



Department of Energy

Office of Science
Fermi Site Office
Post Office Box 2000
Batavia, Illinois 60510

March 26, 2024

Mr. Marc Clay
Chief Safety Officer, Interim
Fermilab
P.O. Box 500
Batavia, IL 60510

SUBJECT: NATIONAL ENVIRONMENTAL POLICY ACT DETERMINATION
AT FERMI NATIONAL ACCELERATOR LABORATORY –
DOMESTIC WATER SUPPLY LOOP FEED AT GRID COMPUTING
CENTER

Reference: Letter, from M. Clay to R. Hersemann, dated March 20, 2024; Subject:
“National Environmental Policy Act Environmental Evaluation
Notification Form for Domestic Water Supply Loop Feed at Grid
Computing Center”

Dear Mr. Clay:

The Fermi Site Office (FSO) has reviewed the National Environmental Policy Act (NEPA) Environmental Evaluation Notification Form (EENF) for the Domestic Water Supply (DWS) Loop Feed at Grid Computing Center (GCC). Based on the information provided in the EENF, the following categorical exclusion (CX) is approved.

<u>Project Name</u>	<u>Approved</u>	<u>CX</u>
DWS Loop Feed at GCC	3/22/2024	B5.5

Enclosed is a signed copy of the EENF for your records. No further NEPA review is required. This project falls under categorical exclusions provided in 40 *CFR* 1021, as amended in November 2011.

If you have any questions, please contact Rick Hersemann, of my staff, at (630) 840-4122 or by email at rick.hersemann@science.doe.gov.

Sincerely,

Roger E. Snyder
Manager, Fermi Site Office

Enclosures: As Stated

cc:

J. Sawyer, FRA

M. Michels, FRA

L. Huntoon, FRA

S. Panock, FRA

R. Hersemann, DOE-FSO

J. Scott, DOE-FSO

FERMILAB ENVIRONMENTAL EVALUATION NOTIFICATION FORM (EENF) for documenting compliance with the National Environmental Policy Act (NEPA), Department of Energy (DOE) NEPA Implementing Regulations, and the DOE NEPA Compliance Program of DOE Policy 451.1

Project/Activity Title: Domestic Water Supply Loop Feed at Grid Computing Center
ES&H Tracking Number: 03-05-203

I hereby verify, via my signature, the accuracy of information in the area of my contribution for this document and that every effort would be made throughout this action to comply with the commitments made in this document and to pursue cost-effective pollution prevention opportunities. Pollution prevention (source reduction and other practices that eliminate or reduce the creation of pollutants) is recognized as a good business practice which would enhance site operations thereby enabling Fermilab to accomplish its mission, achieve environmental compliance, reduce risks to health and the environment, and prevent or minimize future Department of Energy (DOE) legacy wastes.

Fermilab Action Owner: Eric Otto

Signature and Date

Eric L. Otto

Digitally signed by Eric L. Otto

Date: 2024.03.20 11:21:30 -05'00'

I. Description of the Proposed Action and Need

Purpose and Need:

The purpose of this project is to install approximately 1400 LF of 4" PVC domestic water supply (DWS) pipe feed into the existing 6" DWS pipe running along the north side of Batavia Road, east of Site 50. From that connection at Batavia Road, the new 4" DWS pipe will be installed along a northwesterly alignment that will extend to the northeast corner of the Grid Computing Center (GCC) building. At the connections of the new pipe to the existing pipe, additional valves will be installed to allow isolation of each leg of the loop to avoid total shutdown of DWS supply in the future.

There is a need for this, because the GCC building, originally constructed as the Service Building Structure for the Wide Band Experimental Laboratory in the mid-1980s, has only a single DWS service, originally constructed to provide domestic water for washrooms. In the early 2000s the building was converted to the current GCC building with the existing DWS service remaining as a single source, dead end service, supplying domestic water to the building. During a recent DWS shutdown to repair a leaking pipe that supplied the GCC, the building humidification system, also connected to the DWS service, experienced issues that could have compromised operations in the tape storage room.

Proposed Action:

The scope of work for this project may include the following:

- Installation of approximately 1,433 linear feet (LF) of 4" PVC DWS pipe, including one flushing hydrant, five valves, two valve boxes, and three valve vaults.
- Removal and replacement of 19 square yard (SY) of asphalt pavement and 18 SY of hardstand.
- Removal and replacement of 20 LF of 18" storm sewer at the crossing with the new 4" DWS pipe to comply with Illinois Plumbing Code.
- This utility work will require trenching. Any surplus soil from the trenching will be respread within the construction corridor and graded and shaped to blend with adjacent grades. All disturbed areas will be stabilized with seeding and erosion control blanket.

Alternatives Considered:

1. Convert the humidification system from DWS to Industrial Cooling Water (ICW). This alternative was not selected, because it would require ancillary equipment requirements that would ultimately cost more than a secondary domestic feed. The ICW as delivered is not suitably clean for the humidification system in GCC. Implementing this alternative would require design and installation of a new building-specific filtration system, where there is currently none. The added design and installation cost, coupled with the periodic maintenance of the new system quickly surpass the cost of a second DWS line. Further the humidification system would likely need to be down for an extended period during installation, a state that should be avoided.
2. Move the GCC facility functions to another building. This cost and timescale of this alternative greatly exceed that of adding a new DWS pipe.
3. Maintain Status Quo (i.e., do nothing). As previously stated, the current GCC humidification system relies on the existing DWS service, which is a one-point-failure vulnerability to lab data storage. This is not a viable strategy for a world class laboratory.

II. Description of the Affected Environment

Specific environmental effects are presented in Section III and IV.

III. Potential Environmental Effects (If the answer to the questions below is "yes", provide comments for each checked item and where clarification is necessary.)

A. Sensitive Resources: Would the proposed action result in changes and/or disturbances to any of the following resources?

- Threatened or endangered species
- Other protected species
- Wetland/Floodplains
- Archaeological or historical resources
- Non-attainment areas

B. Regulated Substances/Activities: Would the proposed action involve any of the following regulated substances or activities?

- Clearing or Excavation
- Demolition or decommissioning
- Asbestos removal
- PCBs
- Chemical use or storage
- Pesticides
- Air emissions
- Liquid effluents
- Underground storage tanks
- Hazardous or other regulated waste (including radioactive or mixed)
- Radioactive exposures or radioactive emissions
- Radioactivation of soil or groundwater

C. Other Relevant Disclosures: Would the proposed action involve any of the following actions/disclosures?

- Threatened violation of ES&H permit requirements
- Siting/construction/major modification of waste recovery or TSD facilities
- Disturbance of pre-existing contamination

- New or modified permits
- Public controversy
- Action/involvement of another federal agency
- Public utilities/services
- Depletion of a non-renewable resource

IV. Comments on checked items in section III.

Wetlands/Floodplains

An official wetland delineation was conducted by WBK Engineering on February 23, 2024 (section VII). The proposed activity will avoid wetlands, so a permit is not required, and further wetland impact evaluation is not necessary.

Clearing or Excavation

This proposed utility work will require trenching. Any surplus soil from the trenching will be respread within the construction corridor and graded and shaped to blend with adjacent grades. All disturbed areas will be stabilized with seeding and erosion control blanket. The proposed action will include 0.67 total acres of disturbance (landscape and hardscape), so additional notice of intent or permit required. Approximately 0.26 acres of a dense stand of trees and shrubs will be removed to allow for trenching and DWS pipe installation. In addition, five individual trees will be removed to allow for trenching and DWS pipe installation. To protect existing trees that will remain, tree protection fence, tree root pruning, and tree trunk protection will be included.

Public utilities/services

The proposed activity will create an alternate domestic water supply to GCC by routing water from an existing water line. GCC domestic water supply may experience interruptions during construction.

V. NEPA Recommendation

Fermilab staff has evaluated the proposed action and believe that a Categorical Exclusion (CX) applies. It is believed that the proposed action meets the description found in DOE’s NEPA Implementation Procedures, 10 CFR 1021, Subpart D, Appendix B5.5, as provided below.

B5.5 Short pipeline segments. Construction and subsequent operation of short (generally less than 20 miles in length) pipeline segments conveying materials (such as air, brine, carbon dioxide, geothermal system fluids, hydrogen gas, natural gas, nitrogen gas, oil, produced water, steam, and water) between existing source facilities and existing receiving facilities (such as facilities for use, reuse, transportation, storage, and refining), provided that the pipeline segments are within previously disturbed or developed rights-of-way.

Fermilab NEPA Program Manager: Samantha Panock **Samantha Panock**
Signature and Date _____

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 Date: 2024.03.20 11:06:46 -05'00'

VI. DOE/Fermi Site Office (FSO) NEPA Review

Based upon my review of information conveyed to me and in my possession concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Policy 451.1), I have determined that the proposed action fits within the specified class of actions, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

FSO NEPA Compliance Officer: Rick Hersemann **RICK HERSEMANN**
Signature and Date _____

Digitally signed by RICK HERSEMANN
 Date: 2024.03.22 10:24:22 -05'00'

VII. Diagrams

- Attachment 1: DWS GCC Maps
- Attachment 2: Wetland Delineation

PROJECT NO.	DATE	ISSUE NO.	REVISION NO.
XXXXXXXXXX	10/20/24	00-01-003	0001

SPECIFICATIONS

DWS LOOP FEED AT GCC

REVISIONS	DATE	DESCRIPTION

Fermilab
Fermi Research Alliance LLC

SHEET NO. **G-03**

- SEWER WHEN:**
- 2.10.2.1. LOCAL CONDITIONS PREVENT A LATERAL SEPARATION ABOVE THE TOP OF THE SEWER, OR
 - 2.10.2.2. THE WATERMAIN IS EITHER IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON AN EARTH SHELVE LOCATED TO ONE SIDE OF THE SEWER.
 - 2.10.2.3. WHEN IT IS IMPOSSIBLE TO MEET THE ABOVE REQUIREMENTS, THE SEWER SHALL BE INSTALLED IN A SEPARATE TRENCH WITH A MINIMUM 12-INCH CLEARANCE FROM THE WATERMAIN. THE SEWER SHALL ALSO BE PRESSURE TESTED TO MAXIMUM EXPECTED SURCHARGE HEAD BEFORE BACKFILLING.
 - 2.10.2.4. THESE REQUIREMENTS SHALL ALSO APPLY FOR WATER SERVICE LINES, LOW CONDUCTIVITY WATER (LCW) AND INDUSTRIAL COOLING WATER (ICW) WATERMAINS.
- 2.10.2. VERTICAL SEPARATION**
- 2.10.2.1. WHENEVER A WATERMAIN CROSSES A SANITARY SEWER OR A STORM SEWER, THE WATERMAIN SHALL BE SEPARATED FROM THE SEWER BY A MINIMUM 18 INCH CLEARANCE. THE WATERMAIN SHALL BE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
 - 2.10.2.2. WHENEVER THE REQUIRED 18-INCH VERTICAL SEPARATION CANNOT BE MAINTAINED BETWEEN A SEWER AND A WATERMAIN, THE WATERMAIN SHALL BE PROTECTED BY MEANS OF ONE OF THE FOLLOWING METHODS:
 - 2.10.2.2.1. CONSTRUCT THE SEWER OF PRESSURE PIPE MEETING WATERMAIN STANDARDS FOR A DISTANCE OF 10 FEET EACH SIDE OF (MEASURED PERPENDICULAR TO) THE WATERMAIN.
 - 2.10.2.2.2. INSTALL EITHER THE SEWER OR WATERMAIN WITH A WATER-TIGHT STEEL CASING PIPE FOR A DISTANCE OF 10 FEET EACH SIDE OF THE CROSSING (MEASURED PERPENDICULAR TO THE LINE NOT PROVIDED WITH THE CASING PIPE). SEAL BOTH ENDS OF THE CASING WITH HYDRAULIC GROUT.
 - 2.10.2.3. THE METHOD TO BE USED AT EACH SPECIFIC LOCATION SHALL BE AS INDICATED ON THE PLANS. IN THE EVENT THAT A CLEARANCE PROBLEM IS NOT DISCOVERED UNTIL AFTER CONSTRUCTION IS UNDERWAY, THE FCC SHALL DETERMINE WHICH METHOD TO USE.
 - 2.10.2.4. A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE SEWER AND THE TOP OF THE WATERMAIN SHALL BE MAINTAINED WHENEVER A WATERMAIN CROSSES UNDER A SEWER.
 - 2.10.2.5. CONSTRUCTION REQUIREMENTS AND DETAILS (REGARDING VERTICAL SEPARATION, MATERIALS AND STRUCTURAL SUPPORT) AT ALL CROSSINGS SHALL BE IDENTIFIED AND SHOWN ON THE PLANS. THE APPLICABLE DETAIL DRAWINGS IN THE STANDARD SPECIFICATIONS SHALL ALSO APPLY FOR WATER SERVICE LINES, LCW, AND ICW WATERMAINS.
- 2.1. GENERAL**
- 1.1. UNSUITABLE SOIL CONDITIONS
 - 1.1.1. WHEN UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED UNDER PIPES OR STRUCTURES THAT REQUIRE THE REMOVAL OF UNSUITABLE SOIL, THE CONTRACTOR SHALL REMOVE THE SOIL TO A DEPTH OF 12 INCHES BELOW THE GRANULAR MATERIAL OF THE GRADATION APPROVED BY THE FCC.
 - 1.1.2. DEPTH OF REMOVAL SHALL BE AS DETERMINED BY THE FCC.
 - 1.2. PIPE BEDDING & BACKFILL
 - 1.2.1. WATERMAIN PIPES SHALL BE PLACED ON A GRANULAR CRADLE (BEDDING) NOT LESS THAN 4 INCHES NOR MORE THAN 6 INCHES IN THICKNESS. THE CRADLE SHALL BE GRANULAR MATERIAL THAT SHALL CONSIST OF GRADED MATERIAL (DOT EQUIVALENT F45). THIS MATERIAL SHALL ALSO BE USED FOR HAUNCHING UNDER PAVEMENTS AND WITHIN 2' FROM EDGE OF PAVEMENTS. CONTACTOR SHALL INSTALL F45 TO 1' ABOVE TOP OF PIPE.
 - 1.2.2. FROM THE SPRING LINE OF THE PIPE TO GRADE THE TRENCH SHALL BE BACKFILLED WITH GRANULAR MATERIAL TO A MINIMUM DENSITY OF 95% OF STANDARD PROCTOR DENSITY OR WHERE NOTED ON PLANS.
 - 1.2.2.1. FILL SHALL BE PLACED IN MAXIMUM 12-INCH LIFTS AND COMPACTED TO NOT LESS THAN 95% OF STANDARD PROCTOR DENSITY (ASTM D998).
 - 1.2.3. GRANULAR BACKFILL
 - 1.2.3.1. SELECTED GRANULAR BACKFILL (DOT GRADATION CA-6) SHALL BE USED TO BACKFILL ALL TRENCHES UNDER EXISTING AND NEW VEHICLE PAVEMENTS AND SIDEWALKS; ALL TRENCHES WHOSE EDGE IS CLOSER THAN 3 FEET FROM THE EDGE OF AN EXISTING OR NEW VEHICLE PAVEMENT, SIDEWALK, AND WHERE SPECIFICALLY INDICATED ON THE PLANS.
 - 1.2.3.2. GRANULAR BACKFILL SHALL BE PLACED FROM 1' ABOVE THE TOP OF PIPE TO THE BOTTOM OF THE PAVEMENT SUBBASE.
 - 1.2.3.3. GRANULAR BACKFILL PLACED IN TRENCHES LOCATED UNDER EXISTING AND NEW PAVEMENTS SHALL BE MECHANICALLY COMPACTED (MINIMUM LIFT THICKNESS), TO NOT LESS THAN 95% OF STANDARD PROCTOR DENSITY (ASTM D998).
 - 1.3. DEPTH OF COVER - MINIMUM DEPTH OF PIPE COVER SHALL BE 5 FEET. MAXIMUM PIPE COVER AT VALVES AND HYDRANTS SHALL BE 7 1/2 FEET, EXCEPT WHERE A GREATER DEPTH IS INDICATED ON THE DRAWINGS.
 - 1.4. SUBCONTRACTOR SHALL PROVIDE AND INSTALL FOR ALL UNDERGROUND PIPING THE FOLLOWING:
 - 1.4.1. DETECTABLE UNDERGROUND WARNING TAPE SHALL BE INSTALLED ABOVE ALL PIPING FOR THIS PROJECT FOR PROTECTION OF THE PIPE. SUBCONTRACTOR SHALL FURNISH AND INSTALL DETECTABLE UNDERGROUND WARNING TAPE OVER THE CENTERLINE OF THE PIPE 6" BELOW THE GRADE. DETECTABLE UNDERGROUND WARNING TAPE SHALL BE GRANULAR DETECTABLE UNDERGROUND TAPE IN CONFORMANCE WITH ASTM STANDARDS AND SHALL BE MANUFACTURED BY PRESCO, AETON, MERCOR, OR EQUAL.
- 2. DOMESTIC WATER SUPPLY (DWS)**
- 2.1. PVC PIPE MATERIALS
 - 2.1.1. DWS MAIN SHALL BE CONSTRUCTED OF AWWA C-900 PVC PIPE. MINIMUM WALL THICKNESS SHALL BE 50R 10.
 - 2.1.2. ALL PVC PIPE SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC RINGS MEETING ASTM F447. NO SOLVENT JOINTS SHALL BE PERMITTED.
 - 2.1.3. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT FITTINGS CONFORMING TO ANSI/AWWA C10A21.10, NPPA 1324, ASTM A536, NSF 61 AND 372, AND ASPHALTIC COATINGS AND CEMENT LININGS CONFORMING TO ANSI/AWWA C10A21.4 AND ANSI/AWWA C10A21.10. ALL DUCTILE IRON FITTING JOINTS SHALL HAVE EBRA IRON WORKS
- 2.2. FITTINGS AND CONNECTIONS**
- 2.2.1. CURB STOP EXTENSION BOX SHALL HAVE A MINNEAPOLIS PATTERN AND SHALL BE MUELLER OR APPROVED EQUAL, AND USE A THREADED PLASTIC B-BOX STABILIZER.
 - 2.2.2. SADDLES SHALL BE DOUBLE BENDED AND CONSTRUCTED OF TYPE 304 STAINLESS STEEL WITH STAINLESS STEEL NUTS AND BOLTS. THEY SHALL BE FORD STYLE F5323 OR APPROVED EQUAL.
 - 2.2.3. BOTH PIPE AND FITTINGS MUST BE LISTED BY THE MANUFACTURER WITH PIPE BEARING THE NSF 61 LOGO OR MARK AND PRESSURE RATING.
 - 2.2.4. CURB STOPS SHALL BE AT 5'-6" BURY DEPTH AND SHALL BE MANUFACTURED BY MUELLER 300 SERIES (ROUNDWAY VALVE) OR APPROVED EQUAL.
 - 2.2.5. CURB STOP EXTENSION BOX SHALL HAVE A MINNEAPOLIS PATTERN AND SHALL BE MUELLER OR APPROVED EQUAL, AND USE A THREADED PLASTIC B-BOX STABILIZER.
 - 2.2.6. SADDLES SHALL BE DOUBLE BENDED AND CONSTRUCTED OF TYPE 304 STAINLESS STEEL WITH STAINLESS STEEL NUTS AND BOLTS. THEY SHALL BE FORD STYLE F5323 OR APPROVED EQUAL.
 - 2.2.7. BOTH PIPE AND FITTINGS MUST BE LISTED BY THE MANUFACTURER WITH PIPE BEARING THE NSF 61 LOGO OR MARK AND PRESSURE RATING.
 - 2.2.8. WATERMAIN SHUTDOWNS AND REOPENING
 - 2.2.8.1. PROCEDURES AND SCHEDULES FOR SHUTTING DOWN AND REOPENING SECTIONS OF EXISTING WATERMAIN FOR CONNECTION OR RECONSTRUCTION PURPOSES AND FOR OPENING THE WATERMAIN SUBBASE FOR USE AGAIN SHALL BE AS REQUIRED BY FERMILAB SUBPARAGRAPH 10.1.1. MINIMUM OF 48 HOURS NOTICE FOR ANY WATER SHUTDOWNS.
 - 2.2.9. THE SUBCONTRACTOR IS RESPONSIBLE FOR CONTACTING FERMILAB PERSONNEL AND FOR MAKING ALL NECESSARY
- 2.3. WATER MAIN VALVES**
- 2.3.1. WATER MAIN VALVES SHALL BE EPOXY COATED RESILIENT WEDGE SEATED GATE VALVES (AMERICAN FLOW CONTROL, SERIES 2500, CLASS 150, 150 LB. PRESSURE RATING) OR CLASS 150, 150 LB. PRESSURE RATING, AWWA-C509 AND SHALL HAVE A 2" O-RING PACKING SEAL (2").
 - 2.3.2. VALVES SHALL BE PROVIDED WITH AN ADJUSTABLE CAST IRON VALVE BOX (TWO PIECE BUFFALO TYPE 5-1/4" SHAFT) SET OVER THE OPERATING NUT WHERE NOTED ON PLANS. LD COVER TO BE LABELED "DWS" AND PAINTED BLUE.
 - 2.3.3. BOLTING: TYPE 316 STAINLESS STEEL ASTM A193 GRADE B8M HEX HEAD BOLTS AND ASTM A194 GRADE B7M HEX HEAD NUTS. PROVIDE WASHERS SAME MATERIAL AS BOLTS.
 - 2.3.4. PROVIDE CATHODIC PROTECTION FOR ALL VALVES.
- 2.4. WATER SERVICE MATERIALS**
- 2.4.1. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL NEW DWS WATER SERVICES AT LOCATIONS SHOWN ON THE PLANS. ALL WATER SERVICES SHALL BE EQUIPPED WITH CORPORATION STOP, CURB STOP AND B-BOX. THE WORK SHALL INCLUDE TAPPING THE EXISTING WATERMAIN, INSTALLING THE NEW SERVICE AND CONNECTING THE NEW SERVICE TO LOCATIONS SHOWN ON PLANS.
 - 2.4.2. CORPORATION STOPS SHALL BE MUELLER (CC) THREAD TYPE INLET HI5013.
 - 2.4.3. COPPER TUBING FOR BURIED WATER SERVICE SHALL BE TYPE K COPPER TUBING. THE COPPER SHALL CONFORM TO ASTM B-88 LATEST EDITION.
 - 2.4.4. CURB STOPS SHALL BE AT 5'-6" BURY DEPTH AND SHALL BE MANUFACTURED BY MUELLER 300 SERIES (ROUNDWAY VALVE) OR APPROVED EQUAL.
 - 2.4.5. CURB STOP EXTENSION BOX SHALL HAVE A MINNEAPOLIS PATTERN AND SHALL BE MUELLER OR APPROVED EQUAL, AND USE A THREADED PLASTIC B-BOX STABILIZER.
 - 2.4.6. SADDLES SHALL BE DOUBLE BENDED AND CONSTRUCTED OF TYPE 304 STAINLESS STEEL WITH STAINLESS STEEL NUTS AND BOLTS. THEY SHALL BE FORD STYLE F5323 OR APPROVED EQUAL.
 - 2.4.7. BOTH PIPE AND FITTINGS MUST BE LISTED BY THE MANUFACTURER WITH PIPE BEARING THE NSF 61 LOGO OR MARK AND PRESSURE RATING.
- 2.5. WATERMAIN SHUTDOWNS AND REOPENING**
- 2.5.1. PROCEDURES AND SCHEDULES FOR SHUTTING DOWN AND RECONSTRUCTION PURPOSES AND FOR OPENING THE WATERMAIN SUBBASE FOR USE AGAIN SHALL BE AS REQUIRED BY FERMILAB SUBPARAGRAPH 10.1.1. MINIMUM OF 48 HOURS NOTICE FOR ANY WATER SHUTDOWNS.
 - 2.5.2. THE SUBCONTRACTOR IS RESPONSIBLE FOR CONTACTING FERMILAB PERSONNEL AND FOR MAKING ALL NECESSARY
- 2.6. FIRE HYDRANTS**
- 2.6.1. THE FIRE HYDRANTS SHALL BE WATERLOO PACER, MODEL C392 FOR DRY BARRIE, OR THE LATEST VERSION OF AWWA C900 HOSE NOZZLES, ONE 4-1/2" STEAMER/PUMPER NOZZLE, AND 6-1/2" MECHANICAL JOINT INLET CONNECTION. THE NET AREA OF THE MECHANICAL JOINT INLET CONNECTION SHALL BE AT LEAST 100% OF THE NET AREA OF THE VALVE IN THE OPEN POSITION. THE VALVE IS WIDE OPEN. NOZZLE CONNECTIONS SHALL HAVE NATIONAL STANDARD THREADS. THE WORKING PRESSURE FOR ALL HYDRANTS SHALL BE ASSUMED TO BE 150 POUNDS PER SQUARE INCH. CONTRACTOR SHALL FURNISH TWO COUNTERLOCKWISSE AND BE PAINTED RED.
 - 2.6.1.1. ALL NUTS, BOLTS AND THREADED ROADS SHALL BE STAINLESS STEEL.
 - 2.6.1.2. THE BURY DEPTH OF THE HYDRANTS SHALL BE AS FIELD CONDITIONS DICTATE. THE SUBCONTRACTOR SHALL DETERMINE THE DEPTH OF BURY NECESSARY PRIOR TO ORDERING THE HYDRANT.
 - 2.6.1.3. AUXILIARY VALVES AND BOXES SHALL CONFORM TO THE SPECIFICATIONS AND SHALL NOT BE ATTACHED DIRECTLY TO THE HYDRANT. THE HYDRANT STEM (BUT SHALL BE SPACED AWAY FROM THE HYDRANT) SHALL BE AT LEAST 18 INCHES FROM THE APPROPRIATE DUCTILE IRON WATER MAIN.
 - 2.6.1.4. PLASTIC HYDRANTS SHALL BE SECURELY WRAPPED IN BLACK PLASTIC UNTIL THE WATER LINE IS PUT INTO SERVICE.
 - 2.6.2. THE DWS FIRE HYDRANTS SHALL BE PAINTED RED AND THE COVERS FOR THE KEY OPERATING VALVES SHOULD BE LABELED "DWS" AND PAINTED BLUE.
- 2.7. YARD HYDRANTS**
- 2.7.1. THE YARD HYDRANTS SHALL BE THE BACKFLOW PROTECTED DRAINING AND FREEZELESS YARD HYDRANT, AUTOMATIC DRAINING AND FREEZELESS WITH 1" DIA. INLET AND 5" BURY DEPTH.
 - 2.8. BRACING AND ANCHORING
 - 2.8.1. ALL FITTINGS AND FLASHING/HYDRANTS SHALL BE PROPERLY BRACED BY MEANS OF CONCRETE THRUST BLOCKS. RESTRAINED CONDITIONS PREVENT THE USE OF THRUST BLOCKS. RESTRAINED JOINTS OR TIE RODS OF A TYPE APPROVED BY THE FCC SHALL BE USED.
 - 2.8.2. ALL JOINTS ON VERTICAL BENDS OF 11% DEGREES OR GREATER AND ALL PIPE AND FITTING JOINTS WITHIN 20 FEET OF THE VERTICAL BEND SHALL BE PROPERLY ANCHORED BY MEANS OF A DUCTILE IRON RESTRAINT SYSTEM AS MANUFACTURED BY EBRA (IRON INC.).
 - 2.9. TESTING
 - 2.9.1. ALL WATERMAINS SHALL BE HYDRAULICALLY PRESSURE TESTED AT A PRESSURE EQUAL TO 50% MORE THAN THE MAXIMUM EXPECTED OPERATING PRESSURE FOR A DURATION OF 2 HOURS. ALLOWABLE LEAKAGE SHALL BE CALCULATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION. THE SUBCONTRACTOR SHALL SUPPLY A CHART RECORDER FOR ALL TESTS.
 - 2.9.2. DISINFECTING OF WATER MAINS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION. PIPES SHALL BE DISCHARGED TO SANITARY SEWER AND NOT DISCHARGED TO SURFACE WATERS OR DITCHES LEADING DIRECTLY TO SURFACE WATERS OR STORM SEWERS.
 - 2.10. SEPARATION OF WATERMAINS AND SEWERS
 - 2.10.1. HORIZONTAL SEPARATION
 - 2.10.1.1. WATERMAINS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM EXISTING SANITARY SEWERS AND STORM SEWERS.
 - 2.10.1.2. WATERMAINS MAY BE LOCATED CLOSER THAN 10 FEET TO A

REVISIONS	DATE	DESCRIPTION

7.1. THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR IEPA STORM WATER POLLUTION PREVENTION REQUIREMENTS FOR HIS/HER FORCES AND THE FORCES OF ALL SUB-SUBCONTRACTORS.

7.2. THE SUBCONTRACTOR SHALL EMPLOY BEST MANAGEMENT PRACTICES IN DEALING WITH EROSION CONTROL TO PROTECT SURROUNDING AREAS AND DRAINAGE WAYS FROM SEDIMENT BUILD UP.

METALLIC AREA AND AT THE SAME TIME NOT PROVIDE OVERVOLTAGE ABOVE 1150 MILLIVOLTS INSTANT OFF. AS A MINIMUM, THE MAGNESIUM ANODE UNPACKAGED WEIGHT SHALL BE 17 POUNDS.

5.3.2.2. VALVES AND FLUSHING HYDRANTS: EACH VALVE AND FLUSHING HYDRANT SHALL BE IN TERENCECTION WITH DUCTILE IRON PIPE AND PROTECTED WITH 1-MAGNESIUM ANODE OR AS DIRECTED BY THE CORROSION ENGINEER. A TEST STATION SHALL BE INSTALLED AT EACH OF THESE LOCATIONS.

5.4. EXECUTION

5.4.1. MAGNESIUM ANODE INSTALLATION

5.4.1.1. INSTALL ANODES IN A DRY CONDITION AFTER PLASTIC OR WATERPROOF PROTECTIVE COVERING HAS BEEN COMPLETELY REMOVED FROM WATER-PERMEABLE, PERMANENT CONTAINER SURROUNDING ANODE. ANODE SHALL BE INSTALLED IN A LOCATION FOR LOWERING ANODE INTO HOLE, BACKFILL ANNUAL SPACE AROUND ANODE WITH FINE SAND OR STONE-FREE EARTH. CENTER WIRE ON COMPACT EACH LAYER USING HAND TOOLS. DO NOT STRIKE ANODE OR CONNECTING WIRE DURING COARSE FINISHED GRADE POUR APPROXIMATELY 5 GAL (20 L) OF WATER INTO EACH FILLED HOLE. AFTER WATER HAS BEEN ABSORBED BY EARTH, COMPLETE BACKFILLING TO FINISHED LEVEL.

5.4.1.2. COVER TRENCH BOTTOM FOR THE ANODE WIRE WITH 3-INCH (76-MM) LAYER OF SAND OR STONE-FREE EARTH. CENTER WIRE ON BACKFILL LAYER AND DO NOT STRETCH OR KINK THE CONDUCTOR. PLACE BACKFILL OVER WIRE IN LAYERS NOT EXCEEDING 8 INCHES (203 MM). REMOVE EXCESSIVE FINISHED GRADE, VEG MATTER, AND REFUSE. PLACE CABLE WARNING TAPE WITHIN 18 INCHES (460 MM) OF FINISHED GRADE, ABOVE CABLE AND CONDUIT.

5.4.1.3. IF ROCK STRATA IS ENCOUNTERED BEFORE ACHEIVING SPECIFIED AUGURED HOLE DEPTH, INSTALL ANODES HORIZONTALLY AT DEPTH AT LEAST AS DEEP AS BOTTOM OF PIPE TO BE PROTECTED.

5.4.1.4. INSTALL ANODES SPACED AS INDICATED, DIRECTLY CONNECTED TO THE METALLIC FITTING, ALLOWING ADEQUATE SLACK IN CONNECTING WIRE TO COMPENSATE FOR MOVEMENT DURING BACKFILL OPERATION.

6. REPAIR OF DAMAGED TILE LINES

6.1. IF UNDERGROUND DRAINAGE TILE IS DAMAGED BY WATERMAIN SCOUR, PERSONNEL SHALL FIRST VERIFY THAT PERSONNEL ASSURES THE TILE LINE'S PROPER OPERATION AT THE POINT OF REPAIR.

6.2. THE SUBCONTRACTOR SHALL COORDINATE WITH FERMI LAB PERSONNEL ENDAVOR TO LOCATE AND FLAG ALL TILE LINES PRIOR TO WATERMAIN CONSTRUCTION.

6.3. ALL TILE LINES SHALL BE REPAIRED WITH MATERIALS OF THE SAME OR BETTER QUALITY AS THAT WHICH WAS DAMAGED. DUAL WALL TRENCH TILE SHALL BE REPAIRED WITH DUAL WALL TILE. WATERMAIN-QUALITY PIPE MAY BE USED WHERE EXISTING TILE IS RIGID CONDUIT (CLAY OR CONCRETE). A MISSION COUPLING SHALL BE INSTALLED AT EACH CONNECTION TO THE EXISTING DRAIN TILE.

6.4. THE TILE SHALL BE REPAIRED WITH A SINGLE PIECE OF PIPE EXTENDING A MINIMUM OF 5 FEET ON EITHER SIDE OF THE WATERMAIN AS MEASURED PERPENDICULARLY.

6.5. NON-CORROPTABLE AGGREGATE SHALL BE ADDED AROUND THE REPAIRED TILE AND BETWEEN THE TILE AND WATERMAIN.

6.5.1. WITHIN THE TRENCH, MAXIMUM ROCK SIZE SHALL BE 1 1/2 INCH RIVER GRAVEL OR 1 INCH CRUSHED STONE FOR BACKFILL UNDER ALL TILE LINES.

6.5.2. THERE MUST BE A MINIMUM OF 18-INCHES OF SEPARATION BETWEEN A TILE LINE AND THE WATERMAIN.

6.5.3. IN NO INSTANCE SHALL THE GRADE OF A TILE LINE BE CHANGED.

6.6. PRIOR TO BACKFILLING NOTIFY FCC TO ALLOW FOR INSPECTION OF REPAIR WORK TO DAMAGED FIELD TILES.

7. EROSION PROTECTION

SPECIFICATIONS

3. SUBGRADE CONDITION

3.1. PRIOR TO PLACEMENT OF PAVEMENT MATERIAL, ALL SUBGRADE AREAS SHALL BE PROOFROLLED WITH LOADED DUMP TRUCK TO DETECT POSSIBLE UNSUITABLE OR UNSTABLE SOIL CONDITIONS. SHOULD UNSUITABLE OR UNSTABLE MATERIAL BE ENCOUNTERED WITHIN PAVEMENT AREAS, IT SHALL BE REMOVED TO A DEPTH DETERMINED BY THE SUBCONTRACTOR IN CONFORMANCE WITH THE SUBGRADE GRANULAR MATERIAL AND COMPACTED IN PLACE.

3.2. INSTALLED STRUCTURAL FILL AND EXCAVATED SUBGRADE SHALL BE PROOFROLLED WITH LOADED DUMP TRUCK OR OTHER EQUIPMENT. THE SUBCONTRACTOR'S CONTROL SHALL BE EXERCISED OR REPAIRED AT THE SUBCONTRACTOR'S EXPENSE AND SHALL NOT BE PAID FOR SEPARATELY.

4. COMPACTION

4.1. PAVEMENT MATERIAL SHALL BE PLACED IN LAYERS AND COMPACTED IN ACCORDANCE WITH THE FOLLOWING SPECIFIED REQUIREMENTS. LAYER THICKNESSES SHALL BE AS INDICATED ON THE PLANS.

4.2. AGGREGATE BASE COURSE AND GRANULAR SUB-BASE MATERIALS SHALL BE COMPACTED TO NOT LESS THAN 95% OF LABORATORY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D698 (STANDARD PROCTOR).

4.3. FREE-DRAINING COHESIONLESS MATERIALS (POROUS GRANULAR EMBANKMENT AND PERMEABLE BASE COURSE MATERIAL) SHALL BE COMPACTED TO NOT LESS THAN 95% OF LABORATORY DENSITY, DETERMINED IN ACCORDANCE WITH ASTM D4253 AND D4254.

4.4. BITUMINOUS CONCRETE BINDER AND SURFACE COURSE MIXTURES SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE IDOT STANDARD SPECIFICATIONS.

4.5. AGGREGATE BASE COURSE MATERIAL SHALL BE GRADED AND COMPACTED THE SAME DAY IT IS PLACED ON THE SUBGRADE.

4.6. PROVIDE COMPACTION TESTING RESULTS TO FCC FOR ALL ROAD CROSSINGS. TEST EACH LIFT AT CENTERLINE OF ROADWAY AND AT 1' FROM EDGE OF PAVEMENT.

5. CATHODIC PROTECTION

5.1. GENERAL

5.1.1. REFERENCE TO STANDARDS

5.1.1.1. ASTM B 843 (1993, R 1999) MAGNESIUM ALLOY ANODES FOR CATHODIC PROTECTION.

5.1.1.2. NACE INTERNATIONAL (NACE) STANDARDS SP0189-2007, SP0177-2007, SP0188-2006 AND RP0190.

5.1.1.3. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) STANDARDS IC 2.

5.1.1.4. UNDERWRITERS LABORATORIES (UL) STANDARDS 6, 510 AND 514A.

5.2. SUBMITTALS

5.2.1. PRODUCT DATA: AN ITEMIZED LIST OF EQUIPMENT AND MATERIALS INCLUDING ITEM NUMBER, QUANTITY, AND MANUFACTURER ANODES.

5.3. PRODUCTS

5.3.1. NONMETALLIC PIPE SYSTEM

5.3.1.1. ISOLATED METALLIC FITTINGS (BONDS, VALVES AND HYDRANTS) SHALL BE PROTECTED WITH A MAGNESIUM ANODE WHERE FEASIBLE. VALVES AND FLUSHING HYDRANTS SHALL BE INTERCONNECTED WITH DUCTILE IRON PIPE TO ALLOW A SINGLE ANODE AND TEST STATION TO BE INSTALLED.

5.3.2. METALLIC COMPONENTS AND TYPICALS

5.3.2.1. METALLIC COMPONENTS: MAGNESIUM ANODES SHALL BE USED UNLESS OTHERWISE SPECIFIED. THE WEIGHT OF ANODES SHALL BE 850 MILLIVOLTS INSTANT OFF POTENTIAL ON THE

REV	DATE	DESCRIPTION	APPROVED	DATE	SCALE

LEGEND

CHILLED WATER PIPE	CW	CHILLED WATER VALVE	CW
COMMUNICATION LINE	COM	COMMUNICATIONS STRUCTURE	COM
CONDUCTOR	P	TRANSFORMER	T
DOMESTIC WATER SUPPLY PIPE	DWS	SWITCH	S
FEEDER	F	POWER POLE	PO
GAS PIPE, ABANDONED	CAS - GAS	UTILITY POLE	U
GAS PIPE	CAS	STREET LIGHT	SL
GEO-THERMAL LINE	GTS	DOMESTIC WATER VALVE	DWV
HELIUM LINE	HL	FIRE OR FLUSHING HYDRANT	FC
INDUSTRIAL COOLING WATER PIPE	ICW	GAS VALVE	GV
INDUSTRIAL COOLING WATER VALVE	ICW	INDUSTRIAL COOLING WATER VALVE	ICW
LOW CONDUCTIVITY WATER PIPE	LWC	LOW CONDUCTIVITY WATER VALVE	LWC
LOW VOLTAGE POWER	LVP	LOW CONDUCTIVITY WATER VALVE	LWC
POND TRANSFER PIPE	P/T	SANITARY SEWER MANHOLE	S
RECYCLER COOLING LINE	RC	STORM SEWER / DRAINAGE STRUCTURE	SD
SANITARY SEWER	SC	END SECTION	E
STORM SEWER / PIPE CULVERT	SC	GROUNDWATER OBSERVATION WELL	GW

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION OF WORK	QUANTITY	UNITS
C1	MOBILIZATION	1	LUM
D1	CONSTRUCTION STAKING AND LAYOUT	5	SY
D2	STAKE SETTING	35	SY
D3	STAKE REMOVAL	30	SY
D4	TREE PROTECTION FENCE	330	PA
D5	TREE PROTECTION FENCING	330	PA
D6	TREE TRUNK PROTECTION	3077	EA
D7	STAKE REPAIRS	3077	SY
D8	STAKE REPAIRS	3077	SY
D9	STAKE REPAIRS	3077	SY
D10	STAKE REPAIRS	3077	SY
D11	STAKE REPAIRS	3077	SY
D12	STAKE REPAIRS	3077	SY
D13	STAKE REPAIRS	3077	SY
D14	STAKE REPAIRS	3077	SY
D15	STAKE REPAIRS	3077	SY
D16	STAKE REPAIRS	3077	SY
D17	STAKE REPAIRS	3077	SY
D18	STAKE REPAIRS	3077	SY
D19	STAKE REPAIRS	3077	SY
D20	STAKE REPAIRS	3077	SY
D21	STAKE REPAIRS	3077	SY
D22	STAKE REPAIRS	3077	SY
D23	STAKE REPAIRS	3077	SY
D24	STAKE REPAIRS	3077	SY
D25	STAKE REPAIRS	3077	SY
D26	STAKE REPAIRS	3077	SY
D27	STAKE REPAIRS	3077	SY

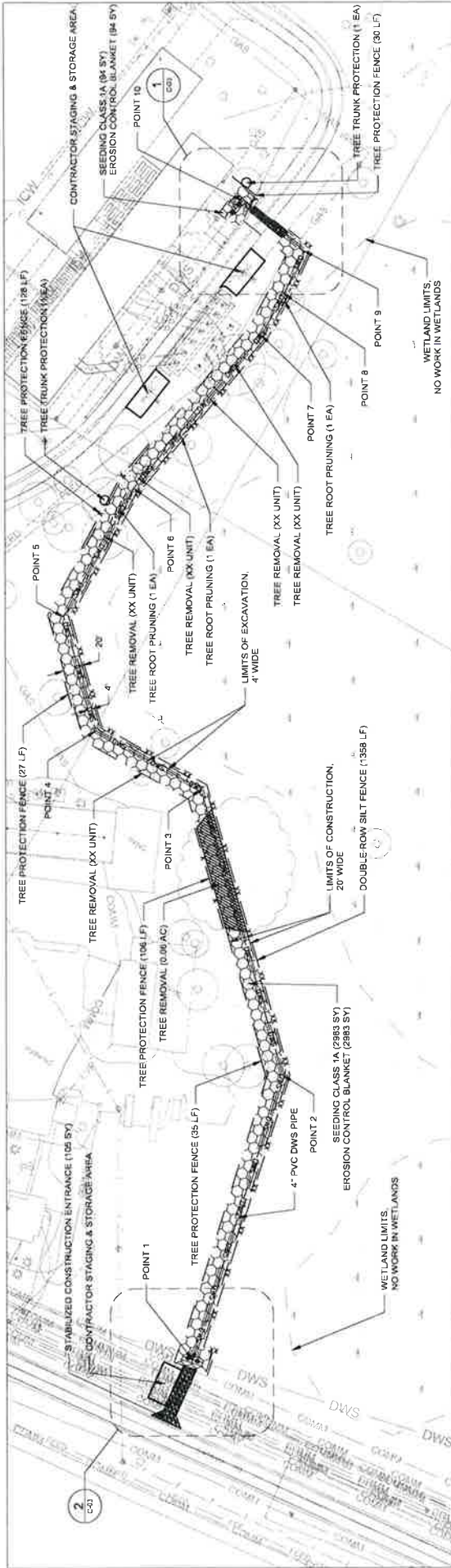
NOTE: QUANTITIES ARE PROVIDED AS A COURTESY AND FOR INFORMATION ONLY.

SUGGESTED SEQUENCE OF CONSTRUCTION

- GENERAL
 - 1.1. SUBCONTRACTOR SHALL NOTIFY FCC AT MINIMUM OF 48 HOURS PRIOR TO THE START OF WORK TO BE PERFORMED ON THE MAIN.
 - 1.2. ONLY ISO PERSONNEL SHALL OPERATE VALVES AND ISOLATE.
 - 1.3. SERVICE INTERRUPTIONS SHALL LAST NO LONGER THAN FOUR HOURS.
 - 1.4. INTERUPTIONS FOR CONNECTION TO EXISTING WATER MAIN SHALL LAST NO LONGER THAN 8 HOURS.
 - 1.5. THE SUBCONTRACTOR SHALL SUBMIT THEIR PROPOSED SEQUENCE AND SCHEDULE TO FCC FOR REVIEW AND APPROVAL TO DO SO WORK, THE SEQUENCE AND SCHEDULE MUST NOT RESULT IN SERVICE INTERRUPTIONS FOR CONNECTION TO EXISTING WATER MAIN, AND MUST BE ACCEPTED BY ISO.
 - 1.6. SUBCONTRACTOR SHALL USE AWWA DISINFECTION PROCEDURES FOR ALL NEW PIPING WORK.
 - 1.7. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DOWNGRADING EXISTING WATER MAIN AS NECESSARY TO CONSTRUCT THE IMPROVEMENTS.
 - 1.8. SUBCONTRACTOR TO REMOVE A MINIMUM OF 10' OF EXISTING PIPE TO BE REPLACED. THIS INCLUDES DISCONNECTION AND PROPERLY DISPOSE OF MATERIALS.
 - 1.9. FIRE HYDRANTS TAKEN OUT OF SERVICE SHALL BE BAGGED UNTIL REMOVED.
- 2. SUGGESTED SEQUENCE OF CONSTRUCTION
 - 2.1. LAYOUT
 - 2.2. TREE REMOVALS - MUST OCCUR AFTER SEPTEMBER 30 AND BEFORE APRIL 1.
 - 2.3. SILT FENCE
 - 2.4. CONNECTION TO EXISTING 3 DWS PIPE AT GCC BUILDING
 - 2.4.1. CLOSE VALVES DVBL353 AND DVBS351 (GCC BUILDING SERVICE AFFECTED).
 - 2.4.2. OPEN HYDRANT DHUF302 TO DEWATER EXISTING WATER MAIN.
 - 2.4.3. CUT EXISTING WATER PIPE TO INSTALL NEW VALVES P-1 AND P-2. REMOVE AND REPLACE HYDRANT DHUF302 AND VALVE DVBH302. CLOSE VALVES P-1 AND P-2.
 - 2.4.4. CONNECT TO VALVE DVBL353 AND PIPE, CAP VALVE P-2.
 - 2.4.5. TEST, CHLORINATE, AND SAMPLE NEW DWS PIPE, OPEN VALVES P-1, DVBL353, AND DVBS351.
 - 2.5. CONNECTION TO EXISTING 6" DWS PIPE AT BATAVIA ROAD.
 - 2.5.1. CLOSE VALVES DVBS388, DVBS389, AND DVBS390 (SITE 52 HOUSE SERVICE AFFECTED).
 - 2.5.2. OPEN HYDRANT DHUF301 TO DEWATER EXISTING WATER PIPE.
 - 2.5.3. CUT EXISTING WATER PIPE TO INSTALL VALVES P-3, P-4, AND P-5. CONNECT TO PIPE, CAP VALVE P-5.
 - 2.5.4. TEST, CHLORINATE, AND SAMPLE NEW DWS PIPE.
 - 2.5.5. OPEN VALVES P-3, P-4, DVBS388, DVBS389, AND DVBS390.
 - 2.6. NEW 4" DWS PIPE
 - 2.6.1. INSTALL NEW 4" DWS PIPE BETWEEN VALVES P-2 AND P-5. CONNECT TO VALVES P-2 AND P-5.
 - 2.6.2. TEST, CHLORINATE, AND SAMPLE NEW DWS PIPE.
 - 2.6.3. OPEN VALVES P-2 AND P-5.
 - 2.7. SEEDING AND EROSION CONTROL BLANKET

REV.	DATE	DESCRIPTION	PROPOSER

DATE	CONCEPT	FERMI LAB	SCALE



SITE PLAN

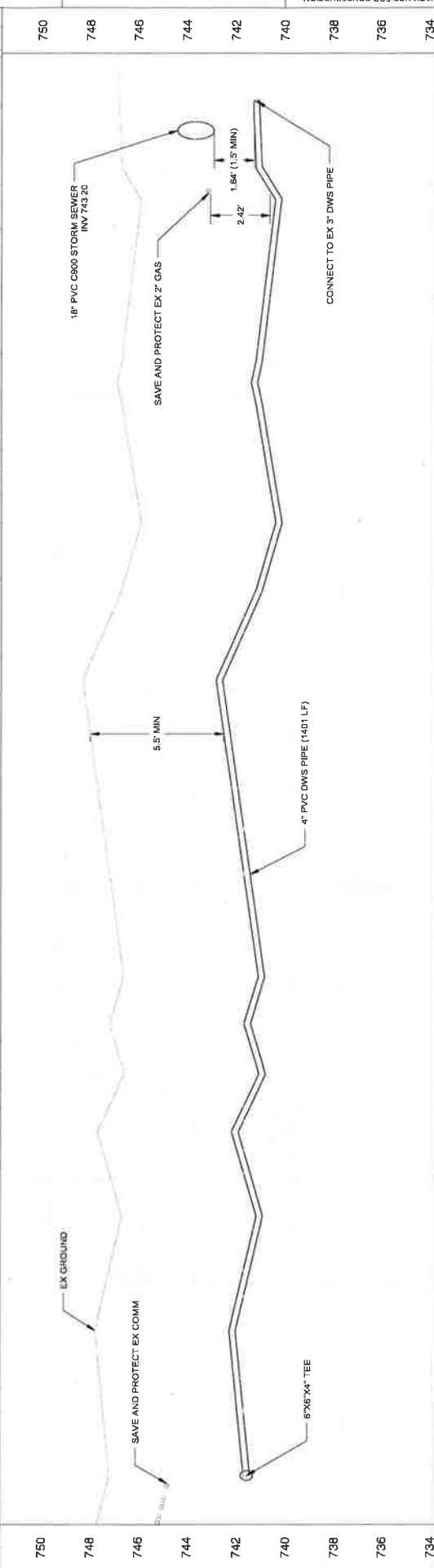
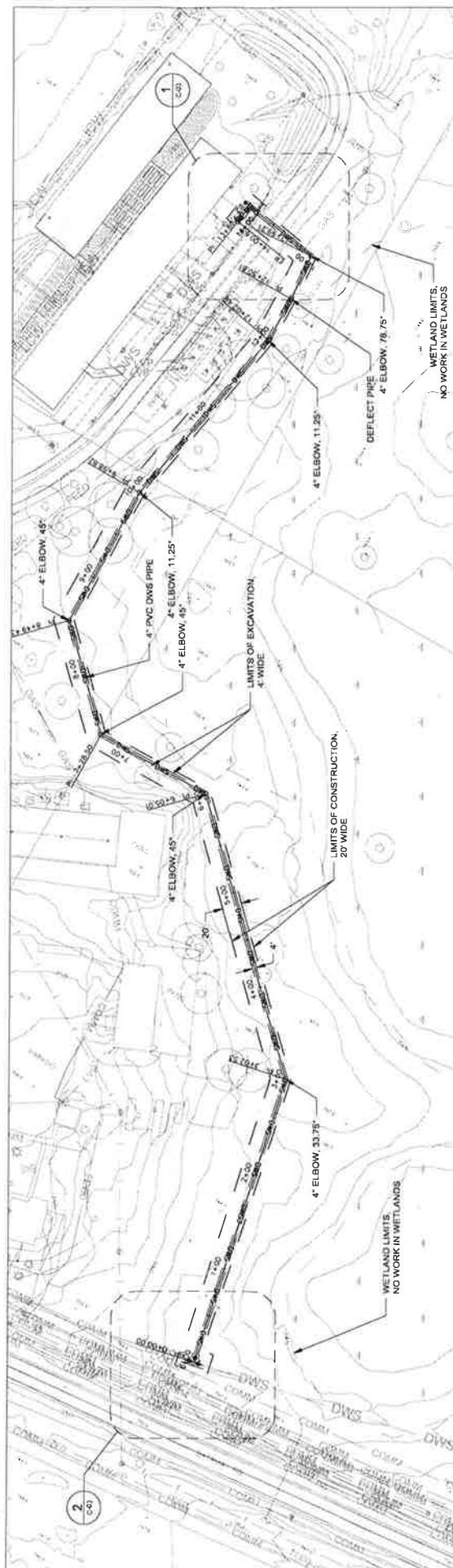
SITE PLAN NOTES
 1. ANY SURPLUS SOIL SHALL BE PLACED ADJACENT TO THE TRENCH EXCAVATION WITHIN THE LIMITS OF CONSTRUCTION. THE SURPLUS SOIL SHALL BE GRADED AND SHAPED TO BLEND IN TO EXISTING GRADES, AND STABILIZED WITH SEEDING AND EROSION CONTROL BLANKET.

POINT COORDINATES

POINT	NORTHING (Y)	EASTING (X)	STATION	NOTE
1	105242.8616	101406.7674	0+00	6"X6"X4" TEE
2	105538.3965	101343.0174	3+02.53	ELBOW
3	106748.8409	101125.7433	6+05.01	ELBOW
4	106748.8692	101002.2641	7+28.50	ELBOW
5	106631.0000	100915.4029	8+49.43	ELBOW
6	106980.3666	100912.7910	9+96.82	ELBOW
7	107180.7848	100949.0259	12+02.49	ELBOW
8	107229.1001	100948.1810	12+50.81	DEFLECTION
9	107277.3673	100844.5732	12+99.21	ELBOW
10	107289.5564	100864.0756	13+80.63	4" X4" X4" TEE

POINTS COORDINATES NOTES
 1. ALL COORDINATES ARE IN THE DUSAF COORDINATE SYSTEM.
 2. COORDINATES ARE PROVIDED FOR CONSTRUCTION LAYOUT BY SUBCONTRACTOR.
 3. AUTOCAD DWG FILES WILL BE PROVIDED TO THE SUBCONTRACTOR FOR USE IN CONSTRUCTION LAYOUT.
 4. CONTROL POINTS WILL BE PROVIDED TO THE SUBCONTRACTOR FOR USE IN CONSTRUCTION LAYOUT.

REV	DATE	DESCRIPTION	APPROVED	DATE	SCALE	DATE	SCALE	DATE	SCALE
REVISIONS									
<p>DWS LOOP FEED AT GCC</p>					<p>SITE PLAN</p>				
<p>PROJECT NO. 02-06-263</p>					<p>REVISION NO. 001</p>				
<p>PRODUCT NO.</p>					<p>ISSUE NO.</p>				
<p>PRELIMINARY NOT FOR CONSTRUCTION</p>					<p>XX/XX/24</p>				



750	748	746	744	742	740	738	736	734
0+00	1+00	2+00	3+00	4+00	5+00	6+00	7+00	8+00
9+00	10+00	11+00	12+00	13+00	14+00			

SCALE:
1" = 20'

PROFILE:
1" = 2' HORIZONTAL
1" = 2' VERTICAL

PROJECT NORTH

REVISIONS

REV.	DATE	DESCRIPTION

DWS LOOP FEED AT GCC

Fermilab
Research Alliance LLC

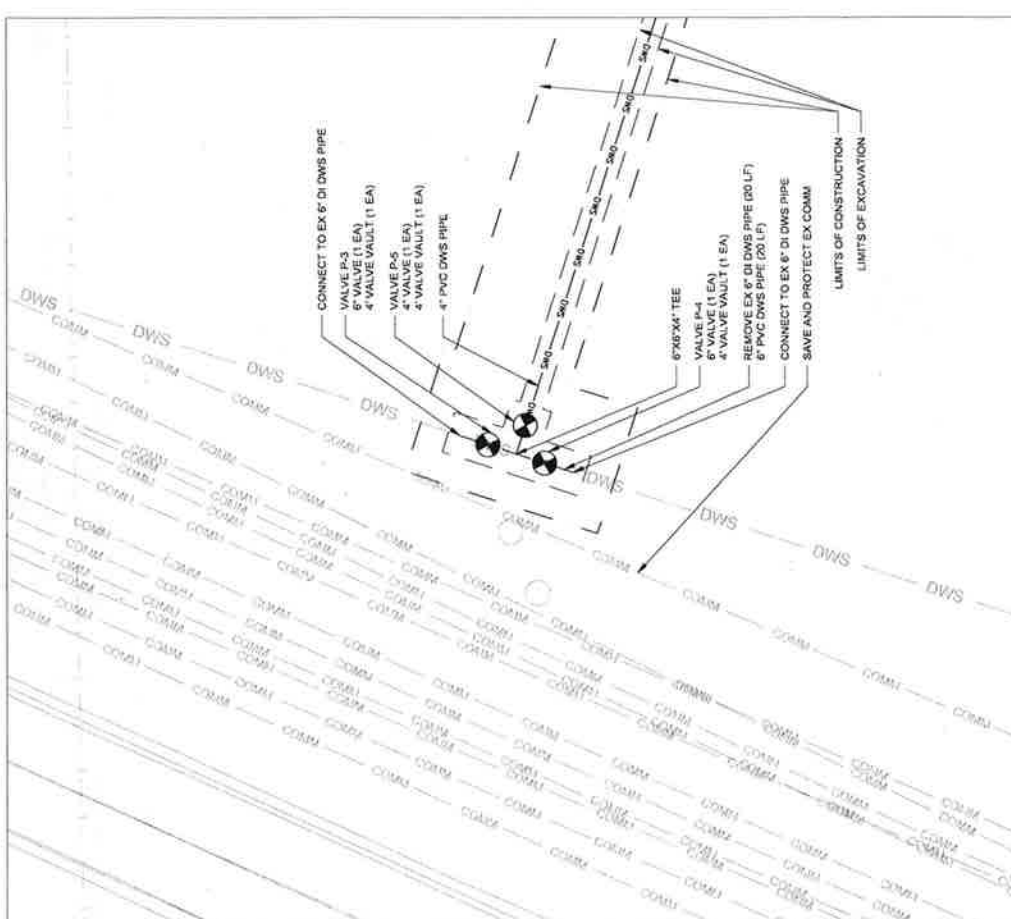
DWS PLAN & PROFILE

PROJECT NO: 03-08-003

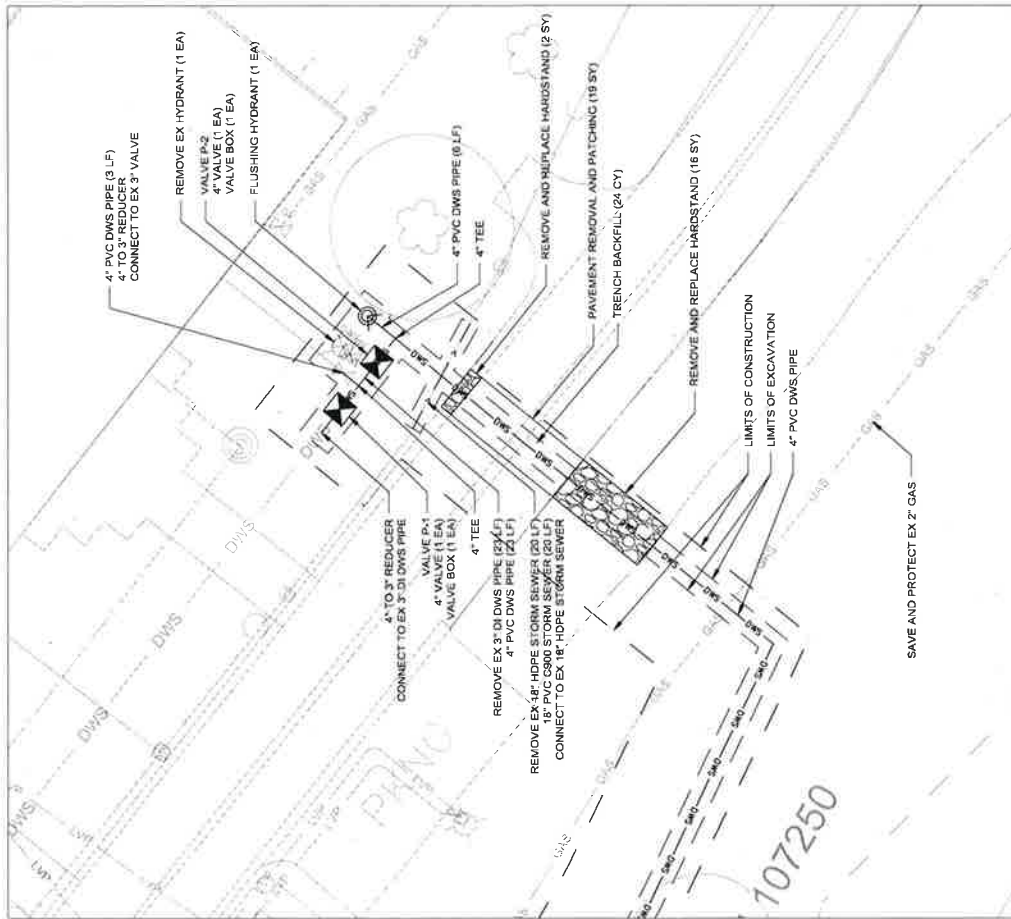
PILOT NO: 0000

SHEET NO: **C-02**

PRELIMINARY NOT FOR CONSTRUCTION



DWS CONNECTION AT BATAVIA ROAD 2



DWS CONNECTION AT GCC BUILDING 1

PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	REVISIONS

DATE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY
	DESIGNED			
	DRAWN			
	CHECKED			
	APPROVED			

DATE	SCALE:	SCALE:	DATE	FERMI LABS	DATE
	1" = 10'-0"	1" = 10'-0"			

DATE	DESCRIPTION	DATE
	CONCEPT	
	PRELIMINARY	
	FINAL	

DATE	DESCRIPTION
	DESIGNED
	DRAWN
	CHECKED
	APPROVED

PROJECT NO.	
SHEET NO.	C-03
PROJECT NAME	DWS CONNECTION ENLARGEMENTS
DATE	08-05-2023
DRAWN BY	
REVISION NO.	



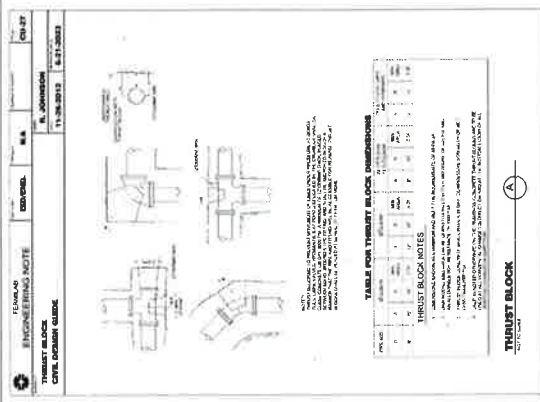
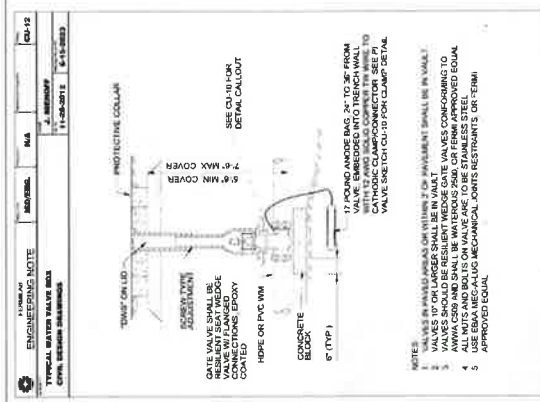
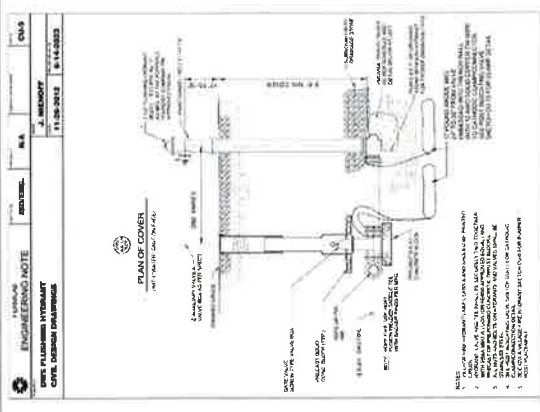
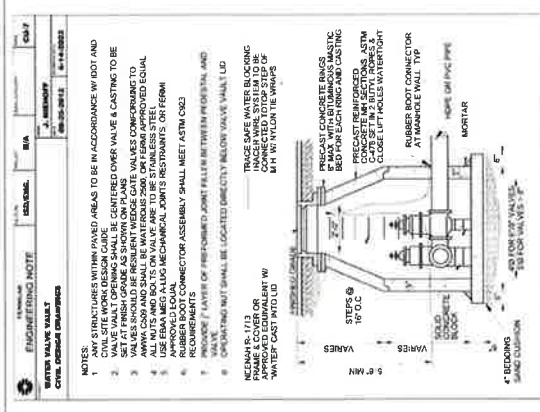
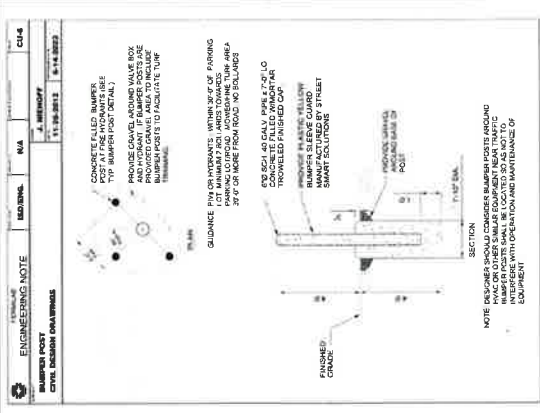
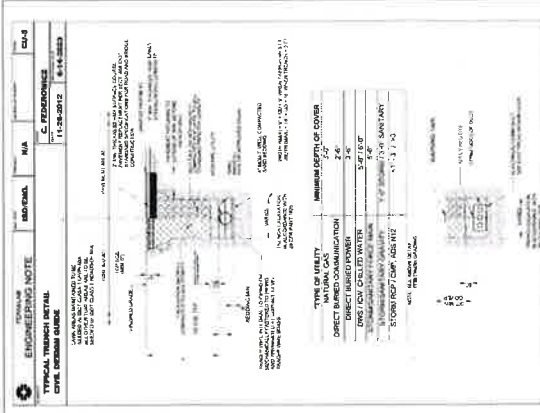
Fermilab
Research Alliance LLC



DWS CONNECTION AT GCC BUILDING

DWS CONNECTION AT BATAVIA ROAD

107250



NO.	DATE	DESCRIPTION

Fermilab
 Fermi Research Alliance LLC

DWS LOOP FEED AT GCC

DETAILS - UTILITIES

C05

PROJECT NO: CO-05-303 SHEET NO: 05-303-001 REVISION NO: 0



February 23, 2024

Mr. Eric Otto, PE, CPESC, CPSWQ
Civil Engineer, Infrastructure Services Division, Engineering Department
Fermi National Accelerator Laboratory
P.O. Box 500
Batavia, IL 60510
P: 630-840-253
ericotto@fnal.gov

Subject: DWS Loop Feed at GCC – Wetland Field Reconnaissance (WBK #242028)

Dear Mr. Otto:

On February 6, 2024 WBK Engineering, LLC. (WBK) completed a wetland field assessment of the project area located at the DWS Loop Feed at GCC project area within Fermi National Accelerator Laboratory campus to determine the presence of on-site wetlands and waters of the US and if they are jurisdictional under Section 404 of the Clean Water Act. In order for an area to be delineated as wetland, it must meet three technical criteria for wetland identification. The three essential characteristics of a wetland are hydrophytic vegetation, hydric soils, and wetland hydrology.

The project area is located at 41.849476° latitude and -88.241559° longitude in Section 19 and 20 of Township 39N, Range 9E. The field reconnaissance was conducted in accordance with the methodology established by the United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual and the 2010 Regional Supplement to the USACE Wetland Delineation Manual for the Midwest Region. Due to the winter site assessment timing, the wetland delineation shall be considered preliminary and approximate. A growing season update and verification will be required for permit purposes.

The following attachments are included:

Exhibit 1 – Site Photographs

Exhibit 2 – Aerial Photograph with Wetland Delineation

SITE CONDITIONS

At the time of the field visit the property contained Eola Road to the north, Batavia Road to the south, Wilson Road to the west, and a large wetland complex to the east. The western edge of the site also contains the Fermilab Proton Assembly Building and the Grid Computing Center building, and roadways, driveways and other associated infrastructure.

A site visit was conducted on February 6, 2024 by Natalie Paver of WBK. The attached aerial Exhibit 2 contains the approximate wetland boundary that was field-located with GPS equipment. The on-site wetland area is 4.8 acres.



The dominant plant species located within the delineated wetland were Reed Canary Grass (*Phalaris arundinacea*) and Cattail species (*Typha sp.*). The hydrophytic vegetation indicator is met with greater than 50% of the dominant species presence being FAC, FACW, and OBL and a prevalence index of less than or equal to 3. The mapped soil within the wetland complex is 152A, Drummer silty clay loam and 1330A, Peotone silty clay loam, both hydric soils. Hydrology indicators present within the Wetland include primary indicators Saturation (A3) and Inundation Visible on Aerial Imagery (B7), and secondary indicators for hydrology include Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), and FAC-Neutral Test (D5). The wetland areas meets for all there criteria; hydrophytic vegetation, hydric soil, and wetland hydrology.

EXHIBITS

Exhibit 1 includes the site photographs of the property including the wetland area taken at the time of the field assessment. The parcel boundaries and wetland limits are identified on the Aerial Photograph with Wetland Delineation, Exhibit 2.

PERMIT RECOMMENDATIONS

The U.S. Army Corps of Engineers regulates developments that contain wetland and are adjacent to wetlands and wetland buffers. We provide the following recommendations for the development on the parcel containing wetlands or within the wetland buffer:

1. A full wetland assessment with report conducted during the growing season will be required for development impacting wetlands or the wetland buffer.
2. A Nationwide Permit or Letter of No Objection (LONO) should be obtained from the U.S. Army Corps of Engineers Chicago District.
3. A 50 to 100-foot wetland buffer may be required by the permit agencies for development of the parcel.
4. Soil Erosion and Sediment Control practices must be followed during construction.

CONCLUSIONS

WBK has identified that the property contains one wetland complex located within the parcel that extends off-site to the north and east. The on-site wetland area consists of 4.8 acres. The wetland may require a 50 to 100-ft buffer by the USACE during development. This determination is based on field reconnaissance conducted using techniques outlined in the USACE 1987 Delineation Manual, the 2010 Midwest Regional Supplement and historical maps and aerial images depicting the condition of the site. The field determination for the presence of wetland supersedes all published maps as they are general guidance only. Due to the winter site assessment timing, the wetland delineation shall be considered preliminary and approximate. A growing season update and verification will be required for permit purposes.



Please contact me at 630-443-7755 or npaver@wbkengineering.com with questions regarding this letter.

Sincerely,

A handwritten signature in black ink that reads "Natalie Paver". The signature is fluid and cursive, with the first name and last name clearly legible.

Natalie Paver, PWS
Senior Environmental Scientist



Photo 1: Wetland complex near center of project area, facing southeast



Photo 2: Wetland complex near center of project area, facing north

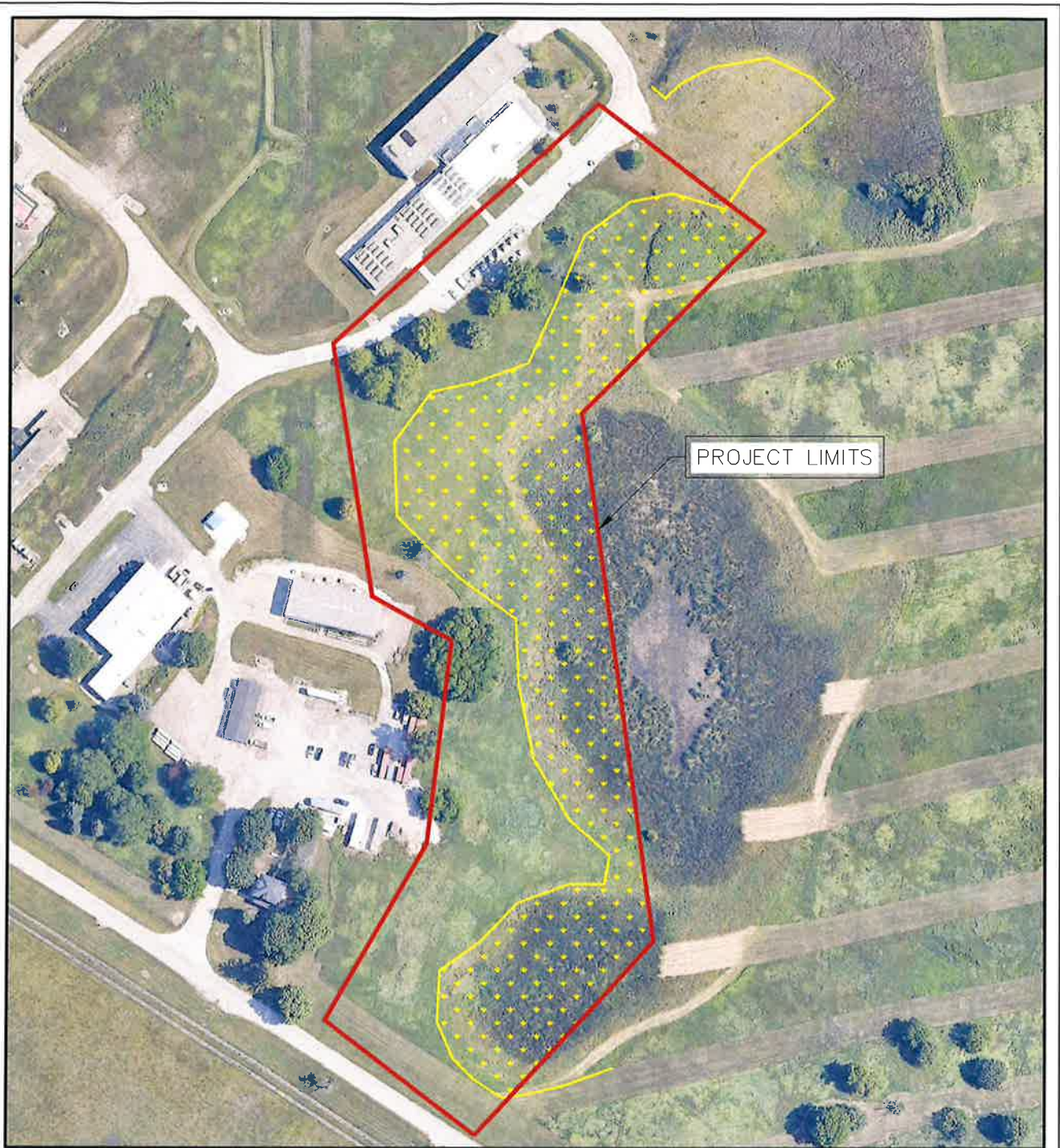


Photo 3: South end of wetland near Batavia Road, facing northwest



Photo 4: South end of wetland near Batavia Road, facing west

CLIENT Fermi National Accelerator Laboratory P.O. Box 500 Batavia, IL 60510 (630)-840-3000	TITLE FERMILAB DWS LOOP FEED AT GCC	DWN.	BJM	CHKD.	NMP
		JOB # 24-2028			
	WBK ENGINEERING, LLC 116 W. MAIN STREET, SUITE 201 ST. CHARLES, IL 60174 (630) 443-7755	SITE PHOTOGRAPHS			
					EXHIBIT 1



SOURCE: AERIAL PHOTOGRAPH GOOGLE EARTH/ FEBRUARY, 2024

SCALE: 1" = 200'



APPROXIMATE WETLAND BOUNDARY PER FEB. 6, 2024

CLIENT **FERMI NATIONAL ACCELERATOR
LABORATORY**
P.O. BOX 500
BATAVIA, IL 60510
630-840-3000

TITLE **FERMI LAB DWS
LOOP FEED AT
GCC**

DWN.	BJM	CHKD.	NMP
JOB#			
24-2028			

WBK  **ENGINEERING, LLC**
116 W Main St #201,
St. Charles, IL 60174
P. (269) 224-3182

**AERIAL PHOTOGRAPH WITH
WETLAND DELINEATION**

DATE
02-16-2024
EXHIBIT 2

