strength of 4,000 psi.

2.0 STANDARDS FOR MATERIALS

- 2.1 Portland Cement - Conforming to ASTM Specification C-150, Type I or II.
- 2.2 Water - The water shall be drinkable, clean free from injurious amounts of oils, acids, alkalis, organic materials, or deleterious substances.
- 2.3 Aggregates - Fine and coarse aggregates shall conform to current ASTM Specification C-33 "Specification for Concrete Aggregates" except that local aggregates which have been shown by tests and by actual service to produce satisfactory qualities may be used when approved by the Engineer.
- 2.4 Submittals - Test data and/or certifications to the Owner shall be furnished upon request.

3.0 PROPORTIONING OF CONCRETE

3.1 COMPOSITION

- 3.1.1 The concrete shall be composed of cement, fine aggregate, coarse aggregate and water.
- 3.1.2 The concrete shall be homogeneous, readily placeable and uniformly workable and shall be proportioned in accordance with ACI-211.1.
- 3.1.3 Proportions shall be established on the basis of field experience with the materials to be employed. The amount of water used shall not exceed the maximum 0.45 water/cement ratio, and shall be reduced as necessary to produce concrete of the specified consistency at the time of placement.
- 3.1.4 An air-entraining admixture, conforming to the requirements of ASTM C260, shall be used in all concrete furnished under this contract. The quantity of admixture shall be such as to produce an air content in the freshly mixed concrete of 6 percent plus or minus 1 percent as determined in accordance with ASTM C231 or C173.



3.2 Qualities Required - As indicated in the table below:

TABLE III-1
QUALITIES REQUIRED

ITEM	QUALITY REQUIRED
AASHTO Class	A
Type of Cement	I or II
Compressive Strength f'c @ 28 days	4,000 psi
Slump, inches	2 - 4 in.

3.3 Maximum Size of Coarse Aggregates - Maximum size of coarse aggregates shall not be larger than 19 mm (3/4 inches).

3.4 Rate of Hardening of Concrete - Concrete mix shall be adjusted to produce the required rate of hardening for varied climatic conditions:

Under 40°F Ambient Temperature - All work shall be in strict conformance with the recommendations of ACI-306R "Cold Weather Concreting."

4.0 MIXING AND PLACING

4.1 Equipment - Ready Mix Concrete shall be used and shall conform to the "Specifications for Ready-Mix Concrete," ASTM C-94. Approval is required prior to using job mixed concrete.

4.2 Preparation - All work shall be in accordance with ACI-304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete." All construction debris and extraneous matter shall be removed from within the forms. Concrete shall be placed on clean surfaces, free from water. Concrete that has to be dropped four (4) feet or more shall be placed through a tremie.

4.3 All concrete shall be consolidated by internal mechanical vibration immediately after placement. Vibrators shall be of a size appropriate for the work, capable of transmitting vibration to concrete at frequencies of not less than 4,500 impulses per minute.



5.0 FORM WORK

- 5.1 Forms shall be of wood, steel or other approved material and shall be set and held true to the dimensions, lines and grades of the structure prior to and during the placement of concrete.
- 5.2 Forms shall not be removed until the concrete has sufficient strength to prevent concrete damage and/or drainage.

6.0 CURING

- 6.1 Fresh concrete shall be protected from rains, flowing water and mechanical injury for a period of at least seven (7) days. No load shall be applied to the footings until the concrete in the footings has reached its design strength.

7.0 REINFORCING STEEL

7.1 MATERIAL

- 7.1.1 All reinforcing bars shall be deformed bars (ASTM-A615) Grade 60.

7.2 BENDING AND SPLICING

- 7.2.1 Bar reinforcement shall be cut and bent to the shapes shown on the plans. Fabrication tolerances shall be in accordance with ACI 315. All bars shall be bent cold, unless otherwise permitted.
- 7.2.2 All reinforcement shall be furnished in the full lengths indicated on the plans unless otherwise permitted. Except for splices shown on the plans and splices for No. 5 or smaller bars, splicing of bars will not be permitted without written approval. Splices shall be staggered as far as possible.
- 7.2.3 In lapped splices, the bars shall be placed and wired in such a manner as to maintain the minimum distance to the surface of the concrete shown on the plans.
- 7.2.4 Substitution of different size bars will be permitted only when authorized by the engineer. The substituted bars shall have an area equivalent to the design area, or larger.

7.3 PLACING AND FASTENING

- 7.3.1 Steel reinforcement shall be accurately placed as shown on the plans and firmly held in position during the placing and setting of concrete. Bars shall be tied at all intersections around the perimeter



of each mat and at not less than 2 foot centers or at every intersection, whichever is greater, elsewhere. Welding of cross bars (tack welding) will not be permitted for assembly of reinforcement.

- 7.3.2** Reinforcing steel shall be supported in its proper position by use of mortar blocks, wire bar supports, supplementary bars or other approved devices. Such devices shall be of such height and placed at sufficiently frequent intervals so as to maintain the distance between the reinforcing and the formed surface or the top surface within 1/4 inch of that indicated on the plans.

APPENDIX A
CALCULATIONS

KBW REPORT NO: 37451
 STRUCTURE TYPE: ALBC

33 SPAN=15'-10", RISE=3'-06" Cover H =3'-00"
 E6

Pettigrew Brook and John Bliss Rd
 Wilmington, NY

Footing Reaction (AASHTO LRFD Section 12)

Footing Type: Cast-in-Place Pedestal Footing

$R_v = (V_{DL} + V_{LL}) \cdot \cos \alpha$ Vertical Footing Reaction Component

$R_h = (V_{DL} + V_{LL}) \cdot \sin \alpha$ Horizontal Footing Reaction Component

$V_{DL} = (H_2 \cdot S - A_t) \cdot \gamma_{soil} / 2$		Unit Weight of Soil	
		120 pcf	
$V_{LL} = n \cdot A_L / (L_w + 2 \cdot H_1)$		Unit Weight of Concrete	
		150 pcf	
$S_B =$	15'-10"	15.83'	Structure Bottom Span
$S =$	15'-10"	15.83'	Structure Span
$R =$	3'-06"	3.50'	Structure Rise
$R_t =$	3'-06"	3.50'	Top Rise
$H_c =$	3'-00"	3.00'	Height of Cover above arch to flexible pavement surface
$D_{ch} =$		4.0"	Keyway/Receiving Channel Depth
$H_1 =$	6'-06"	6.50'	Height of Cover (above the springline to flexible surface)
$H_2 =$	6'-02"	6.17'	Height of Cover (above top of receiving channel to flexible surface)
$\alpha =$		6.17°	Return angle
$A =$		46.8 sf	Total Xsection Area
$A_t =$		46.8 sf	Top Xsection Area
$TH =$	IGNORED	IGNORED	Type of Plate
$A_{DL} =$		149 plf	Structure Load
$A_L =$		40000 lbs	Axle load: HS-25 Truck Live Loading
$n =$		2	Traffic lanes
$L_w =$	8'-00"	8.00'	Lane width
$P_{DL} =$		0 plf	Rigid Pavement Load (per lane)

Assume Bottom Span = Max. Span?

No

Structure Footing Reaction (AASHTO LRFD Section 12.9.4.5: ALBC Reactions):

$V_{DL} =$	75 plf
$V_{EV} =$	3602 plf
$V_{LL} =$	1905 plf
$R_v =$	5549 plf
$R_h =$	600 plf

Factored Footing Reaction (AASHTO LRFD Section 3.4.1):

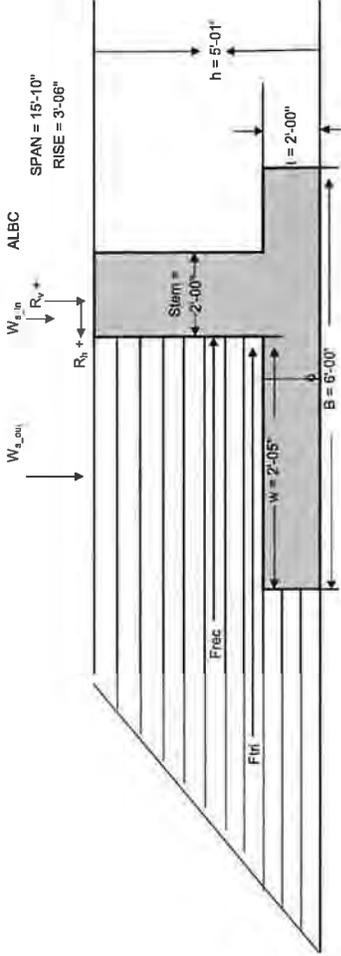
Foundations for Corrugated Arch: Strength Load Combination I

	<u>Loads:</u>	<u>Load Factors (γ):</u>	<u>Load Modifiers (n):</u>	
$V_{DL} =$	93 plf	1.25	1.00	for Dead Load
$V_{LL} =$	3333 plf	1.75	1.00	for Live Load
$V_{EV} =$	5403 plf	1.50	1.00	for Earth Load
$R_{vu} =$	8778 plf			
$R_{hu} =$	948 plf			

PEDESTAL FOOTING DESIGN
ALBC, UNFACTORED LOADING

Pettigrew Brook and John Bliss Rd, Wilmington, NY

Hc = 3.00 ft



(right is positive)

DATA	
H _{cover} to CROWN (ft)	3.00
H _{cover} to FOOTING (ft)	9.25
H _{cover} to INVERT (ft)	6.50
R _v (plf)	5549.05
R _h (plf)	599.55
Allowable Bearing Pressure, q (psf)	2000
Angle of Internal Friction	32°
Friction Factor	0.35

FOOTING GEOMETRY	
WIDTH, B (ft)	6.00
OUTSIDE WIDTH, w (ft)	2.42
STEM WIDTH (ft)	2.00
FOOTING THICKNESS, l (ft)	2.00
PEDESTAL HEIGHT, h (ft)	5.08
STRUCTURE STEM OFFSET (ft)	0.25

FOOTING LOADS	
OUTER SOIL WEIGHT, W _{s,out} (plf)	2682.5
MOMENT ARM (ft)	-1.79
INNER SOIL WEIGHT, W _{s,in} (plf)	780.0
MOMENT ARM (ft)	-0.083
BASE CONCRETE WEIGHT, W _c (plf)	1800.0
MOMENT ARM (ft)	0.00
CONCRETE STEM (plf)	825.0
MOMENT ARM (ft)	0.417
R _v (plf)	5549.0
MOMENT ARM (ft)	0.667
R _h (plf)	599.55
MOMENT ARM (ft)	-4.750

LATERAL EARTH PRESSURE	
Active Coefficient K _a	0.31
P _{max} (psf)	229.4
P _{at} (psf)	189.10
F _{max} (plf)	1166.12
MOMENT ARM (ft)	2.54
F _{at} (plf)	480.63
MOMENT ARM (ft)	1.69
At Rest Coefficient K ₀	0.47
Passive Coefficient K _p	3.25
Effective Horizontal Coefficient K _e	0.47
AT-REST RESISTANCE (plf)	56.61

From top of pedestal - Top 78" of soil neglected for service phase

BEARING PRESSURE	
SUM OF VERTICALS, Σ (plf)	11735.5
SUM OF MOMENTS, M _x (ft-#ft)	144.0
ECCENTRICITY, e (ft)	0.01
MAXIMUM NET PRESSURE, q _{max} (psf)	1980
MINIMUM NET PRESSURE (psf)	1932

SLIDING	
HORIZONTAL FRICTION (plf) (no LL)	3444.98
FACTOR OF SAFETY	2.49

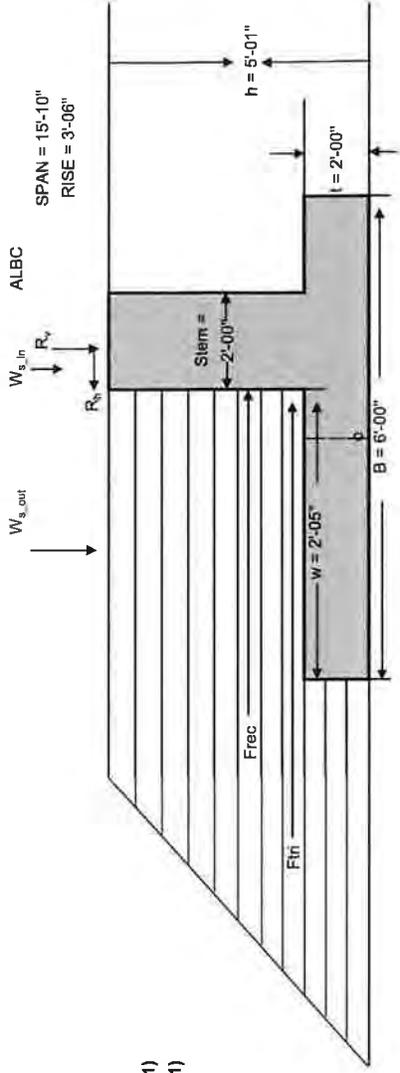
OVERTURNING	
DRIVING MOMENTS, M _D (ft-#ft)	7477.6
RESISTING MOMENTS, M _R (ft-#ft)	31054.3
FACTOR OF SAFETY	4.15

PEDESTAL FOOTING DESIGN
ALBC, FACTORED LOADING

Pettigrew Brook and John Bliss Rd, Wilmington, NY

Hc = 3.00 ft

SPAN = 15'-10"
 RISE = 3'-06"



DATA

H _{cover} to CROWN (ft)	3.00	3'-00"
H _{cover} to FOOTING (ft)	9.25	9'-03"
H _{cover} to INVERT (ft)	6.50	6'-06"
R _v (plf)	8778.49	Factored (AASHTO LRFD, Table 3.4.1-1)
R _n (plf)	948.48	Factored (AASHTO LRFD, Table 3.4.1-1)
Ultimate Bearing Capacity, q _{ult} (psf)		
Angle of Internal Friction	32°	
Friction Factor	0.35	

FOOTING GEOMETRY

WIDTH, B (ft)	6.00	6'-00"
OUTSIDE WIDTH, w (ft)	2.42	2'-05"
STEM WIDTH (ft)	2.00	2'-00"
FOOTING THICKNESS, t (ft)	2.00	2'-00"
PEDESTAL HEIGHT, h (ft)	5.08	5'-01"

FOOTING LOADS

OUTER SOIL WEIGHT, W _{s_out} (plf)	3487.3	Factored: η = 1, γ = 1.3 (AASHTO LRFD, Table 3.4.1-2)
MOMENT ARM (ft)	-1.79	
INNER SOIL WEIGHT, W _{s_in} (plf)	1014.0	Factored: η = 1, γ = 1.3 (AASHTO LRFD, Table 3.4.1-2)
MOMENT ARM (ft)	-0.083	
BASE CONCRETE WEIGHT, W _c (plf)	2250.0	Factored: η = 1, γ = 1.25 (AASHTO LRFD, Table 3.4.1-2)
MOMENT ARM (ft)	0.00	
CONCRETE STEM (plf)	1156.3	
MOMENT ARM (ft)	0.417	
R _v (plf)	8778.5	Factored (AASHTO LRFD, Table 3.4.1-1)
MOMENT ARM (ft)	0.667	
R _n (plf)	948.48	Factored (AASHTO LRFD, Table 3.4.1-1)
MOMENT ARM (ft)	-4.750	

LATERAL EARTH PRESSURE

Active Coefficient K _a	0.31	soil pressure from outside
P _{rec} (psf)	227.4	
P _{in} (psf)	187.43	
F _{rec} (plf)	1733.71	Factored: η = 1, γ = 1.5 (AASHTO LRFD, Table 3.4.1-2)
MOMENT ARM (ft)	2.54	
F _{in} (plf)	714.57	Factored: η = 1, γ = 1.5 (AASHTO LRFD, Table 3.4.1-2)
MOMENT ARM (ft)	1.69	

BEARING PRESSURE

SUM OF VERTICALS, Q (plf)	16685.992	
SUM OF MOMENTS, M _o (ft-#ft)	1113.6	(CLOCKWISE POSITIVE)
ECCENTRICITY, e (ft)	0.07	B/6 = 1.00 OK
MAXIMUM NET PRESSURE, q _{max} (psf)	2967	(phi = 0.45) = 6592 psf ultimate bearing capacity req'd
MINIMUM NET PRESSURE (psf)	2595	

SLIDING - SERVICE STATE ONLY
OVERTURNING - SERVICE STATE ONLY

PEDESTAL FOOTING STRUCTURAL DESIGN

LATERAL BENDING

AASHTO LRFD CRITERIA

Pettigrew Brook and John Bliss Rd, Wilmington, NY

ASSUMPTIONS

Concrete Strength f'_c	4,000 psi
Steel Yield Strength f_y	60,000 psi
Footing Thickness h	24.00 in
Footing Width b	1.00 ft
Depth of Cover Over Steel d_c	3.31 in

MOMENTS APPLIED TO FOOTING AT ARCH

Unfactored: Outside Cantilever	3.50 k-ft
Factored: Outside Cantilever	4.92 k-ft
Unfactored: Inside Cantilever	1.67 k-ft
Factored: Inside Cantilever	2.59 k-ft

RESULTS

Max. Unfactored Moment M_u	3.50 k-ft
Max. Factored Moment M_u	4.92 k-ft
Required a	0.08 in
Area Steel Required $A_{s,reqd}$	0.053 sq in

STEEL

Bar Spacing s_b	Use	1.0	#5 bars
Area of Steel Provided A_s			12.00 in O.C. 0.310 sq in

SHEAR CHECK

Factored Shear V_u at $d_u/2$ from Arch	2.61 kips
Depth Provided d_u	20.69 in
Depth Required $d_{u,reqd}$	1.91 in
Result	SECTION OK

MOMENT CHECK - Section 5.7.3.4

Allowable a	0.46 in
ϕM_n	28.54 k-ft
M_u	4.92 k-ft
Result	SECTION OK

$\phi = 0.9$

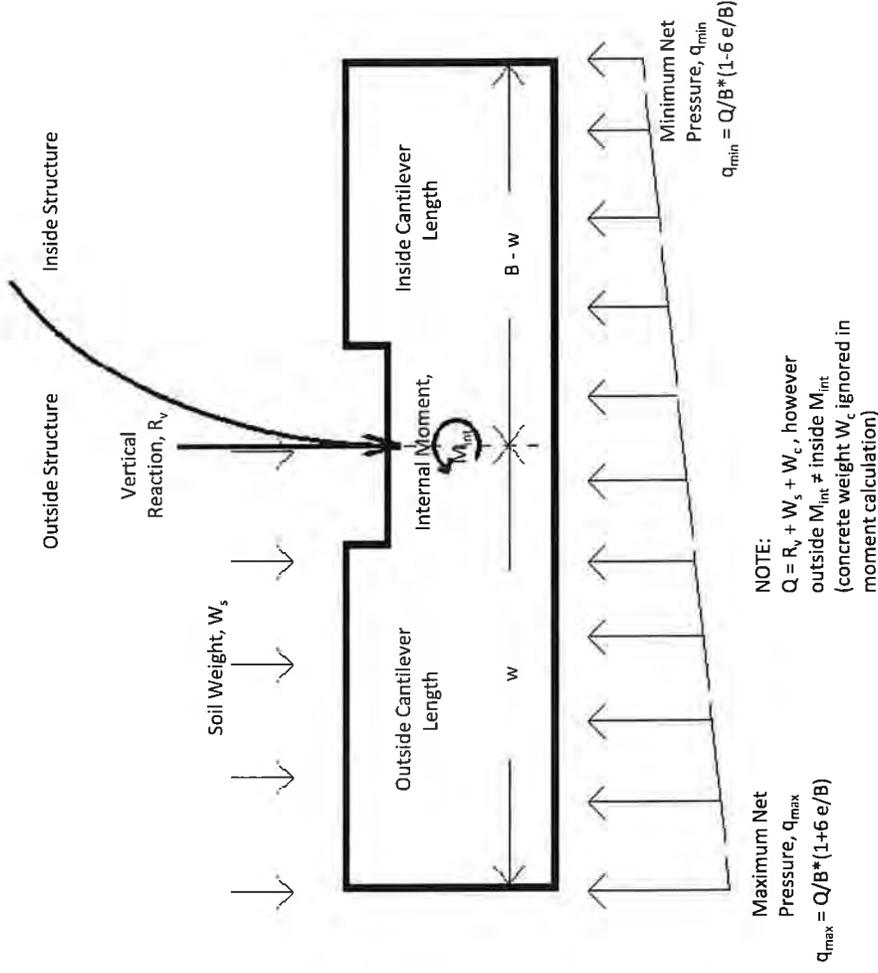
SPACING CHECK - Section 5.7.3.4

Exposure Factor Y_e	1.00
Allowable Spacing s_b	76.55 in
Result	SECTION OK

CRACK CONTROL CHECK - Section 5.7.3.3.2

Cracking Moment M_{cr}	49.40 k-ft
133% of Factored Moment M_u	6.54 k-ft
Result	SECTION OK

Mu Controls



PEDESTAL FOOTING STRUCTURAL DESIGN TEMPERATURE REINFORCEMENT

AASHTO LRFD CRITERIA

Pettigrew Brook and John Bliss Rd, Wilmington, NY

HAS KEY WAY? Yes ; Width = 10.0 in

STEEL BARS	Bar Size	Bar Area
Longitudinal Bars	#5 bars	0.310 sq in
Transverse Bars, Bottom	#5 bars	0.310 sq in
Transverse Bent Bars, Top	#5 bars	0.310 sq in

DIMENSIONS	Longitudinal	Transverse
Bar Spacing s_s	≤ 12.00 in O.C.	≤ 12.00 in O.C.
Height h	24.0 in	24.0 in
Width b	72.0 in	12.0 in
Outside Width w_{out}	23.8 in	
Inside Width w_{in}	38.3 in	
Gross Area A_g	1728 sq in	288 sq in
Perimeter P	192.0 in	24.0 in

NUMBER OF BARS	Longitudinal	Transverse
Side Bars (Left and Right)	3	
Bottom Bars	8	1.0 Top & Bottom
Outside With Bars	4	
Inside Width Bars	4	
Under Keyway	0	
Total	18	2

CHECK AASHTO LRFD CRITERIA - Section 5.10.8

Steel Yield Strength f_y	60 ksi	60 ksi
Min. Ratio of A_s to A_g	0.0018	0.0018
Min. A_s per Linear Foot	0.1944	0.2592
Max. Spacing Permitted s_{max}	12 in	12 in
Check $s_s < s_{max}$	OK	OK
Check $A_{s,reqd} < A_s$	OK	OK

C5.10.8, ACI 7.12.2.1

 $(A_s/A_g)_{min} A_g / P$

PEDESTAL FOOTING STRUCTURAL DESIGN

VERTICAL BENDING OF STEM

AASHTO LRFD CRITERIA

Pettigrew Brook and John Bliss Rd, Wilmington, NY

ASSUMPTIONS

Concrete Strength f_c	4,000 psi
Steel Yield Strength f_y	60,000 psi
Stem Thickness t_{stem}	24.00 in
Stem Width b	1.00 ft
Stem Height h	3.08 ft
Depth of Cover Over Steel d_c	2.31 in

RESULTS

Max. Unfactored Moment M_s	1.31 k-ft	(at stem bottom - soil face positive)
Max. Factored Moment M_u	1.95 k-ft	(at stem bottom - soil face positive)
Required a	0.03 in	
Area Steel Required A_{reqd}	0.020 sq in	

STEEL

Use	1.0	#5 bars
Bar Spacing s_s		12.00 in O.C.
Area of Steel Provided A_s		0.309 sq in
Result		SECTION OK

SHEAR CHECK

Factored Shear V_u	3.40 kips
Depth Provided d_v	21.69 in
Depth Required d_{reqd}	2.49 in
Result	SECTION OK

MOMENT CHECK - Section 5.7.3.4

Allowable a	0.45 in	$\phi = 0.9$
ϕM_n	29.81 k-ft	
M_u	1.95 k-ft	
Result	SECTION OK	

SPACING CHECK - Section 5.7.3.4

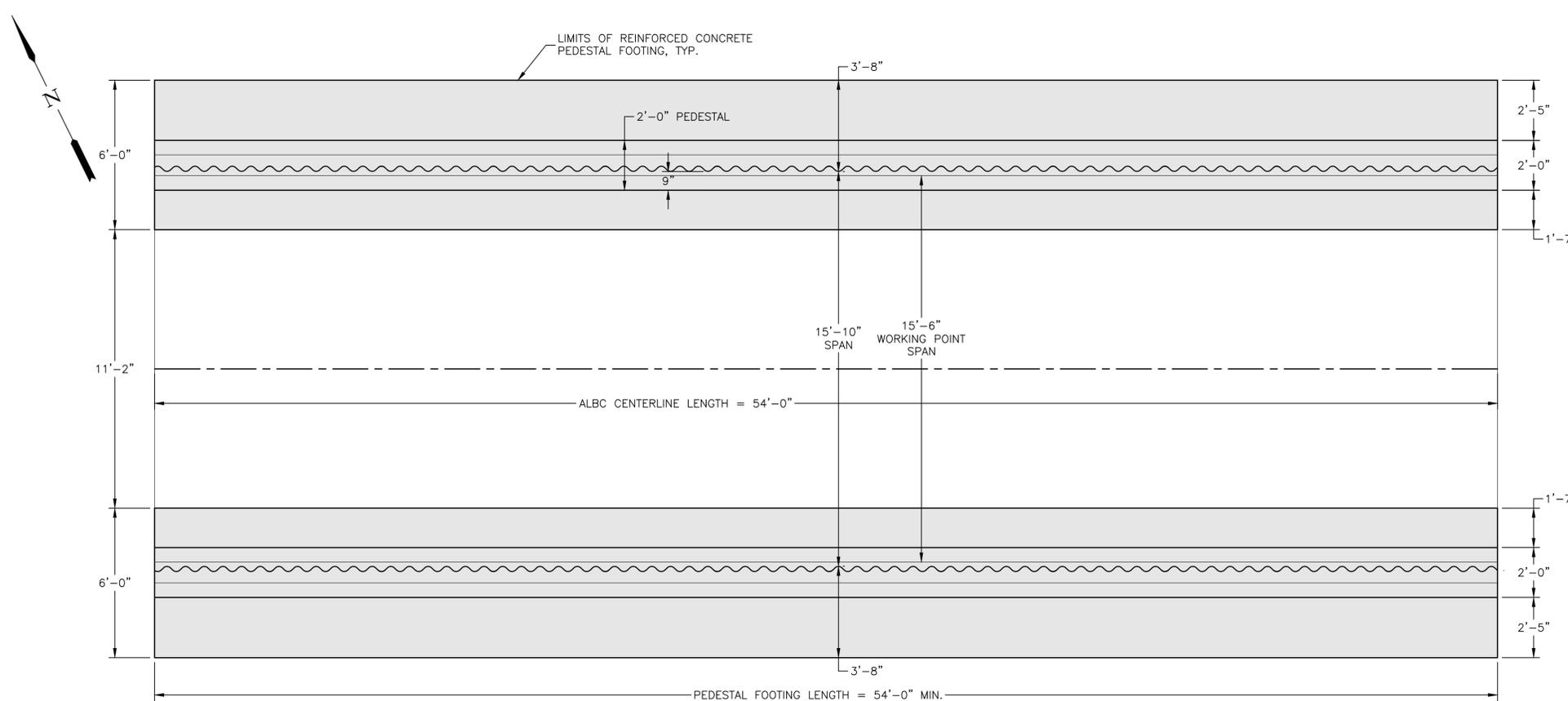
Exposure Factor γ_e	1.00
Allowable Spacing s_a	243.75 in
Result	SECTION OK

CRACK CONTROL CHECK - Section 5.7.3.3.2

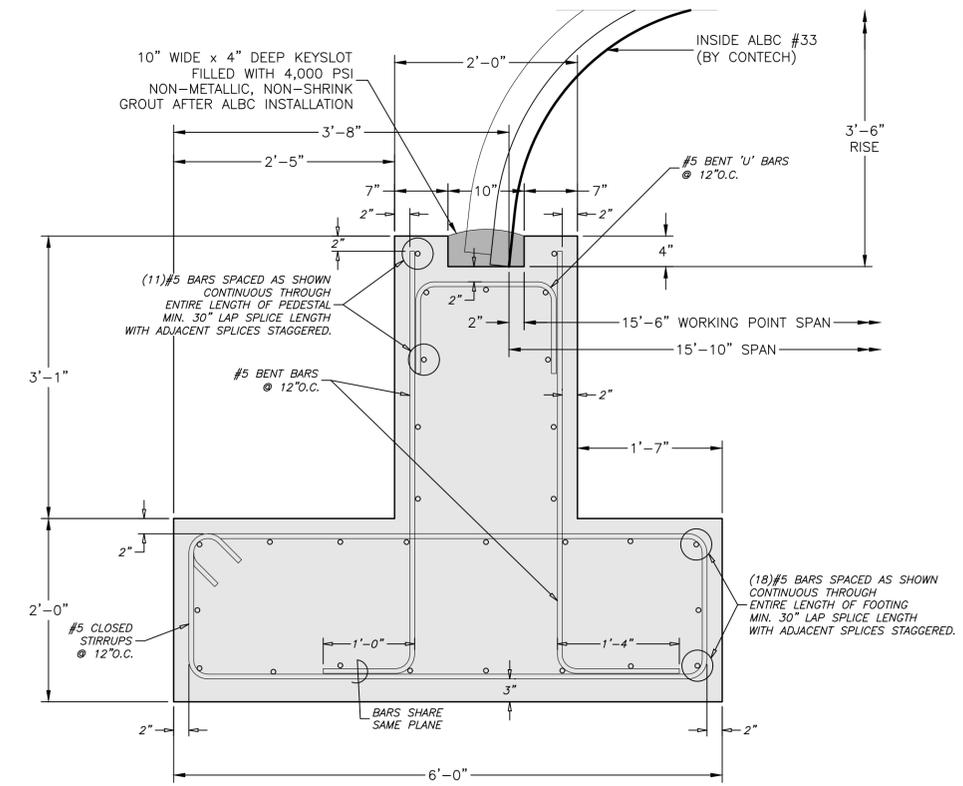
Cracking Moment M_{cr}	49.40 k-ft	Mu Controls
133% of Factored Moment M_u	2.59 k-ft	
Result	SECTION OK	

APPENDIX B

PRINTS

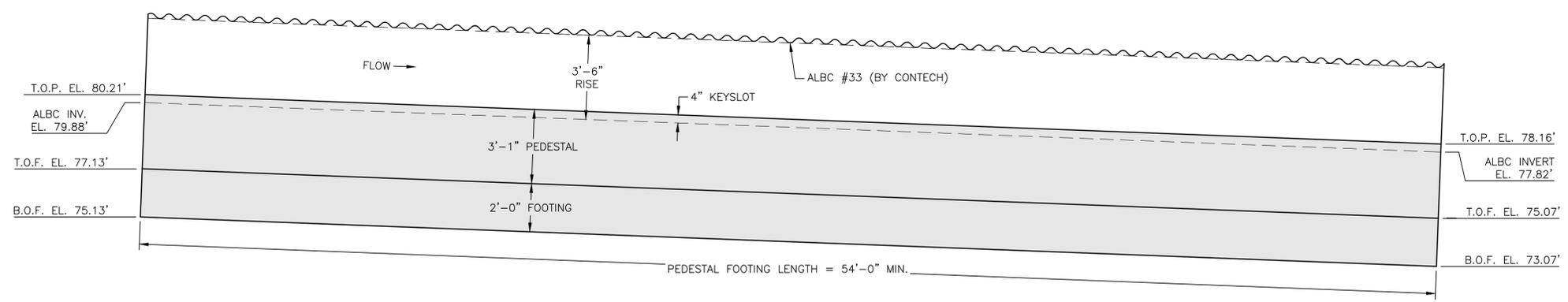


PLAN VIEW
GRAPHIC SCALE



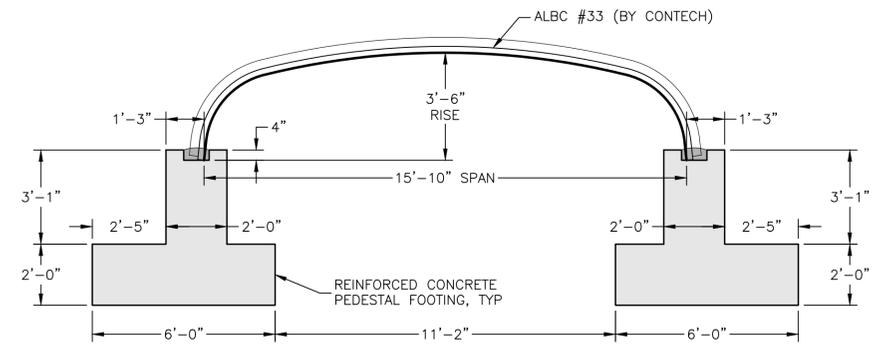
TYPICAL FOOTING SECTION

GRAPHIC SCALE



PROFILE THROUGH CENTERLINE OF STRUCTURE

GRAPHIC SCALE



ELEVATION VIEW

GRAPHIC SCALE

NOTE: ELEVATIONS PROVIDED BY OTHERS. TO BE FIELD VERIFIED BY OTHERS PRIOR TO CONSTRUCTION.

- NOTES:**
- 1.) CONCRETE SHALL BE $f'c = 4,000$ psi.
 - 2.) ALL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60.
 - 3.) FOOTING IS DESIGNED FOR A 2,000 psf ALLOWABLE BEARING CAPACITY WITH A FRICTION FACTOR OF 0.35. THESE VALUES MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
 - 4.) SCOUR IS NOT ADDRESSED HEREIN AND IS THE RESPONSIBILITY OF OTHERS THAN KBJW.
 - 5.) FOOTING DESIGN BASED ON A MAXIMUM HEIGHT OF COVER ABOVE THE ALBC OF 3.00 FT. @ 120 pcf WITH HS-25 LIVE LOAD.



<p>Formerly CBC Engineers</p>				
<p>PEDESTAL FOOTING DETAILS</p>				
Drawn By JBE	Date 12/15/25	Project No. 37451-001-01	Rev. -	Sheet 1 OF 2
Scale GRAPHIC		Project Name Ausable Freshwater Center Design of Cast-in-Place Concrete Pedestal Spread Footing Foundations for a Proposed Contech ALBC; Pettigrew Brook Crossing of John Bliss Road, Wilmington, New York		

1.0 STANDARDS AND DEFINITIONS

1.1 STANDARDS - All standards refer to latest edition unless otherwise noted.

- 1.1.1 ASTM D-698-70 (Method C) "Standard Test Methods for Moisture, Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-lb (2.5 kg.) Rammer and 12-inch (305-mm) Drop".
- 1.1.2 ASTM D-2922 "Standard Test Method for Density of Soil and Soil Aggregate in Place by Nuclear methods (Shallow Depth)".
- 1.1.3 ASTM D-1556 "Standard Test Method for Density of Soil in place by the Sand-Cone Method".
- 1.1.4 ASTM D-1557 "Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort."
- 1.1.5 All construction and materials shall be in accordance with the latest AASHTO LRFD Bridge Design Specifications, DOT requirements and these specifications. In the case of duplicate specifications, the more stringent requirement shall govern.

1.2 DEFINITIONS

- 1.2.1 Owner - In these specifications the word "Owner" shall mean the owner of the ALBC.
- 1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Owner designated engineer.
- 1.2.3 Design Engineer - In these specifications the words "Design Engineer" shall mean KBJW, Inc.
- 1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any work under the terms of these specifications.
- 1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.
- 1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.

2.0 GENERAL CONDITIONS

2.1 The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein.

This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the observation of the Owner or his designated representative.

2.2 Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the owner can investigate the condition.

2.3 The construction shall be performed under the direction of an experienced engineer who is familiar with the design plan.

II - FOOTINGS FOR ALBC

1.0 EXCAVATION FOR FOOTINGS

- 1.1 Footing excavation shall consist of the removal of all material, of whatever nature, necessary for the construction of foundations.
- 1.2 It shall be the responsibility of the Contractor to identify and relocate all existing utilities which conflict with the proposed footing locations shown on the plan. The Contractor must call the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities, and coordinate removal and installation of all utilities with the respective utility company.
- 1.3 The side of all excavations shall be cut to prevent sliding or caving of the material above the footings.
- 1.4 Excavated material shall be disposed in accordance with the plan established by the Engineer.
- 1.5 The footings are designed for an allowable bearing capacity of 2,000 psf. A friction factor of 0.35 has been utilized. These values shall be verified in the field before construction. The evaluation and design of any required foundation improvement to achieve the design allowable bearing capacity and friction factor, and to protect against frost and scour and settlement, is the responsibility of others than KBJW. All recommendations in the project geotechnical report shall be followed during construction.

1.6 The backfill on both sides of the pedestal footings shall be placed in an even manner to prevent unbalanced loading on the footings. The backfill shall be compacted as per the project specifications and the manufacturer's requirements.

2.0 CONCRETE FOOTING DIMENSIONS

- 2.1 The footings shall be reinforced in accordance with the construction drawings.
- 2.2 The concrete and steel for the footings shall meet the requirements of Section III of these specifications.

III - CONCRETE FOR ALBC FOOTINGS

1.0 CODES AND STANDARDS

1.1 Reinforced concrete shall conform to the requirements of AASHTO Standard Specifications for Highway Bridges, Division II - Construction, Section 8, "Concrete Structures", for Class A concrete, having a minimum compressive strength of 4,000 psi.

2.0 STANDARDS FOR MATERIALS

- 2.1 Portland Cement - Conforming to ASTM Specification C-150, Type I or II.
- 2.2 Water - The water shall be drinkable, clean free from injurious amounts of oils, acids, alkalis, organic materials, or deleterious substances.
- 2.3 Aggregates - Fine and coarse aggregates shall conform to current ASTM Specification C-33 "Specification for Concrete Aggregates" except that local aggregates which have been shown by tests and by actual service to produce satisfactory qualities may be used when approved by the Engineer.
- 2.4 Submittals - Test data and/or certifications to the Owner shall be furnished upon request.

3.0 PROPORTIONING OF CONCRETE

3.1 COMPOSITION

- 3.1.1 The concrete shall be composed of cement, fine aggregate, coarse aggregate and water.
- 3.1.2 The concrete shall be homogeneous, readily placeable and uniformly workable and shall be proportioned in accordance with ACI-211.1.
- 3.1.3 Proportions shall be established on the basis of field experience with the materials to be employed. The amount of water used shall not exceed the maximum 0.45 water/cement ratio, and shall be reduced as necessary to produce concrete of the specified consistency at the time of placement.
- 3.1.4 An air-entraining admixture, conforming to the requirements of ASTM C260, shall be used in all concrete furnished under this contract. The quantity of admixture shall be such as to produce an air content in the freshly mixed concrete of 6 percent plus or minus 1 percent as determined in accordance with ASTM C231 or C173.

3.2 Qualities Required - As indicated in the table below:

TABLE III-1 QUALITIES REQUIRED	
ITEM	QUALITY REQUIRED
AASHTO Class	A
Type of Cement	I or II
Compressive Strength f'c @ 28 days	4,000 psi
Slump, inches	2 - 4 in.

- 3.3 Maximum Size of Coarse Aggregates - Maximum size of coarse aggregates shall not be larger than 19 mm (3/4 inches).
- 3.4 Rate of Hardening of Concrete - Concrete mix shall be adjusted to produce the required rate of hardening for varied climatic conditions:

Under 40°F Ambient Temperature - All work shall be in strict conformance with the recommendations of ACI-306R "Cold Weather Concreting."

4.0 MIXING AND PLACING

- 4.1 Equipment - Ready Mix Concrete shall be used and shall conform to the "Specifications for Ready-Mix Concrete," ASTM C-94. Approval is required prior to using job mixed concrete.
- 4.2 Preparation - All work shall be in accordance with ACI-304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete." All construction debris and extraneous matter shall be removed from within the forms. Concrete shall be placed on clean surfaces, free from water. Concrete that has to be dropped four (4) feet or more shall be placed through a tremie.
- 4.3 All concrete shall be consolidated by internal mechanical vibration immediately after placement. Vibrators shall be of a size appropriate for the work, capable of transmitting vibration to concrete at frequencies of not less than 4,500 impulses per minute.

5.0 FORM WORK

- 5.1 Forms shall be of wood, steel or other approved material and shall be set and held true to the dimensions, lines and grades of the structure prior to and during the placement of concrete.
- 5.2 Forms shall not be removed until the concrete has sufficient strength to prevent concrete damage and/or drainage.

6.0 CURING

6.1 Fresh concrete shall be protected from rains, flowing water and mechanical injury for a period of at least seven (7) days. No load shall be applied to the footings until the concrete in the footings has reached its design strength.

7.0 REINFORCING STEEL

7.1 MATERIAL

7.1.1 All reinforcing bars shall be deformed bars (ASTM-A615) Grade 60.

7.2 BENDING AND SPLICING

- 7.2.1 Bar reinforcement shall be cut and bent to the shapes shown on the plans. Fabrication tolerances shall be in accordance with ACI 315. All bars shall be bent cold, unless otherwise permitted.
- 7.2.2 All reinforcement shall be furnished in the full lengths indicated on the plans unless otherwise permitted. Except for splices shown on the plans and splices for No. 5 or smaller bars, splicing of bars will not be permitted without written approval. Splices shall be staggered as far as possible.
- 7.2.3 In lapped splices, the bars shall be placed and wired in such a manner as to maintain the minimum distance to the surface of the concrete shown on the plans.
- 7.2.4 Substitution of different size bars will be permitted only when authorized by the engineer. The substituted bars shall have an area equivalent to the design area, or larger.

7.3 PLACING AND FASTENING

- 7.3.1 Steel reinforcement shall be accurately placed as shown on the plans and firmly held in position during the placing and setting of concrete. Bars shall be tied at all intersections around the perimeter of each mat and at not less than 2 foot centers or at every intersection, whichever is greater, elsewhere. Welding of cross bars (tack welding) will not be permitted for assembly of reinforcement.
- 7.3.2 Reinforcing steel shall be supported in its proper position by use of mortar blocks, wire bar supports, supplementary bars or other approved devices. Such devices shall be of such height and placed at sufficiently frequent intervals so as to maintain the distance between the reinforcing and the formed surface or the top surface within 1/4 inch of that indicated on the plans.



 KONTZ BRYANT JOHNSON WILLIAMS Formerly CBC Engineers			
SPECIFICATIONS			
Drawn By JBE	Date 12/15/25	Ausable Freshwater Center Design of Cast-in-Place Concrete Pedestal Spread Footing Foundations for a Proposed Contech ALBC; Pettigrew Brook Crossing of John Bliss Road, Wilmington, New York	
Approved By	Date	Project No. 37451-001-01	Rev. Sheet - 2 OF 2
Scale GRAPHIC			