# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY

CONSTRUCTION PLANS FOR

## MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

SECTION 30, TOWN 1 NORTH, RANGE 6 EAST
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

FILE NO.: 472/23129.KMM




VICINITY MAP
N.T.S.

## PROJECT PERMITS

DLARA PERMIT
A PERMIT FROM THE DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS IS REQUIRED FOR THE ELECTRICAL WORK ASSOCIATED WITH LIFT STATION. THE CONTRACTOR SHALL OBTAIN THE PERMIT, PAY ANY FEES AND COORDINATE NEEDED INSPECTIONS.

SOIL EROSION CONTROL PERMIT
A PERMIT FROM THE DTMB IS REQUIRED FOR EARTH DISTURBANCE AND ALL SOIL EROSION CONTROL MEASURES. THE PERMIT HAS BEEN OBTAINED DURING THE PREVIOUS PHASE OF THE PROJECT AND WILL BE EXTENDED FOR WORK PERFORMED UNDER THIS CONTRACT. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS AND PERFORM ALL MAINTENANCE OF EXISTING SOIL EROSION MEASURES AS REQUIRED.

MDOT RIGHT OF WAY PERMIT
A PERMIT FROM THE MICHIGAN DEPARTMENT OF TRANSPORTATION IS REQUIRED FOR ALL WORK PROPOSED WITHIN THE M-36 ROW. THE CONTRACTOR SHALL OBTAIN THE PERMIT, PAY ANY FEES, PROVIDE ADDITIONAL BONDING AND COORDINATE NEEDED INSPECTIONS.

LIVINGSTON COUNTY ROAD COMMISSION RIGHT OF WAY PERMIT
A PERMIT FROM THE LIVINGSTON COUNTY ROAD COMMISSION IS REQUIRED FOR ALL WORK PROPOSED WITHIN THE LEMEN ROAD ROW. THE CONTRACTOR SHALL OBTAIN THE PERMIT, PAY ANY FEES, PROVIDE ADDITIONAL BONDING AND COORDINATE NEEDED INSPECTIONS.

EGLE PERMIT
A PERMIT FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) IS REQUIRED FOR THE WATER MAIN WORK ASSOCIATED WITH THIS PROJECT. THE CONTRACTOR SHALL OBTAIN THE PERMIT, PAY ANY FEES AND COORDINATE NEEDED INSPECTIONS.




LOCATION MAP
N.T.S.

### Department of Corrections

Physical Plant Division
Contact: Trever LeBarre - Physical Plant Manager
Phone: (517) 643-6518
E-mail: lebarret@michigan.gov

### Electrical Engineer

Matrix Consulting Engineer's, Inc.
1601 E. Grand River
Lansing, MI 48908
Contact: Mason Cordes
Phone: (517) 487-2511 (Office)
E-mail: mcordes@matrixceinc.com

### Civil Engineer

NF Engineers
46777 Woodward Avenue
Pontiac, MI 48342
Contact: Steven Sutton, P.E.
Phone: (248) 635-6571
Fax: (248) 332-8257
E-mail: swsutton@nfe-engr.com

STATE OF MICHIGAN
STEVEN W. SUTTON
ENGINEER
NO. 50492
LICENSED PROFESSIONAL ENGINEER

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG. OR 811
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For free location of public utility lines
Know what's below. Call before you dig.

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NFE PROJECT NO. 6648-06
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
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FAX (248) 332-8257
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

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| 10-09-2026 | Bid Documents |
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| 12-05-2024 | Phase 500 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

TITLE SHEET

| | |
|---|---|
| PROJECT NO. | 472/23129.KMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| QC/ENG BY | SWS |

T

## CAUTION NOTE:

IT IS NOT KNOW WHETHER CONDUITS SHOWN OR NOT SHOWN ON SURVEY CONTAIN HIGH VOLTAGE, LOW VOLTAGE OR FIBER OPTIC LINES AND WILL NEED FIELD VERIFICATION. CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING AND INSTALLING PROPOSED UTILITIES.

## EXISTING UTILITY CONDUIT NOTE:

ALL EXISTING LIGHT, POWER, AND COMMUNICATION CONDUIT LOCATIONS SHOWN SHALL BE FIELD VERIFIED FOR EXACT SIZE AND LOCATION. ADDITIONAL CONDUITS NOT SHOWN ON SURVEY MAY EXIST AND WILL NEED FIELD VERIFICATION PRIOR TO INSTALLATION OF PROPOSED WORK. CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING FOR PROPOSED WORK AS ADDITIONAL CONDUITS NOT SHOWN ON SURVEY MAY EXIST.

## HYDRO EXCAVATION:

THE CONTRACTOR SHALL INCLUDE COSTS OFOR HYDRO EXCAVATION OF ALL UTILITY CROSSINGS REQUIRED, PRIOR TO COMMENCING WITH THE INSTALLATION. A SECONDARY ALLOWANCE HAS BEEN PROVIDED FOR THE POTENTIAL NEED OF ADDED HYDRO EXCAVATION, IF NEW UTILITIES ARE DISCOVERED DURING THE PRE-CONSTRUCTION GPR SCAN.

## UTILITY LOCATION:

THE CONTRACTOR SHALL INCLUDE A THIRD PARTY GPR AND EXISTING UTILITY LOCATION SERVICE IN ALL WORK ZONES TO DETERMINE EXISTING LOCATIONS OF BELOW GRADE UTILITIES. ANY DAMAGED LINES SHALL BE REPAIRED AS SOON AS IS POSSIBLE (WITHIN HOURS OF A FOUND BREAK). ANY DAMAGE TO EX. UTILITIES WILL BE REPAIRED AT THE CONTRACTORS EXPENSE.

## DEWATERING:

THE CONTRACTOR SHALL REVIEW THE SITE CONDITIONS, PROVIDED SOIL BORINGS AND DETERMINE THEIR OWN NEEDS FOR DEWATERING NECESSARY TO BUILD THE PROJECT. DEWATERING WILL NOT BE PAID FOR SEPARATELY. ALL DEWATERING DISCHARGE POINTS SHALL BE PROPERLY COORDINATED AND MAINTAINED TO PROTECT AGAINST EROSION.

## OPEN EXCAVATIONS / TEMP. CHAIN LINK FENCE / STEEL PLATES:

ALL OPEN EXCAVATIONS SHALL BE EITHER BACKFILLED TO ROUGH FINISH GRADE OR A MOVEABLE CHAIN LINK FENCE / STEEL PLATES SHALL ENCLOSE OR COVER ANY AREAS WHEN CONTRACTORS LEAVE FOLLOWING THE WORK DAY. FENCING SHALL NOT IMPEDE REQUIRED WALKING PATHS FOR DOC INMATES OR STAFF.

## PROJECT PHASING:

THE CONTRACTOR SHALL PREPARE A PHASING PLAN, FOLLOWING AWARD OF THE PROJECT, FOR PRESENTATION TO THE OWNER TEAM FOR REVIEW AND APPROVAL. THIS PLAN SHALL ACHIEVE THE REQUIREMENTS NOTED IN THIS PLAN, TO ALLOW FOR CONTINUED OPERATION AND PRISON MOVEMENT IN THE WORK ZONE.

## DAMAGE TO PRIVATE PROPERTY

ALL SIDEWALKS, DRIVEWAYS, LAWNS, FENCING, TREES, SHRUBS, SPRINKLERS, LANDSCAPING, ETC., THAT ARE DAMAGED DURING CONSTRUCTION MUST BE REPAIRED OR REPLACED, IN KIND OR BETTER, BY THE CONTRACTOR. ALL STREET SIGNS, MAIL BOXES, ETC., REMOVED SHALL BE REPLACED IN KIND OR BETTER, BY THE CONTRACTOR. ALL THE REPAIRS OR REPLACEMENTS DUE TO THE CONTRACTOR'S WORK ARE TO BE INCLUDED IN THE CONTRACT PRICE(S) AND SHALL NOT BE AN EXTRA TO THE CONTRACT.

THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM ADJACENT PROPERTY OWNERS PRIOR TO ENTERING UPON ANY ADJOINING PROPERTIES, UNLESS OFFSITE PERMITS HAVE ALREADY BEEN OBTAINED BY THE OWNER AND ARE PART OF THE CONTRACT DOCUMENTS.

## PROJECT RESTORATION

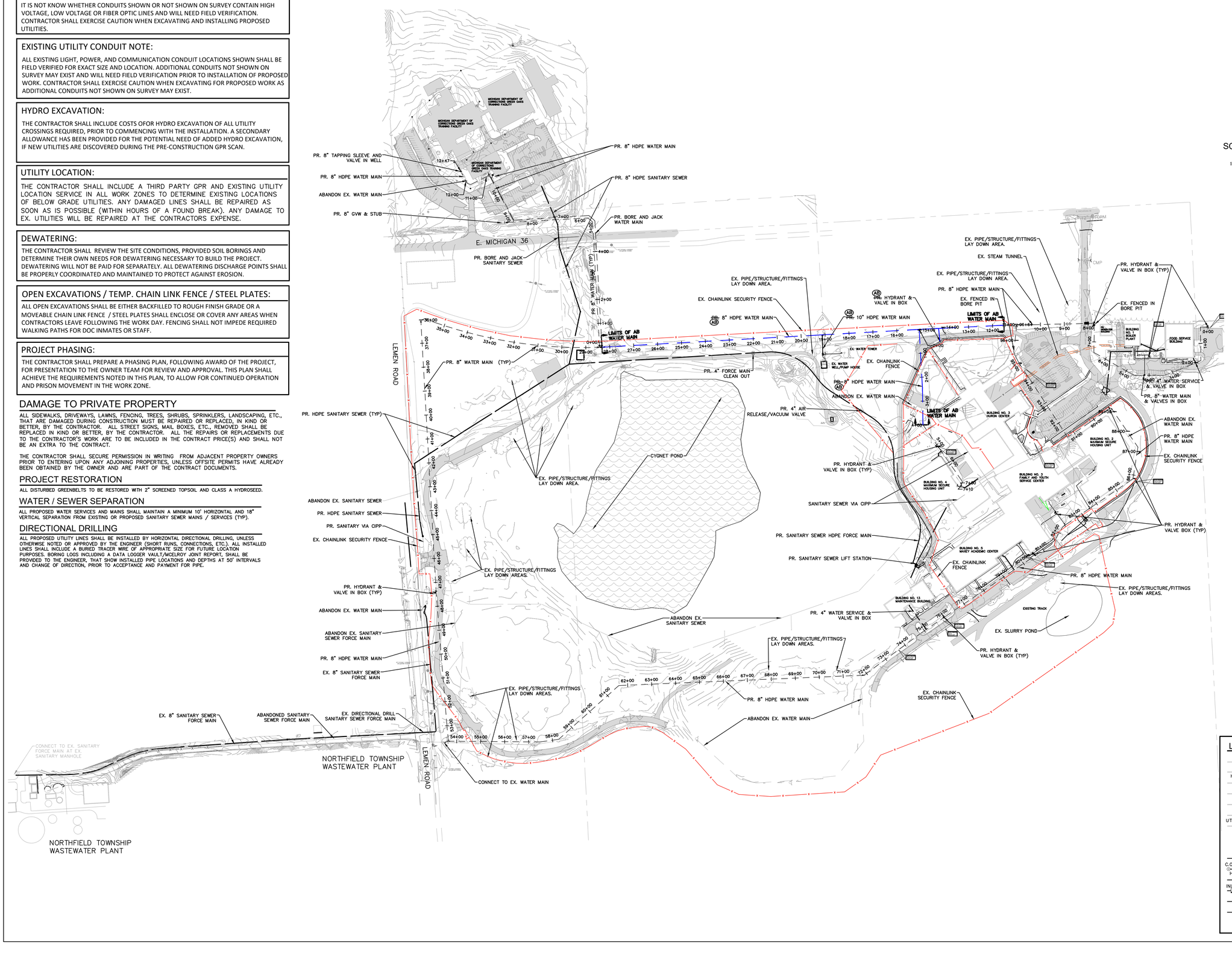
ALL DISTURBED GREENBELTS TO BE RESTORED WITH 2" SCREENED TOPSOIL AND CLASS A HYDROSEED.

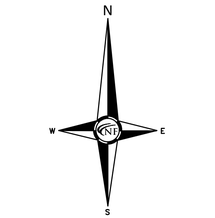
## WATER / SEWER SEPARATION

ALL PROPOSED WATER SERVICES AND MAINS SHALL MAINTAIN A MINIMUM 10' HORIZONTAL AND 18" VERTICAL SEPARATION FROM EXISTING OR PROPOSED SANITARY SEWER MAINS / SERVICES (TYP).

## DIRECTIONAL DRILLING

ALL PROPOSED UTILITY LINES SHALL BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING, UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER (SHORT RUNS, CONNECTIONS, ETC.). ALL INSTALLED LINES SHALL INCLUDE A BURIED TRACER WIRE OF APPROPRIATE SIZE FOR FUTURE LOCATION PURPOSES. BORING LOGS INCLUDING A DATA LOGGER VAULT/MCELROY JOINT REPORT, SHALL BE PROVIDED TO THE ENGINEER, THAT SHOW INSTALLED PIPE LOCATIONS AND DEPTHS AT 50' INTERVALS AND CHANGE OF DIRECTION, PRIOR TO ACCEPTANCE AND PAYMENT FOR PIPE.




## LEGEND

- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


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PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

# OVERALL IMPROVEMENT PLAN

| | |
|---|---|
| PROJECT NO. 47223123XAM | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JCIENG BY | |

# C1

## SOIL EROSION CONTROL

CUTTING, FILLING AND GRADING SHALL BE MINIMIZED AND THE NATURAL TOPOGRAPHY OF THE SITE SHALL BE PRESERVED TO THE MAXIMUM POSSIBLE EXTENT.

DEVELOPMENT SHALL BE STAGED TO KEEP THE EXPOSED AREAS OF SOIL AS SMALL AS PRACTICABLE.

SEDIMENT RESULTING FROM ACCELERATED SOIL EROSION DURING CONSTRUCTION SHALL BE REMOVED FROM RUNOFF WATER BEFORE THAT WATER LEAVES THE SITE. BEST MANAGEMENT PRACTICE SHALL BE UTILIZED TO MITIGATE BUILDUP OF WATER RUNOFF VELOCITIES.

TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF WATER AROUND, THROUGH, OR AWAY FROM THE SITE SHALL BE DESIGNED TO LIMIT THE WATER FLOW TO A NON-EROSIVE VELOCITY.

TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE REMOVED AFTER PERMANENT SOIL EROSION CONTROL MEASURES HAVE BEEN IMPLEMENTED. ALL SITES SHALL BE STABILIZED WITH PERMANENT SOIL EROSION CONTROL MEASURES.

WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHEN SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED.

PERMANENT EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 15 (FIFTEEN) CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED.

VEGETATED BUFFER STRIPS SHALL BE RETAINED ALONG THE EDGES OF ALL LAKES, PONDS, CREEKS, STREAMS, OTHER WATERCOURSES, OR WETLANDS.

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL RECEIVE REGULAR MAINTENANCE TO ASSURE PROPER FUNCTIONING.

ALL GRADING PLANS AND SPECIFICATIONS, INCLUDING EXTENSIONS OF PREVIOUSLY APPROVED PLANS, SHALL INCLUDE PROVISIONS FOR EROSION AND SEDIMENT CONTROL. CONTRACTOR SHALL OBTAIN SESC PERMIT FROM THE DTMB PRIOR TO COMMENCEMENT OF ANY SOIL DISTURBANCE ON THE PROJECT.

## SOIL EROSION NOTE

ALL WORK UNDER THIS CONTRACT MUST MEET THE STORM WATER MANAGEMENT REQUIREMENTS OF THE PROJECT AND COMPLY WITH THE APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL (SESC) RULES AND REGULATIONS (SOIL EROSION AND SEDIMENTATION CONTROL 1994 PA 451, PART 91, AS AMENDED, MCL 324.9101) AND SPECIFIC PROVISIONS AND REGULATIONS FOR SAME WITHIN THE CONTRACT DOCUMENTS. THE DEPARTMENT OF TECHNOLOGY MANAGEMENT AND BUDGET, STATE FACILITIES ADMINISTRATION, AN AUTHORIZED PUBLIC AGENCY (APA), HAS PROMULGATED STANDARD PROCEDURES AND SPECIFICATIONS FOR EROSION CONTROL THAT SHALL BE CONSIDERED A PART OF THE CONTRACT DOCUMENTS. SESC MEASURES WILL BE MONITORED AND ENFORCED BY STATE FACILITIES ADMINISTRATION THROUGH THE REVIEW OF THE CONTRACTOR'S IMPLEMENTATION PLANS AND SITE INSPECTIONS. STATE FACILITIES ADMINISTRATION OR THE PROFESSIONAL WILL NOTIFY THE CONTRACTOR IN WRITING OF ANY VIOLATIONS OF THE APPLICABLE SESC STATUTES AND / OR THE CORRECTIVE ACTIONS UNDERTAKEN BY THE OWNER AND MAY ISSUE STOP WORK ORDERS. STATE FACILITIES ADMINISTRATION HAS THE RIGHT TO ASSESS A $500/DAY FINE TO THE CONTRACTOR FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE CONTRACT DOCUMENTS AND / OR SESC REGULATIONS APPLICABLE TO THIS WORK AND FINES SHALL BE IN ADDITION TO ANY REMEDIATION COSTS OR LIQUIDATED DAMAGES APPLICABLE TO THE PROJECT AND MAY EXCEED THE VALUE OF THE CONTRACT.

## SOIL DATA

THIS SITE CONSISTS OF

- BtB — BOYER-OSHTEMO LOAMY SANDS, 2 TO 6 PERCENT SLOPES
- By — BROOKSTON LOAM, 0 TO 2 PERCENT SLOPES
- CarabA — CARLISLE MUCK, 0 TO 2 PERCENT SLOPES
- CvA — CONOVER LOAM, 0 TO 2 PERCENT SLOPES
- Gd — GILFORD SANDY LOAM, 0 TO 2 PERCENT SLOPES, GRAVELLY SUBSOIL
- HgtahA — HOUGHTON MUCK, 0 TO 1 PERCENT SLOPES
- MoA — WAWASEE LOAM, 0 TO 2 PERCENT SLOPES
- MoB — WAWASEE LOAM, 2 TO 6 PERCENT SLOPES
- MoC — WAWASEE LOAM, 6 TO 12 PERCENT SLOPES
- MoD — MIAMI LOAM, 12 TO 18 PERCENT SLOPES
- MoE — MIAMI LOAM, 18 TO 25 PERCENT SLOPES

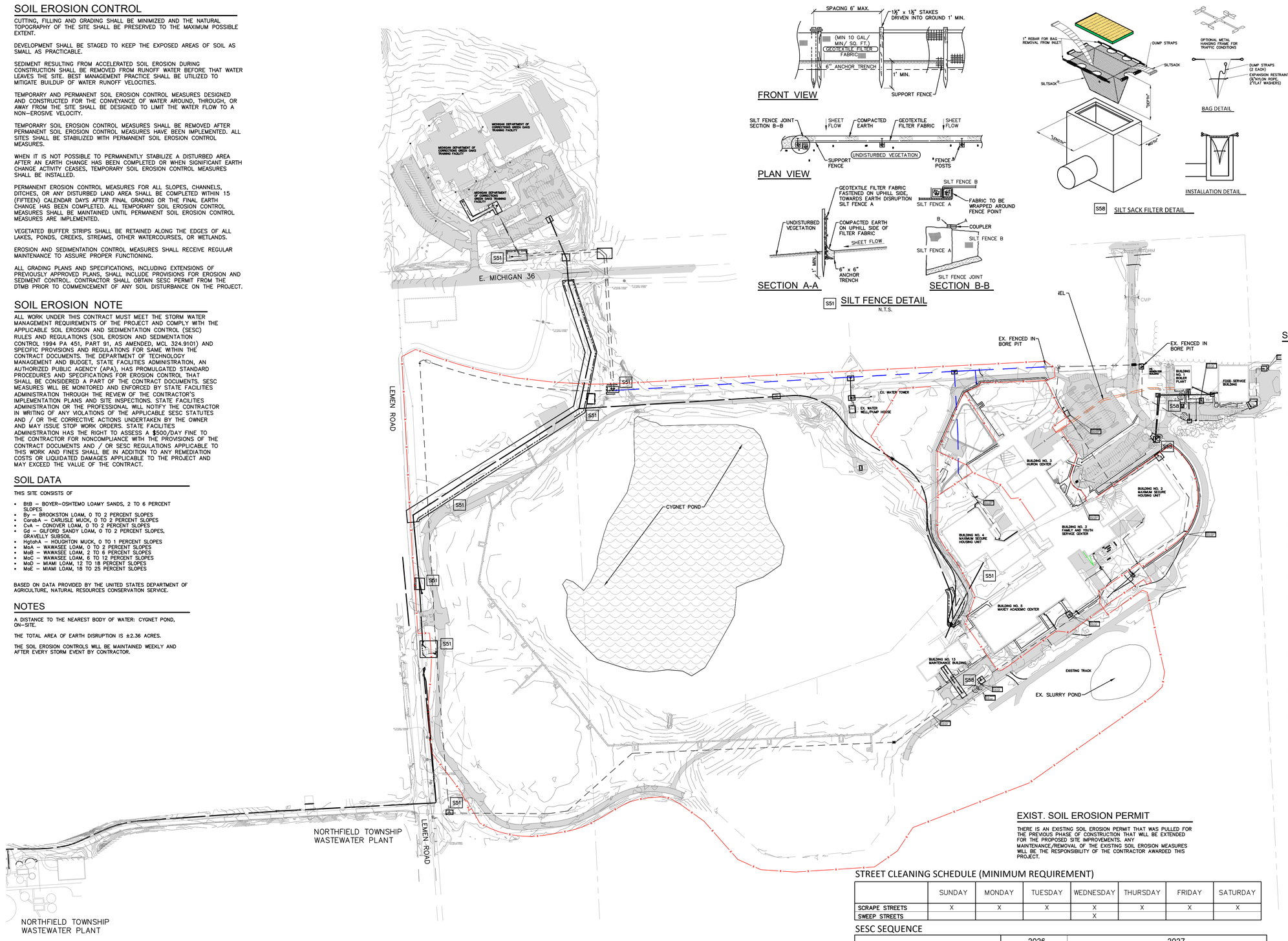
BASED ON DATA PROVIDED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE.

## NOTES

A DISTANCE TO THE NEAREST BODY OF WATER: CYGNET POND, ON-SITE.

THE TOTAL AREA OF EARTH DISRUPTION IS ±2.36 ACRES.

THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY CONTRACTOR.







FRONT VIEW




PLAN VIEW




SECTION A-A



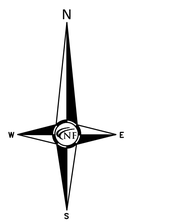

SECTION B-B

S51 SILT FENCE DETAIL
N.T.S.




S58 SILT SACK FILTER DETAIL




## SOIL EROSION CONTROL NOTES

1. ALL WORK SHALL COMPLY WITH THE APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL (SESC) RULES AND REGULATIONS (SOIL EROSION AND SEDIMENTATION CONTROL – 1994 PA 451, PART 91, AS AMENDED, MCL 324.9101 ET SEQ.).
2. ALL EARTH CHANGES OF ONE ACRE OR MORE OR WITHIN 500 FEET OF WATERS OF THE STATE REQUIRE A SESC PERMIT. IF A SESC PERMIT IS REQUIRED THE PROFESSIONAL SERVICES CONTRACTOR (DESIGN CONSULTANT) SHALL PREPARE AN SESC PLAN. THE SESC PLAN SHALL ADDRESS BOTH WIND AND WATER EROSION AND SEDIMENTATION.
3. THE CONTRACTOR SHALL REVIEW THE DESIGN CONSULTANT'S SESC PLAN IN ORDER TO PREPARE AND ISSUE FOR APPROVAL AN 'SESC IMPLEMENTATION PLAN', WHICH INDICATES THE CONTRACTOR'S INTENDED IMPLEMENTATION OF THE SESC PLAN FOR THE PROJECT, INCLUDING A SCHEDULE.
4. THE DTMB SESC PROGRAM, UPON APPROVAL OF THE IMPLEMENTATION PLAN, WILL ISSUE THE CONTRACTOR AN 'AUTHORIZATION TO PROCEED WITH EARTH CHANGE', WHICH IS TO BE POSTED AT THE JOB SITE. THIS DOCUMENT IS ISSUED IN LIEU OF A PERMIT FROM THE COUNTY OR OTHER LOCAL ENFORCING AGENCY.
5. THE CONTRACTOR SHALL IMPLEMENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY THE PROJECT'S SESC PLAN, SESC IMPLEMENTATION PLAN, DTMB'S SOIL EROSION AND SEDIMENTATION CONTROL GUIDEBOOK, DATED FEBRUARY 2005, AND AS DIRECTED BY THE PROFESSIONAL SERVICES CONTRACTOR, DTMB SESC INSPECTOR, AND/OR DTMB PROJECT DIRECTOR. THE DTMB SESC INSPECTOR SHALL INSPECT THE SITE WEEKLY AND AFTER SIGNIFICANT RAIN EVENTS.
6. THE CONTRACTOR SHALL INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO OR UPON COMMENCEMENT TO EARTHWORK ACTIVITIES.
7. THE CONTRACTOR WILL PERFORM SWEEPING AS NEEDED TO REMOVE ANY SEDIMENT TRACKED OFF SITE. FREQUENCY OF SWEEPING WILL BE BASED ON SITE CONDITIONS.
8. THE CONTRACTOR WILL PERFORM DUST CONTROL AS NEEDED BASED ON SITE CONDITIONS.
9. DISTURBED AREAS THAT WILL REMAIN IDLE DURING CONSTRUCTION MUST BE TEMPORARILY STABILIZED, INCLUDING SOIL STOCKPILES, USING DTMB SESC BEST MANAGEMENT PRACTICES.
10. THE CONTRACTOR SHALL MAINTAIN AND INSPECT SESC MEASURES THROUGHOUT THE COURSE OF THE PROJECT. RECOMMEND INSPECTING AND MAINTAINING EROSION AND SEDIMENTATION CONTROLS ON A DAILY BASIS. AT A MINIMUM, THE CONTRACTOR SHALL INSPECT AND MAINTAIN SESC MEASURES ONCE A WEEK AND AFTER RAIN EVENTS.
11. THE CONTRACTOR SHALL CORRECT NON-CONFORMING SESC MEASURES WITHIN 24 HOURS, IF WATERS OF THE STATE ARE BEING IMPACTED OR WITHIN 48 HOURS FOR ROUTINE MAINTENANCE ITEMS. OTHER SESC MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NEVER MORE THAN FIVE (5) DAYS AFTER DETECTION.
12. THE CONTRACTOR SHALL COMPLETE PERMANENT SOIL EROSION CONTROL MEASURES FOR ANY DISTURBED LAND AREA WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. THE CONTRACTOR SHALL MAINTAIN TEMPORARY CONTROL MEASURES UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IN PLACE AND THE AREA IS STABILIZED.
13. THE CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED. CARE SHALL BE TAKEN DURING REMOVAL TO PREVENT SOIL EROSION AND SEDIMENTATION.
14. AFTER THE COMPLETION OF THE PROJECT, PERMANENT SESC MEASURES WILL BE MAINTAINED BY THE PROPERTY OWNER.

## EXIST. SOIL EROSION PERMIT

THERE IS AN EXISTING SOIL EROSION PERMIT THAT WAS PULLED FOR THE PREVIOUS PHASE OF CONSTRUCTION THAT WILL BE EXTENDED FOR THE PROPOSED SITE IMPROVEMENTS. ANY MAINTENANCE/REMOVAL OF THE EXISTING SOIL EROSION MEASURES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AWARDED THIS PROJECT.

## STREET CLEANING SCHEDULE (MINIMUM REQUIREMENT)

| | SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|---|
| SCRAPE STREETS | X | X | X | X | X | X | X |
| SWEEP STREETS | | | | X | | | |

## SESC SEQUENCE

| | 2026 | | | 2027 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONSTRUCTION EVENTS | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| INSTALL TEMPORARY SOIL EROSION MEASURES | | | — | | | | | | | | | |
| UTILITY ABANDONMENT | | | — | — | — | — | — | — | — | — | | |
| WATER MAIN AND SANITARY SEWER INSTALLATION | | | — | — | — | — | — | — | — | — | | |
| INSTALL LANDSCAPING / SEED & MULCH | | | | | | | | | | — | — | |
| REMOVE SOIL EROSION CONTROL ITEMS | | | | | | | | | | | | — |

## SESC LEGEND

- INDICATES SILT SACK OR EQUAL ON EXISTING DRAINAGE STRUCTURE
- INDICATES LIMITS OF SOIL DISTURBANCE
- INDICATES SILT FENCE

## LEGEND

- EXISTING SANITARY SEWER (MANHOLE)
- SAN. CLEAN OUT
- EXISTING WATER MAIN (HYDRANT, GATE VALVE)
- EXISTING STORM SEWER (MANHOLE, CATCH BASIN)
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES (UTILITY POLE, GUY POLE, GUY WIRE)
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER (C.O., MANHOLE)
- PR. WATER MAIN (HYDRANT, GATE VALVE)
- PR. STORM SEWER (INLET, C.B., MANHOLE)
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


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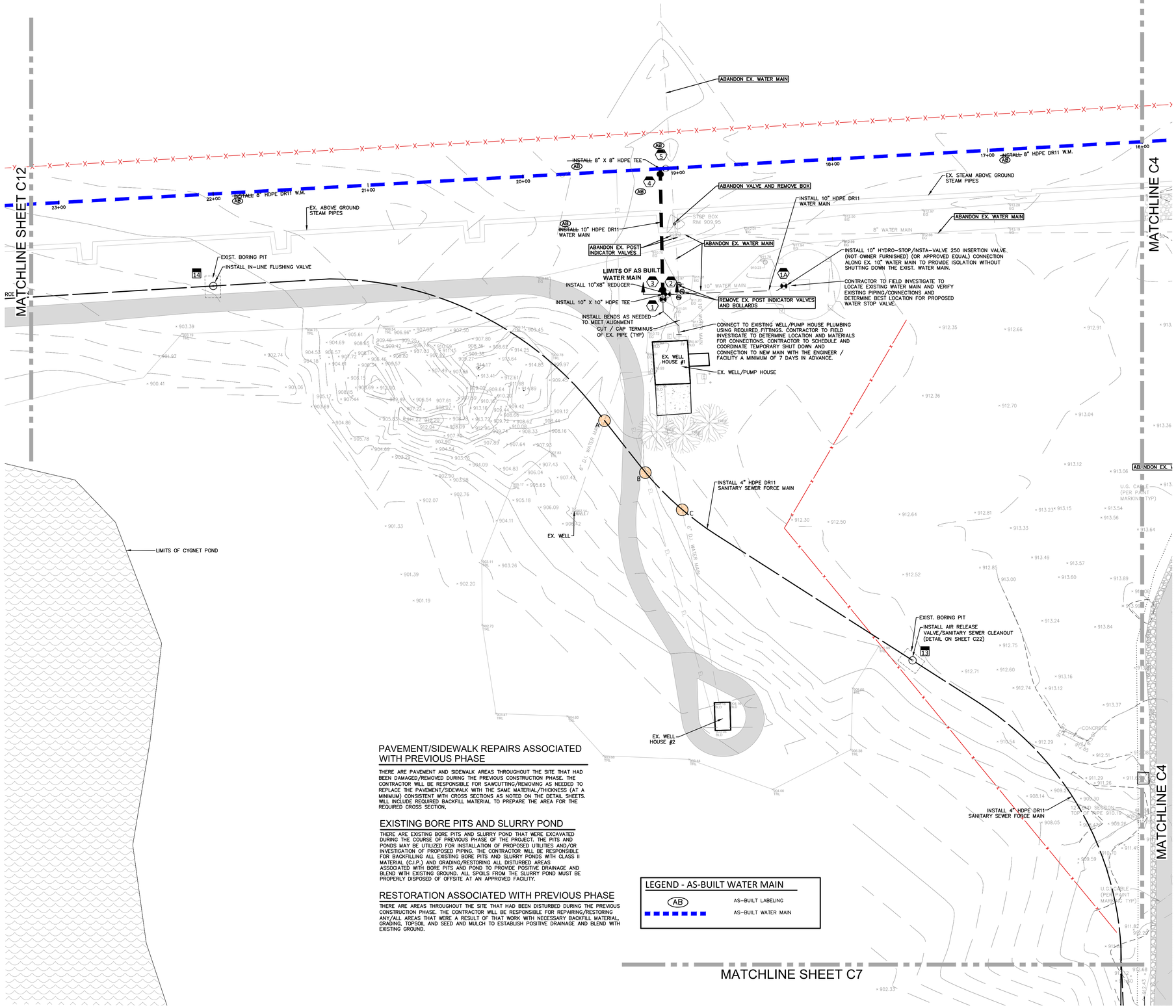
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PROJECT DESCRIPTION
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WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

SOIL EROSION & SEDIMENTATION CONTROL PLAN

| | |
|---|---|
| PROJECT NO. | 472231293.KMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C2




## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION.

## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

THERE ARE AREAS THROUGHOUT THE SITE THAT HAD BEEN DISTURBED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING/RESTORING ANY/ALL AREAS THAT WERE A RESULT OF THAT WORK WITH NECESSARY BACKFILL MATERIAL, GRADING, TOPSOIL AND SEED AND MULCH TO ESTABLISH POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND.

### LEGEND - AS-BUILT WATER MAIN

- AB — AS-BUILT LABELING
- AS-BUILT WATER MAIN

N

W NF E

S

SCALE: 1" = 30'

30 15 0 15 30 45


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## PIPE ABANDONMENT

ANY UNCOVERED OR CUT WATER / SEWER LINES TO BE ABANDONED IN PLACE SHALL BE CAPPED OR BULKHEADED PRIOR TO BACKFILL (TYP. FOR PROJECT).

## WATERMAIN STRUCTURE SCHEDULE

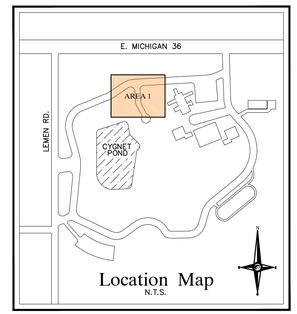
- AB 4 — PR. 8" GATE VALVE IN BOX FG 910.24
- AB 5 — PR. 8" GATE VALVE IN BOX FG 910.13
- 1 — PR. 10" GATE VALVE IN BOX FG 910.85
- 2 — PR. 10" GATE VALVE IN BOX FG 910.83
- 3 — PR. 8" GATE VALVE IN BOX FG 910.87
- 1A — PR. 10" HYDRO-STOP/INSTA-VALVE 250 IN BOX FG 911.60

## SANITARY STRUCTURE SCHEDULE

- 13 — PR. AIR RELEASE VALVE IN MANHOLE 6' DIA. MANHOLE FG 911.65 4" E. T/P 906.15 4" W. T/P 906.15
- 14 — PR. FLUSHING VALVE IN MANHOLE 7' DIA. MANHOLE FG 904.04 4" SE. T/P 898.54 4" NW. T/P 898.54

## CROSSING SCHEDULE

- A — FG. 909.95±; EX. 6" DI WTR B/P APPROX. 903.90; PR. 4" SAN T/P 902.40
- B — FG. 910.00±; EX. UNDERGROUND ELECTRICAL; PR. 4" SAN T/P 903.68
- C — FG. 910.68±; EX. 6" DI WTR B/P APPROX. 905.18; PR. 4" SAN T/P 903.68




### LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- MANHOLE, CATCH BASIN — EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- UTILITY POLE, GUY POLE, GUY WIRE — EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

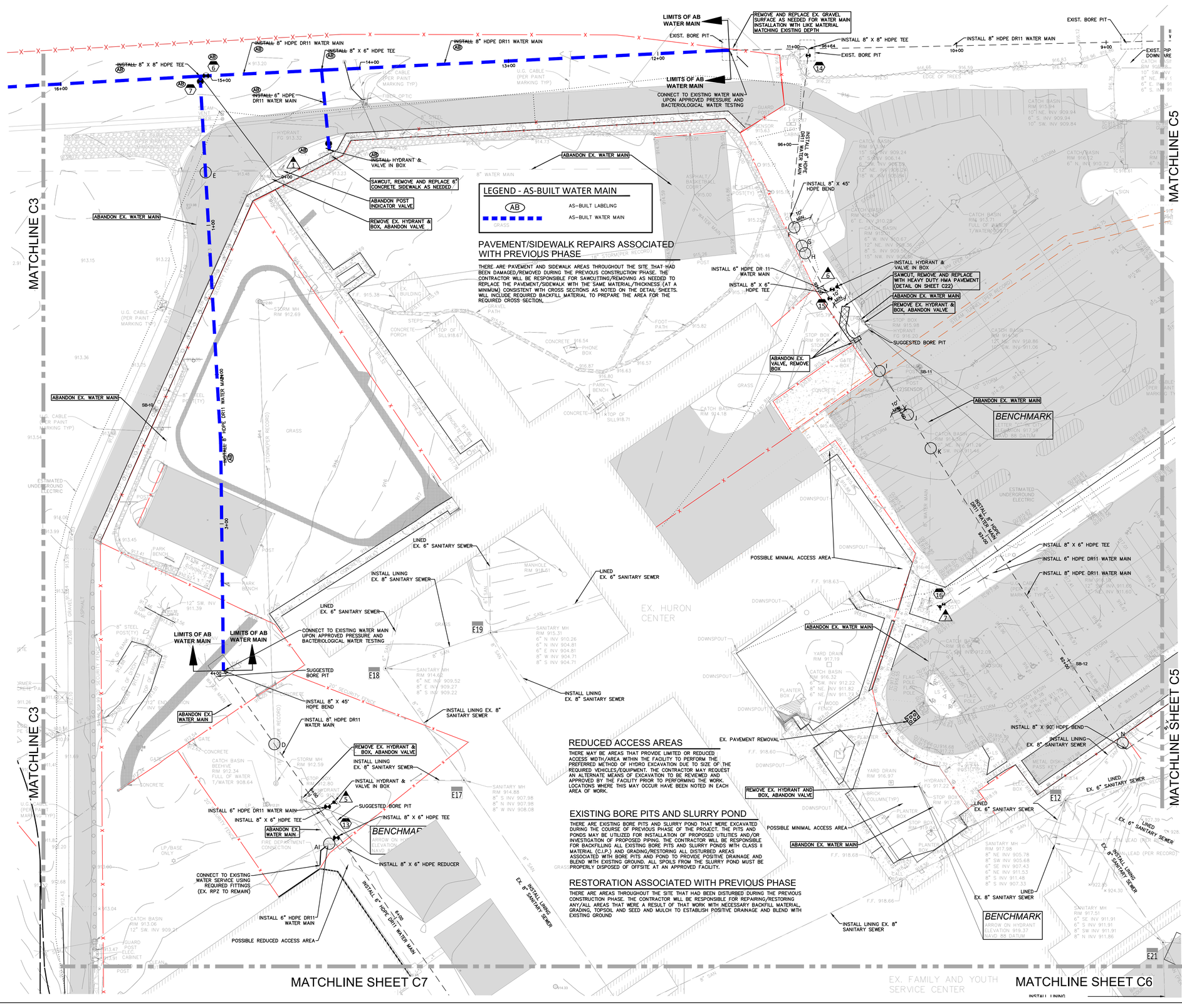
| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 900 90% |
| 08-15-2024 | Phase 900 50% |

PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## IMPROVEMENT PLAN AREA 1

| | |
|---|---|
| PROJECT NO. | 472231219XMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCI/ENG BY | SWS |

C3




N

SCALE: 1" = 30'

30 15 0 15 30 45

## BUILDING CONNECTIONS

CONTRACTORS SHALL INVESTIGATE THE INTERIOR PLUMBING TO VERIFY EXACT LOCATIONS AND TYPE OF MATERIALS TO ALLOW FOR PROPER EXTERIOR RECONNECTION OF NEW MAINS AT EACH PROPOSED REFEED. THIS EFFORT SHALL BE INCLUDED IN THE BID FEES.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## WATER STRUCTURE SCHEDULE

- (AB) 6 — PR. 6" GATE VALVE IN BOX FG 913.63
- (AB) 7 — PR. 6" GATE VALVE IN BOX FG 913.72
- 13 — PR. 6" GATE VALVE IN BOX FG 914.75
- 14 — PR. 8" GATE VALVE IN BOX FG 916.46
- 15 — PR. 8" GATE VALVE IN BOX FG 915.90
- 16 — PR. 6" GATE VALVE FG 917.80
- 17 — PR. 8" GATE VALVE IN BOX FG 917.83
- (AB) 1 — PR. HYDRANT & VALVE IN BOX FG 914.90
- 5 — PR. HYDRANT & VALVE IN BOX FG 913.47
- 6 — PR. HYDRANT & VALVE IN BOX FG 916.05
- 7 — PR. HYDRANT & VALVE IN BOX FG 917.90

## CROSSING SCHEDULE

- (D) FG. 913.31± EX. 18" STORM B/P FIELD INVESTIGATE PR. 8" WATER T/P 907.80
- (E) FG. 914.00± EX. 12" WATER B/P APPROX. 908.50 PR. 8" WATER T/P 907.00
- (F) FG. 914.80± EX. 18" STORM B/P 908.56 (V.I.F.) PR. 8" WATER T/P 907.06
- (G) FG. 914.80± EX. 6" STORM B/P 908.80 (V.I.F.) PR. 8" WATER T/P 907.30
- (H) FG. 915.49± PR. 8" WATER B/P 909.39 EX. 6" STORM T/P 906.70 (V.I.F.)
- (I) FG. 915.35± EX. STEAM TUNNEL B/P 909.35 (V.I.F.) PR. 8" WATER T/P 907.32
- (J) FG. 914.47± EX. 10" STORM B/P 911.08 PR. 8" WATER T/P 907.32
- (K) FG. 914.42± EX. 8" WATER B/P 908.82 PR. 8" WATER T/P 907.32
- (N) FG. 918.33± PR. 8" WATER B/P 912.00 EX. 8" SAN T/P 907.58

## SANITARY STRUCTURE SCHEDULE

- 12 — EX. SANITARY MANHOLE RIM 917.98; 8" NE. INV. 905.78; 8" SW. INV. 905.68; 6" SE. INV. 907.43; 6" NE. INV. 911.53; 8" S. INV. 911.48; 8" S. INV. 907.33
- 17 — EX. SANITARY MANHOLE RIM 914.88; 10" N. INV. 907.98; 10" E. INV. 909.25; 8" W. INV. 908.08
- 18 — EX. SANITARY MANHOLE RIM 914.62; 6" NE. INV. 909.52; 10" E. INV. 909.27; 8" W. INV. 909.22
- 19 — EX. SANITARY MANHOLE RIM 915.31; 6" N. INV. 910.36; 6" N. INV. 904.81; 10" W. INV. 904.81; 10" W. INV. 904.71; 10" S INV. 904.71

## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT — SAN. CLEAN OUT
- GATE VALVE — EXISTING WATER MAIN
- MANHOLE CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE GUY POLE GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O. MANHOLE — PR. SANITARY SEWER
- HYDRANT GATE VALVE — PR. WATER MAIN
- INLET C.B. MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
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NFE PROJECT NO. K648-06
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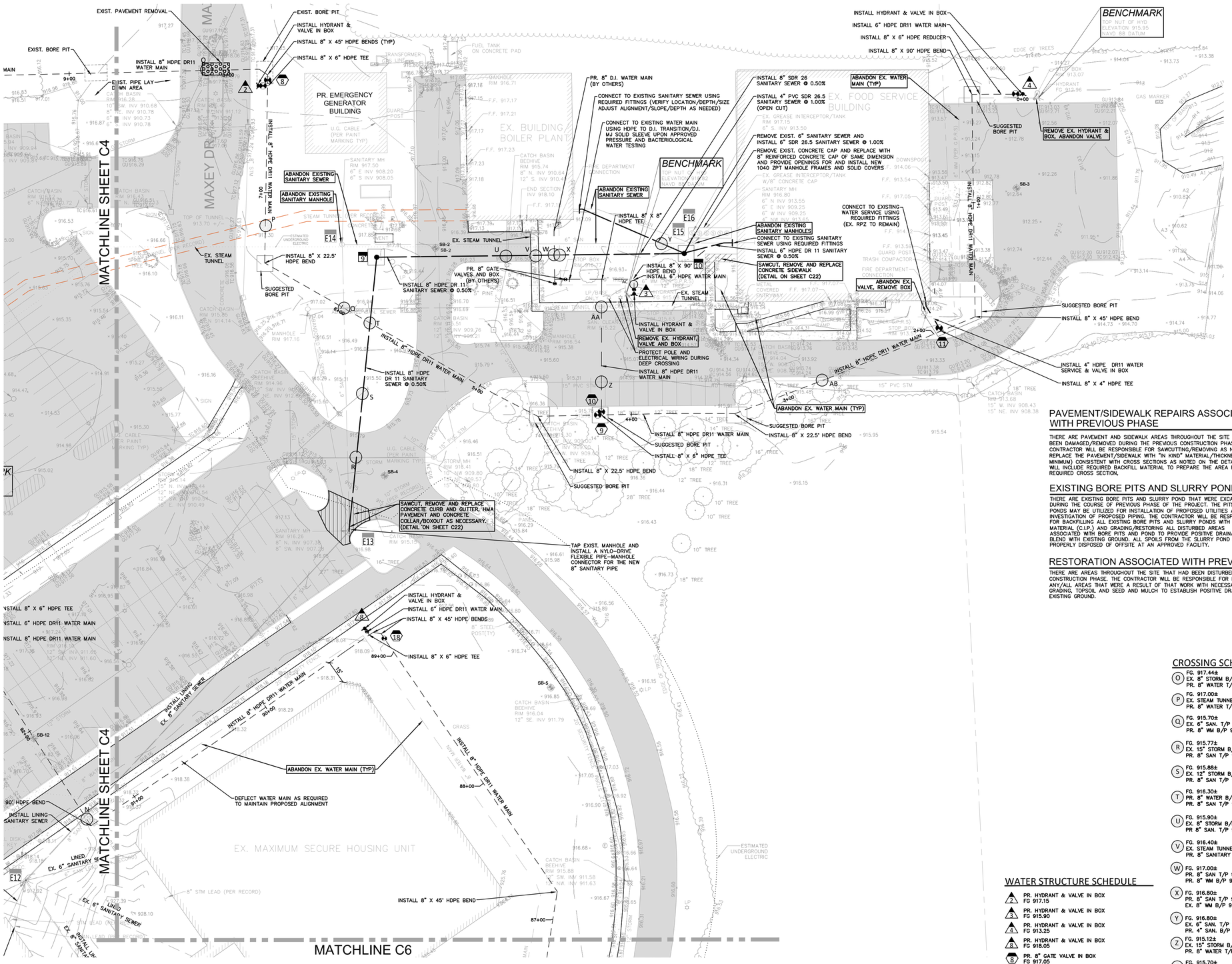
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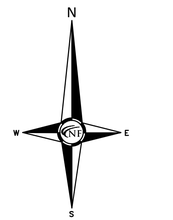
PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 2

| | |
|---|---|
| PROJECT NO. | 472023X-MM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C4




SCALE:
1" = 30'
30 15 0 15 30 45

## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

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## SURFACE REPAIRS

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## SANITARY STRUCTURE SCHEDULE

- 13 EX. SANITARY MANHOLE RIM 916.26 EX. 8" SW. INV. 907.28 EX. 8" NW. INV. 907.38 8" NE. INV. 907.38 8" SW. INV. 907.28
- 14 EX. SANITARY MANHOLE RIM 917.50 6" E. INV. 908.20 6" S. INV. 908.05
- 15 EX. SANITARY MANHOLE RIM 916.80 6" N. INV. 913.55 6" E. INV. 909.25 6" W. INV. 909.25 4" NW. INV. 913.65 +/-
- 16 EX. SANITARY MANHOLE RIM 917.15 6" S. INV. 913.50
- 9 PR. 4' SANITARY MANHOLE RIM 917.85 8" S. INV. 908.24 8" E. INV. 908.24
- 10 PR. 4' SANITARY MANHOLE RIM 916.60 8" W. INV. 909.20 8" E. INV. 909.30 6" N. INV. 913.50 4" NW. INV. 911.20

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH "IN KIND" MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION.

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## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

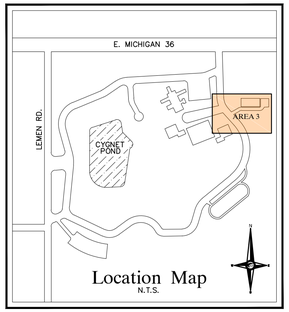
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## CROSSING SCHEDULE

- (O) FG. 917.44± EX. 8" STORM B/P 911.12 PR. 8" WATER T/P 909.62
- (P) FG. 917.00± EX. STEAM TUNNEL B/P APPROX. 908.70 PR. 8" WATER T/P 907.80
- (Q) FG. 915.70± EX. 6" SAN. T/P 908.50 PR. 8" WM B/P 910.00
- (R) FG. 915.77± EX. 15" STORM B/P APPROX. 909.97 PR. 8" SAN T/P 908.30
- (S) FG. 915.88± EX. 12" STORM B/P APPROX. 912.26 PR. 8" SAN T/P 908.50
- (T) FG. 916.30± PR. 8" WATER B/P APPROX. 910.25 PR. 8" SAN T/P 908.72
- (U) FG. 915.90± EX. 8" STORM B/P 910.50 PR 8" SAN. T/P 909.34
- (V) FG. 916.40± EX. STEAM TUNNEL B/T APPROX. 910.90 (V.I.F.) PR. 8" SANITARY T/P 909.34
- (W) FG. 917.00± PR. 8" SAN T/P 909.40 PR. 8" WM B/P 911.10
- (X) FG. 916.80± PR. 8" SAN T/P 909.42 EX. 8" WM B/P 911.00
- (Y) FG. 916.80± EX. 6" SAN. T/P 909.15 PR. 4" SAN. B/P 913.75 (V.I.F.)
- (Z) FG. 915.12± EX. 15" STORM B/P 908.68 PR. 8" WATER T/P 907.15
- (AA) FG. 915.70± EX. STEAM TUNNEL B/P APPROX. 909.70 (V.I.F.) PR. 6" WATER T/P 908.10
- (AB) FG. 914.53± EX. 15" STORM B/P 908.65 PR. 8" WATER T/P 907.15
- (AC) FG. 915.70 EX. 6" WATER B/P 909.80 PR. 6" WATER T/P 908.80

## WATER STRUCTURE SCHEDULE

- (2) PR. HYDRANT & VALVE IN BOX FG 917.15
- (3) PR. HYDRANT & VALVE IN BOX FG 915.90
- (4) PR. HYDRANT & VALVE IN BOX FG 913.25
- (8) PR. HYDRANT & VALVE IN BOX FG 918.05
- (8) PR. 8" GATE VALVE IN BOX FG 917.05
- (9) PR. 8" GATE VALVE IN BOX FG 916.00
- (10) PR. 8" GATE VALVE IN BOX FG 916.00
- (11) PR. 4" GATE VALVE IN BOX FG 913.90
- (18) PR. 8" GATE VALVE IN BOX FG 918.00




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE — OVERHEAD LINES
- GUY WIRE
- LIGHT POLE
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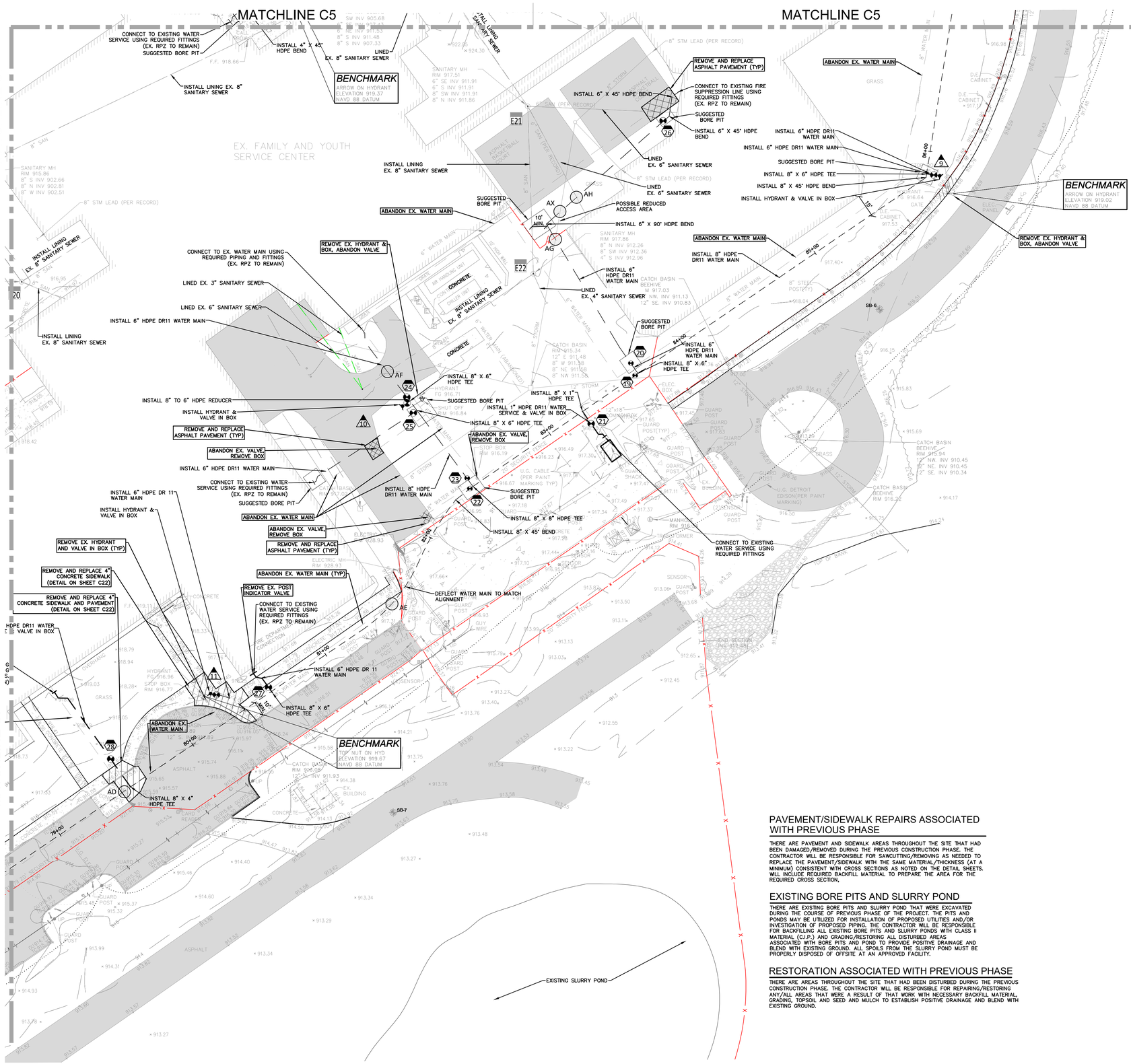
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PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 3

| | |
|---|---|
| PROJECT NO. | 472023129.KMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C5




## REDUCED ACCESS AREAS

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## WATER STRUCTURE SCHEDULE

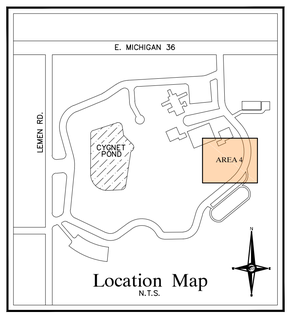
- 9 — PR. HYDRANT & VALVE IN BOX, FG 917.14
- 10 — PR. HYDRANT & VALVE IN BOX, FG 916.67
- 11 — PR. HYDRANT & VALVE IN BOX, FG 917.14
- 19 — PR. 8" GATE VALVE IN BOX, FG 917.40
- 20 — PR. 6" GATE VALVE IN BOX, FG 917.42
- 21 — PR. 1" GATE VALVE IN BOX, FG 916.53
- 22 — PR. 8" GATE VALVE IN BOX, FG 916.37
- 23 — PR. 8" GATE VALVE IN BOX, FG 916.70
- 24 — PR. 6" GATE VALVE IN BOX, FG 916.70
- 25 — PR. 6" GATE VALVE IN BOX, FG 918.60
- 26 — PR. 6" GATE VALVE IN BOX, FG 918.79
- 27 — PR. 6" GATE VALVE IN BOX, FG 917.49
- 28 — PR. 4" GATE VALVE IN BOX, FG 915.62

## CROSSING SCHEDULE

- AD — FG. 915.53±; EX. 8" WATER B/P 910.03; PR 8" WATER T/P 908.53
- AE — FG. 917.17±; EX. 8" WATER B/P 911.67; PR 8" WATER T/P 910.17
- AF — FG. 917.10±; EX. 8" SAN B/P 913.63; PR 8" WATER T/P 911.60
- AG — FG. 918.06±; EX. 8" STORM B/P 912.80; PR 8" WATER T/P 911.30
- AH — FG. 917.65±; EX. 8" SAN B/P 912.08; PR 8" WATER T/P 910.58
- AX — FG. 917.70±; EX. 8" STORM B/P V.I.F.; PR 8" WATER T/P 910.58

## SANITARY STRUCTURE SCHEDULE

- E21 — EX. SANITARY MANHOLE, RIM 917.51, 6" SE. INV. 911.91, 6" S. INV. 911.91, 8" SW. INV. 911.91, 8" N. INV. 911.86
- E22 — EX. SANITARY MANHOLE, RIM 917.86, 6" S. INV. 912.96, 8" SW. INV. 912.36, 8" N. INV. 912.26
- E23 — EX. SANITARY MANHOLE, RIM 917.19, 6" N. INV. 913.79, 8" E. INV. 913.74, 2" N. INV. 913.79




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT — GATE VALVE — SAN. CLEAN OUT
- MANHOLE — CATCH BASIN — EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- UTILITY POLE — GUY POLE — GUY WIRE — EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O. — MANHOLE — PR. SANITARY SEWER
- HYDRANT — GATE VALVE — PR. WATER MAIN
- INLET — C.B. — MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 600 90% |
| 08-15-2024 | Phase 600 50% |

PROJECT DESCRIPTION

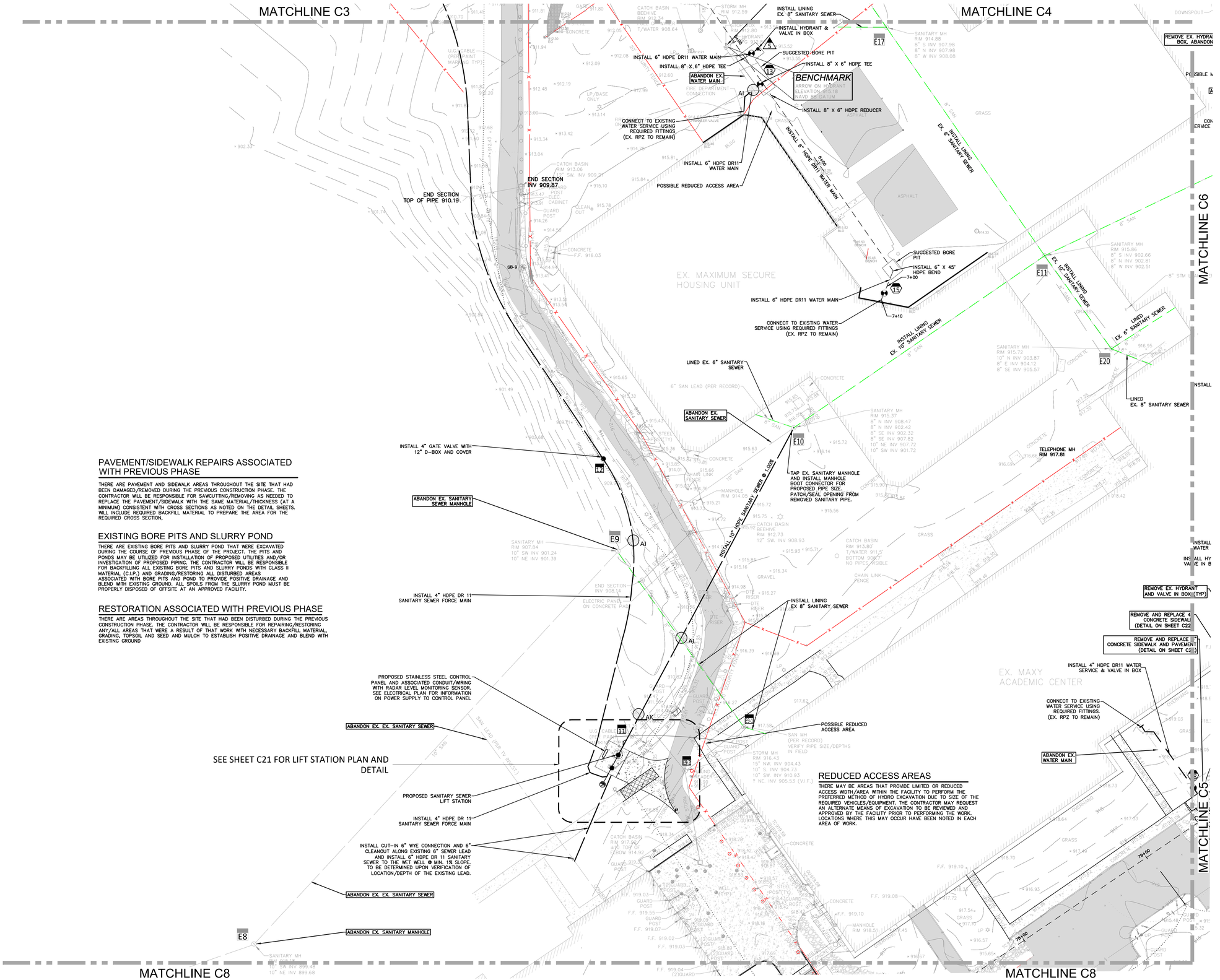
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY

WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

# IMPROVEMENT PLAN AREA 4

| | |
|---|---|
| PROJECT NO. | 472231293XMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C6




NFE PROJECT NO. K648-06

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257

NF ENGINEERS

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
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ADAM P. LACH, RA, NCARB, DIRECTOR

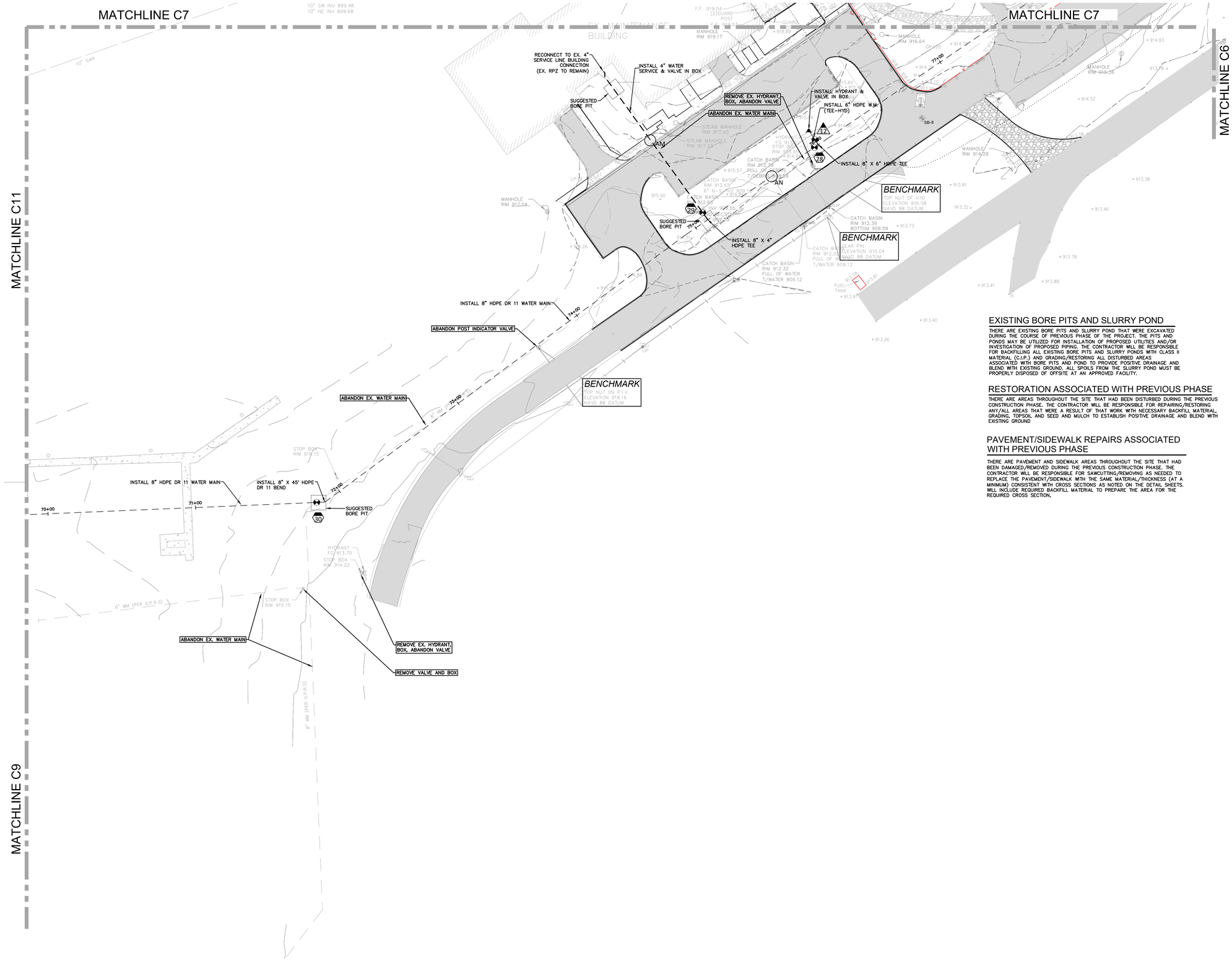
| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 900 90% |
| 08-15-2024 | Phase 900 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 5

| | |
|---|---|
| PROJECT NO. 472023284XMM | |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C7




## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## BUILDING CONNECTIONS

CONTRACTORS SHALL INVESTIGATE THE INTERIOR PLUMBING TO VERIFY EXACT LOCATIONS AND TYPE OF MATERIALS TO ALLOW FOR PROPER EXTERIOR RECONNECTION OF NEW MAINS AT EACH PROPOSED REFEED. THIS EFFORT SHALL BE INCLUDED IN THE BID FEES.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

THERE ARE AREAS THROUGHOUT THE SITE THAT HAD BEEN DISTURBED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING/RESTORING ANY/ALL AREAS THAT WERE A RESULT OF THAT WORK WITH NECESSARY BACKFILL MATERIAL, GRADING, TOPSOIL AND SEED AND MULCH TO ESTABLISH POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

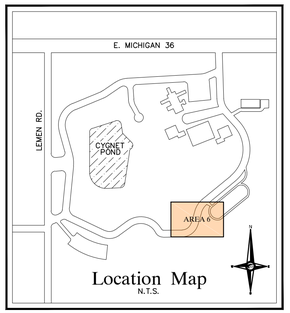
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## WATER STRUCTURE SCHEDULE

- 12 — PR. HYDRANT FG 914.68
- 28 — PR. 8" GATE VALVE IN BOX FG 913.71
- 29 — PR. 4" GATE VALVE IN BOX FG 914.20
- 30 — PR. 8" GATE VALVE IN BOX FG 916.27

## CROSSING SCHEDULE

- AM — FG. 916.75± EX. STEAM TUNNEL B/P APPROX. 911.75 PR. 4" WATER T/P 910.25
- AN — FG. 913.92± EX. 6" STORM B/P 909.62 PR. 8" WATER T/P 908.12




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


NFE PROJECT NO. K648-06
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
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STATE OF MICHIGAN
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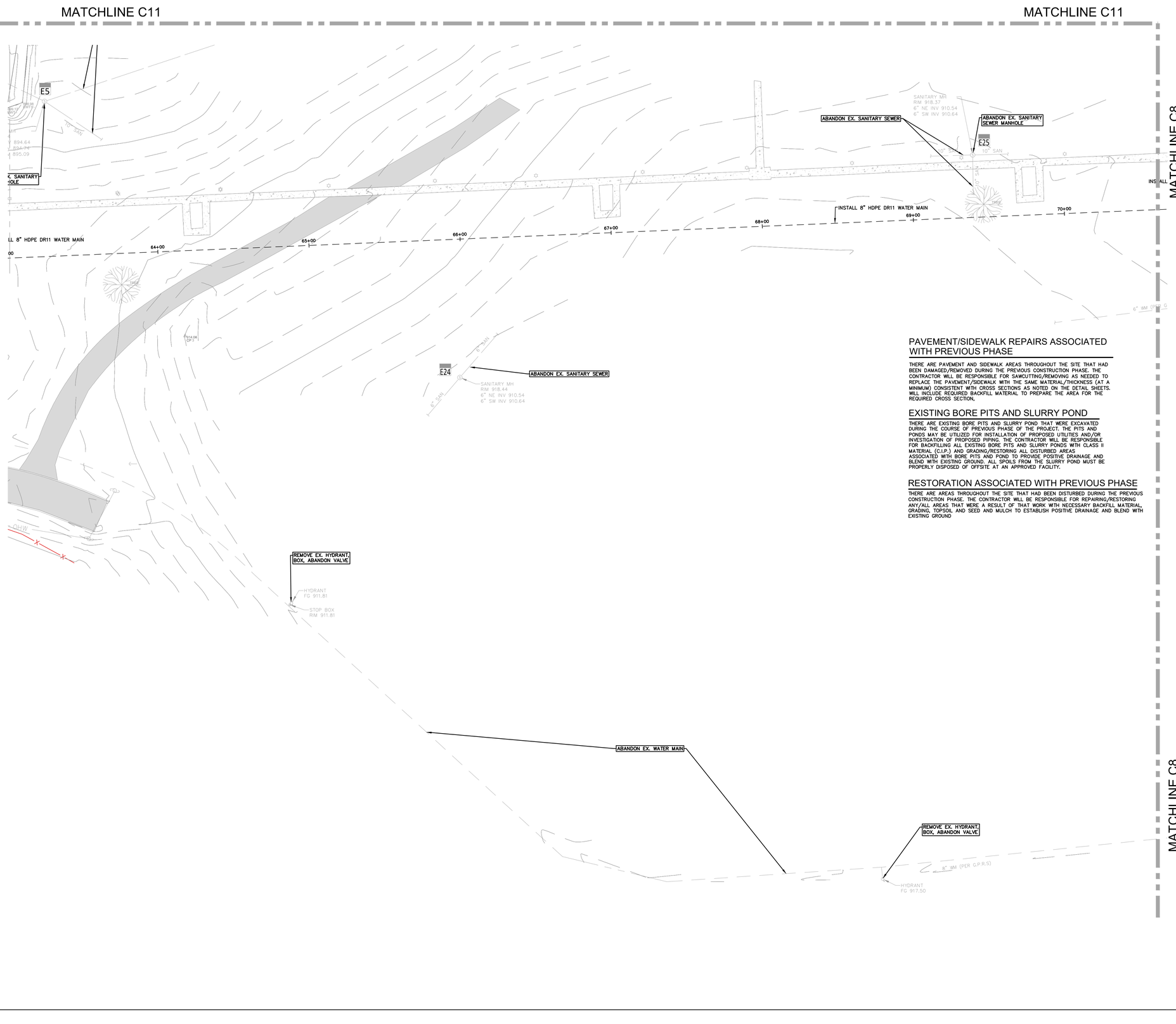
| DATE | REVIEW |
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| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 500 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 6

| | |
|---|---|
| PROJECT NO. | 4722312XMA |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCI/ENG BY | SWS |

C8




## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION.

## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

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## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## SURFACE REPAIRS

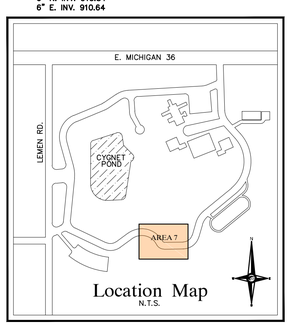
ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## SANITARY STRUCTURE SCHEDULE

**E5** EX. SANITARY MANHOLE
RIM 908.58
10" NW. INV. 894.64
10" NE. INV. 894.74
10" SE. INV. 895.82

**E24** EX. SANITARY MANHOLE
RIM 918.44
6" N. INV. 910.54
6" E. INV. 910.64

**E25** EX. SANITARY MANHOLE
RIM 918.37
6" N. INV. 910.54
6" E. INV. 910.64




## LEGEND

- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

N

W E

S

SCALE: 1" = 30'

30 15 0 15 30 45


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

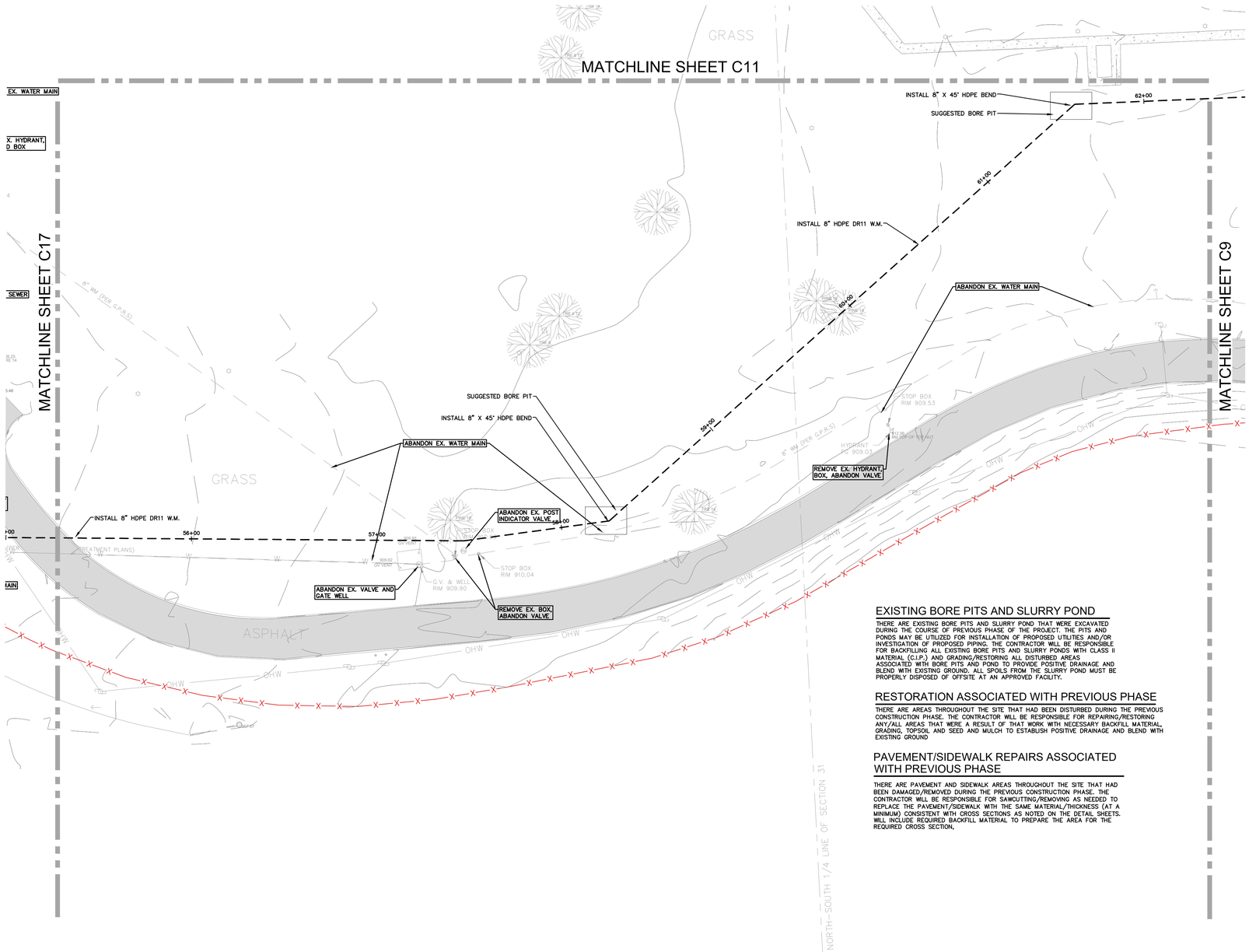
| DATE | REVIEW |
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| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 500 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 7

| | |
|---|---|
| PROJECT NO. 472231293XMM | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JC/ENG BY | |

C9




## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

THERE ARE AREAS THROUGHOUT THE SITE THAT HAD BEEN DISTURBED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING/RESTORING ANY/ALL AREAS THAT WERE A RESULT OF THAT WORK WITH NECESSARY BACKFILL MATERIAL, GRADING, TOPSOIL AND SEED AND MULCH TO ESTABLISH POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

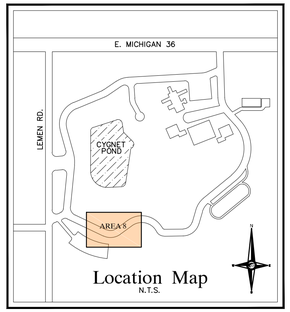
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## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

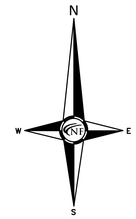
## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE




SCALE: 1" = 30'

30 15 0 15 30 45

NFE PROJECT NO. 6648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
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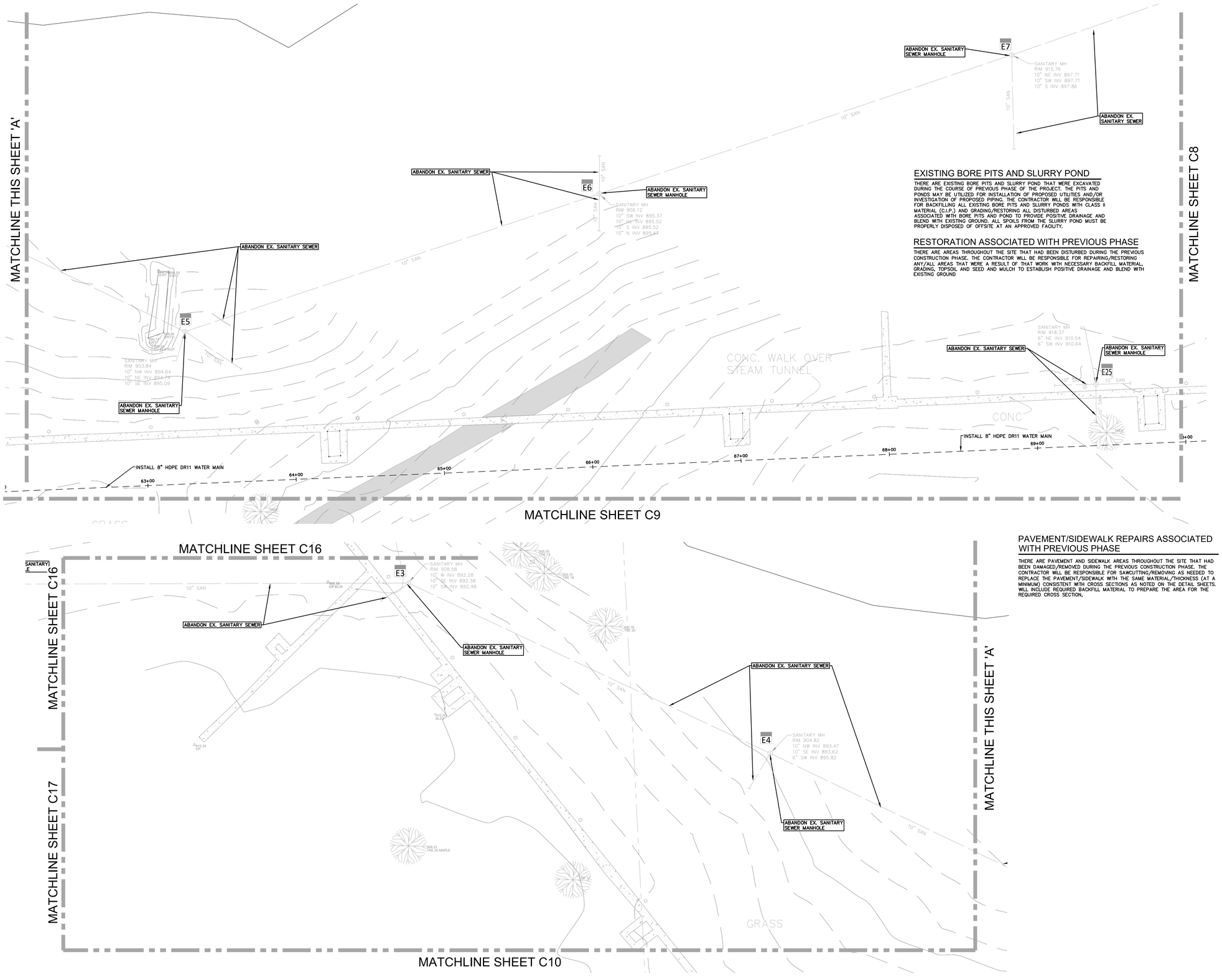
| DATE | DESCRIPTION |
|---|---|
| 08-15-2024 | REVIEW |
| 12-05-2024 | Phase 500 50% |
| 12-01-2025 | Phase 500 90% |
| 10-05-2026 | EGLE WM As-Built |
| 10-09-2026 | EGLE WM AB Resubmit |
| | Bid Documents |

PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## IMPROVEMENT PLAN
## AREA 8

| | |
|---|---|
| PROJECT NO. | 472231291XMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

# C10




## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

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## REDUCED ACCESS AREAS

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## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## SANITARY STRUCTURE SCHEDULE

**E3** EX. SANITARY MANHOLE
RIM 908.59
10" W. INV. 892.28
10" SE. INV. 892.38
10" SW. INV. 892.48

**E4** EX. SANITARY MANHOLE
RIM 904.82
10" NW. INV. 893.47
10" SE. INV. 893.62
10" SW. INV. 895.82

**E5** EX. SANITARY MANHOLE
RIM 903.84
10" NW. INV. 894.64
10" NE. INV. 894.74
10" SE. INV. 895.82

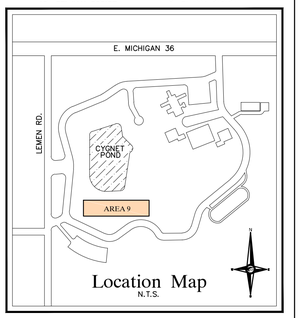
**E6** EX. SANITARY MANHOLE
RIM 906.12
10" SW. INV. 895.37
10" NE. INV. 895.52
10" S. INV. 895.52
10" N. INV. 895.47

**E7** EX. SANITARY MANHOLE
RIM 915.76
10" NE. INV. 897.71
10" SW. INV. 897.71
10" W. INV. 897.86

**E25** EX. SANITARY MANHOLE
RIM 918.37
6" N. INV. 910.54
6" E. INV. 910.64

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION,




## LEGEND

- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

N

W E

S

SCALE: 1" = 30'

30 15 0 15 30 45


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

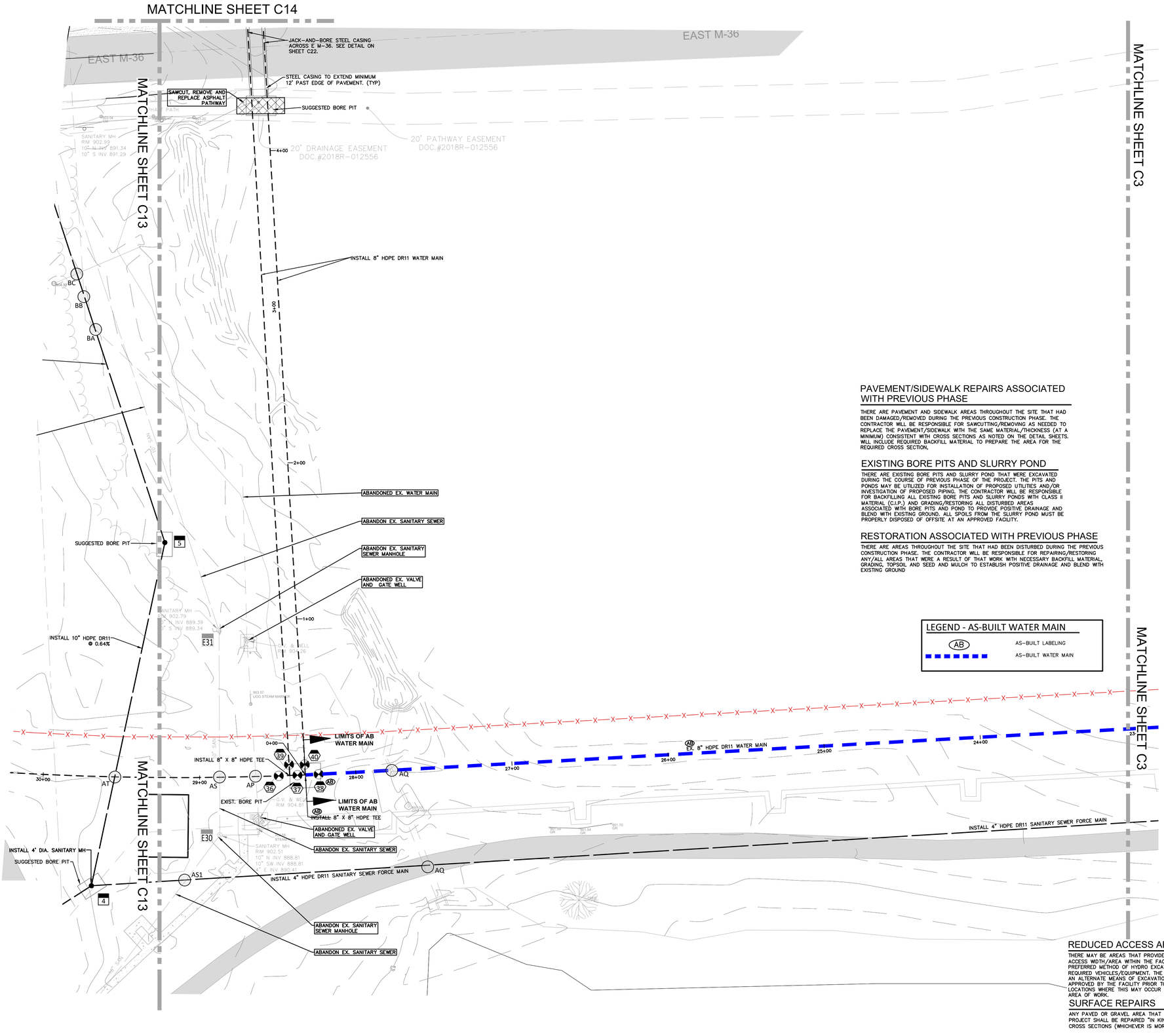
| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 500 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 9

| | |
|---|---|
| PROJECT NO. | 472023X00M |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCENG BY | SWS |

C11




## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION,

## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

THERE ARE AREAS THROUGHOUT THE SITE THAT HAD BEEN DISTURBED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING/RESTORING ANY/ALL AREAS THAT WERE A RESULT OF THAT WORK WITH NECESSARY BACKFILL MATERIAL, GRADING, TOPSOIL AND SEED AND MULCH TO ESTABLISH POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND

## LEGEND - AS-BUILT WATER MAIN

- (AB) — AS-BUILT LABELING
- AS-BUILT WATER MAIN

## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

N

SCALE: 1" = 30'

30 15 0 15 30 45


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


## WATER STRUCTURE SCHEDULE

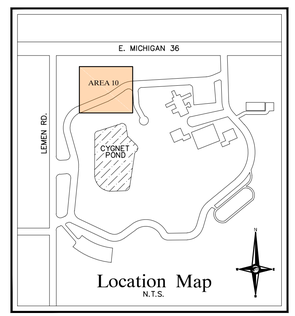
- 36 — PR. 8" GATE VALVE IN BOX FG 902.80
- 37 — PR. 8" GATE VALVE IN BOX FG 902.50
- (AB) 38 — PR. 8" GATE VALVE IN BOX FG 901.65
- 39 — PR. 8" GATE VALVE IN BOX FG 902.62
- 40 — PR. 8" GATE VALVE IN BOX FG 902.62

## CROSSING SCHEDULE

- (AO) FG. 904.65± PR. 8" WATER B/P 898.48 EX. 10" SAN T/P 891.00
- (AP) FG. 903.50± EX. WATER B/P 898.00 PR. 8" WATER T/P 896.50
- (AQ) FG. 899.82± PR. 8" WATER T/P 894.32 EX. STORM CULV. – FIELD INVESTIGATE
- (AR) FG. 902.70± PR. 4" SAN FORCE MAIN T/P 897.20 EX. STORM CULV. – FIELD INVESTIGATE
- (BA) FG. 903.00± EX. UNDERGROUND HEAT CONDUIT – FIELD INVESTIGATE PR. 10" SAN T/P 892.47
- (BB) FG. 903.10± EX. UNDERGROUND HEAT CONDUIT – FIELD INVESTIGATE PR. 10" SAN T/P 892.62
- (BC) FG. 903.10± EX. STORM – FIELD INVESTIGATE PR. 10" SAN T/P 892.71
- (AS) FG. 903.81± PR. 8" WATER B/P 897.64 EX. 10" SAN T/P 889.90
- (AS1) FG. 903.31± PR. 4" F.M. B/P 891.00 EX. 10" SAN T/P 889.50

## SANITARY STRUCTURE SCHEDULE

- E31 — EX. SANITARY MANHOLE RIM 902.51 10" N. INV. 888.81 10" SW. INV. 890.41 4" E. INV. 890.41
- E31 — EX. SANITARY MANHOLE RIM 902.79 10" N. INV. 889.39 10" S. INV. 889.34
- 5 — PR. 4' SANITARY MANHOLE RIM 902.37 10" N. INV. 890.64 10" S. INV. 890.64
- 4 — PR. 4' SANITARY MANHOLE RIM 904.81 10" N. INV. 889.20 10" SW. INV. 889.20 4" E. INV. 890.65 W/90° BEND




## LEGEND

- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

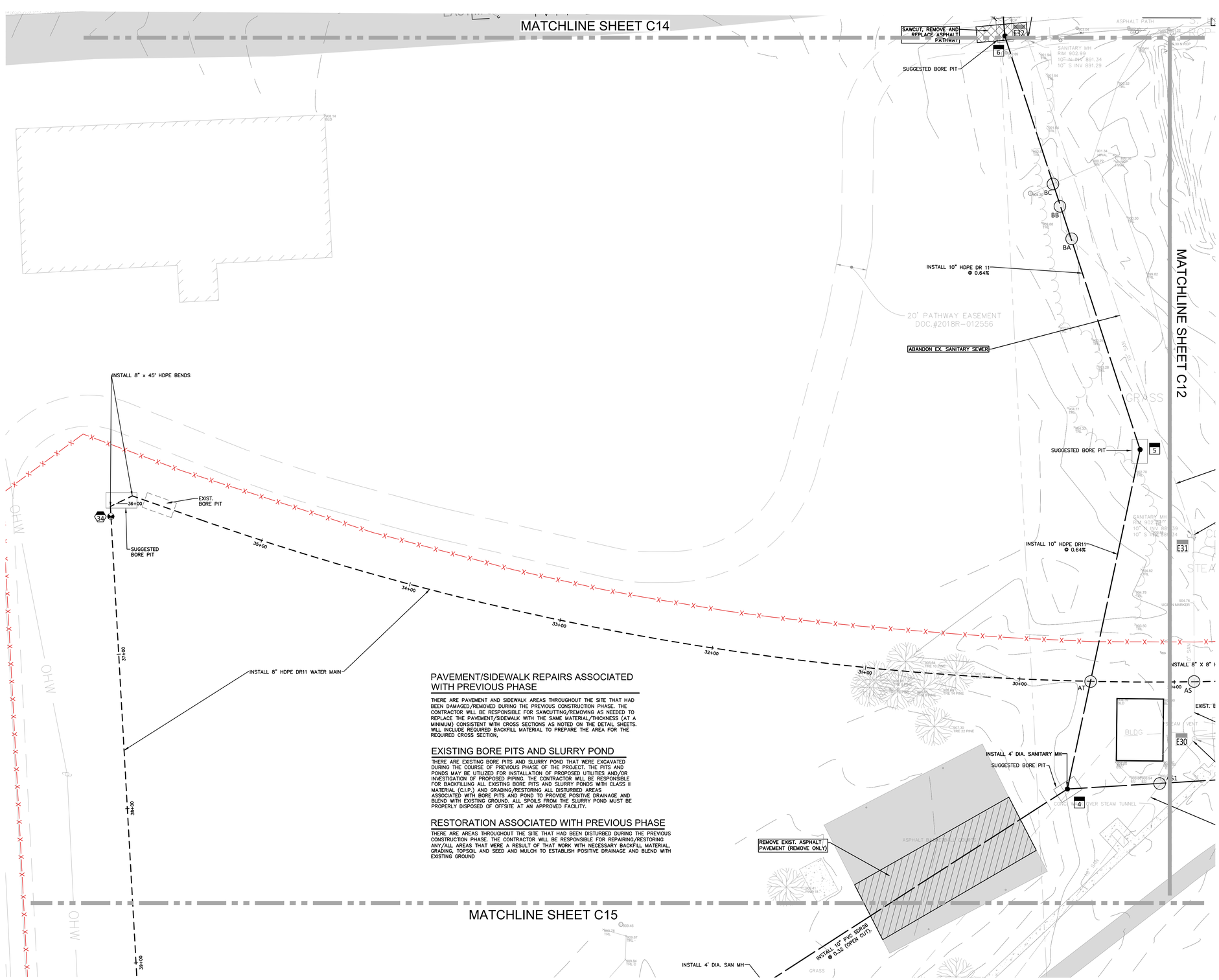
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| 12-05-2024 | Phase 500 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

# IMPROVEMENT PLAN AREA 10

| | |
|---|---|
| PROJECT NO. | 472231293AM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCI/ENG BY | SWS |

C12




## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## CROSSING SCHEDULE

(AT) FG. 904.65±
PR. 10" SAN T/P 891.28
PR. 8" WATER B/P 898.40

(AS) FG. 903.81±
PR. 8" WATER B/P 897.64
EX. 10" SAN T/P 889.90

(AS) FG. 903.31±
PR. 4" F.M. B/P 891.00
EX. 10" SAN T/P 889.50

(BA) FG. 903.00±
EX. UNDERGROUND HEAT CONDUIT – FIELD INVESTIGATE
PR. 10" SAN T/P 891.57

(BB) FG. 903.10±
EX. UNDERGROUND HEAT CONDUIT – FIELD INVESTIGATE
PR. 10" SAN T/P 891.71

(BC) FG. 903.10±
EX. STORM B/P 899.70 – FIELD INVESTIGATE
PR. 10" SAN T/P 891.81

## SANITARY STRUCTURE SCHEDULE

E30 EX. SANITARY MANHOLE
RIM 902.51
10" N. INV. 888.81
10" SW. INV. 890.41
4" E. INV. 890.41

E31 EX. SANITARY MANHOLE
RIM 902.79
10" N. INV. 889.39
10" S. INV. 889.34

E32 EX. SANITARY MANHOLE
RIM 902.99
10" N. INV. 891.34
10" S. INV. 891.29

6 PR. 4' SANITARY MANHOLE
RIM 903.40
10" N. INV. 891.75
10" S. INV. 891.70

5 PR. 4' SANITARY MANHOLE
RIM 902.37
10" N. INV. 889.89
10" S. INV. 889.84

4 PR. 4' SANITARY MANHOLE
RIM 904.81
10" N. INV. 888.40
10" SW. INV. 888.35
4" E. INV. 898.00 W/90° BEND

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION,

## EXISTING BORE PITS AND SLURRY POND

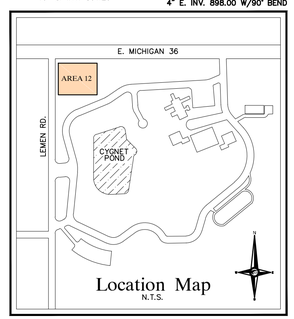
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## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

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SCALE: 1" = 30'

30 15 0 15 30 45




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- MANHOLE CATCH BASIN — EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- UTILITY POLE, GUY POLE, GUY WIRE — EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O. MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


NFE PROJECT NO. 6648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

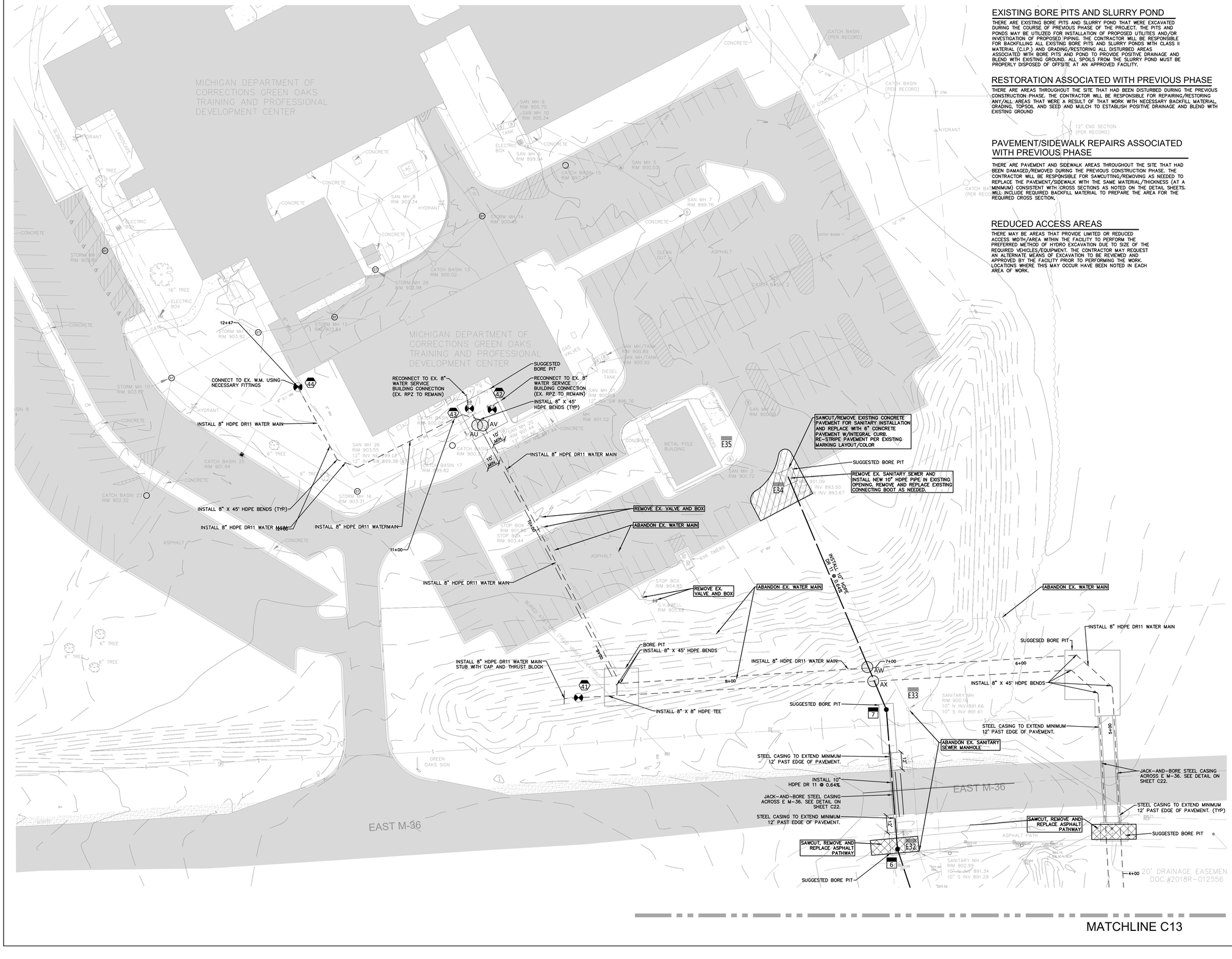
| DATE | REVIEW |
|---|---|
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| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 900 90% |
| 08-15-2024 | Phase 900 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 11

| | |
|---|---|
| PROJECT NO. | 472231293XMA |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C13




## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

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## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION.

## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

SCALE: 1" = 30'

30 15 0 15 30 45


NFE PROJECT NO. K648-06
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PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


## BUILDING CONNECTIONS

CONTRACTORS SHALL INVESTIGATE THE INTERIOR PLUMBING TO VERIFY EXACT LOCATIONS AND TYPE OF MATERIALS TO ALLOW FOR PROPER EXTERIOR RECONNECTION OF NEW MAINS AT EACH PROPOSED REFEED. THIS EFFORT SHALL BE INCLUDED IN THE BID FEES.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## WATER STRUCTURE SCHEDULE

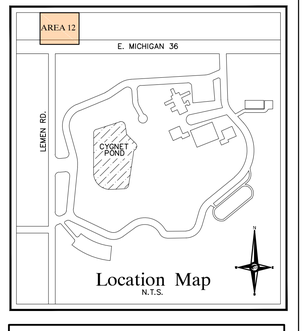
- 41 — PR. 8" GATE VALVE IN BOX, FG 913.31
- 42 — PR. 8" GATE VALVE IN BOX, FG 901.68
- 43 — PR. 8" GATE VALVE IN BOX, FG 901.68
- 44 — PR. 8" GATE VALVE IN BOX, FG 904.16

## CROSSING SCHEDULE

- AU — FG. 904.65±, PR. 10" SAN B/P 899.41, PR. 8" WATER T/P 897.91
- AV — FG. 901.40±, EX. 12" SAN B/P 897.31, PR. 8" WATER T/P 895.81
- AW — FG. 905.62±, PR. 8" WATER B/P 900.12, PR. 10" SAN T/P 894.16
- AX — FG. 902.20±, PR. 8" WATER B/P 896.70, PR. 10" SANT T/P 894.10

## SANITARY STRUCTURE SCHEDULE

- E31 — EX. SANITARY MANHOLE, RIM 902.99, 10" N. INV. 891.34, 10" S. INV. 891.29
- E32 — EX. SANITARY MANHOLE, RIM 900.16, 10" N. INV. 891.66, 10" S. INV. 891.61
- E34 — EX. SANITARY MANHOLE, RIM 901.09, 10" S. 893.50, 10" NW 893.67
- 6 — PR. 4' SANITARY MANHOLE, RIM 903.40, 10" N. INV. 891.75, 10" S. INV. 891.70
- 7 — PR. 4' SANITARY MANHOLE, RIM 900.92, 10" NW. INV. 892.36, 10" S. INV. 892.41
- E33 — EX. SANITARY MANHOLE, RIM 901.72




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- MANHOLE, CATCH BASIN — EXISTING WATER MAIN
- EX. R. Y. CATCH BASIN — EXISTING STORM SEWER
- UTILITY POLE, GUY POLE, GUY WIRE — EXISTING BURIED CABLES
- LIGHT POLE — OVERHEAD LINES
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
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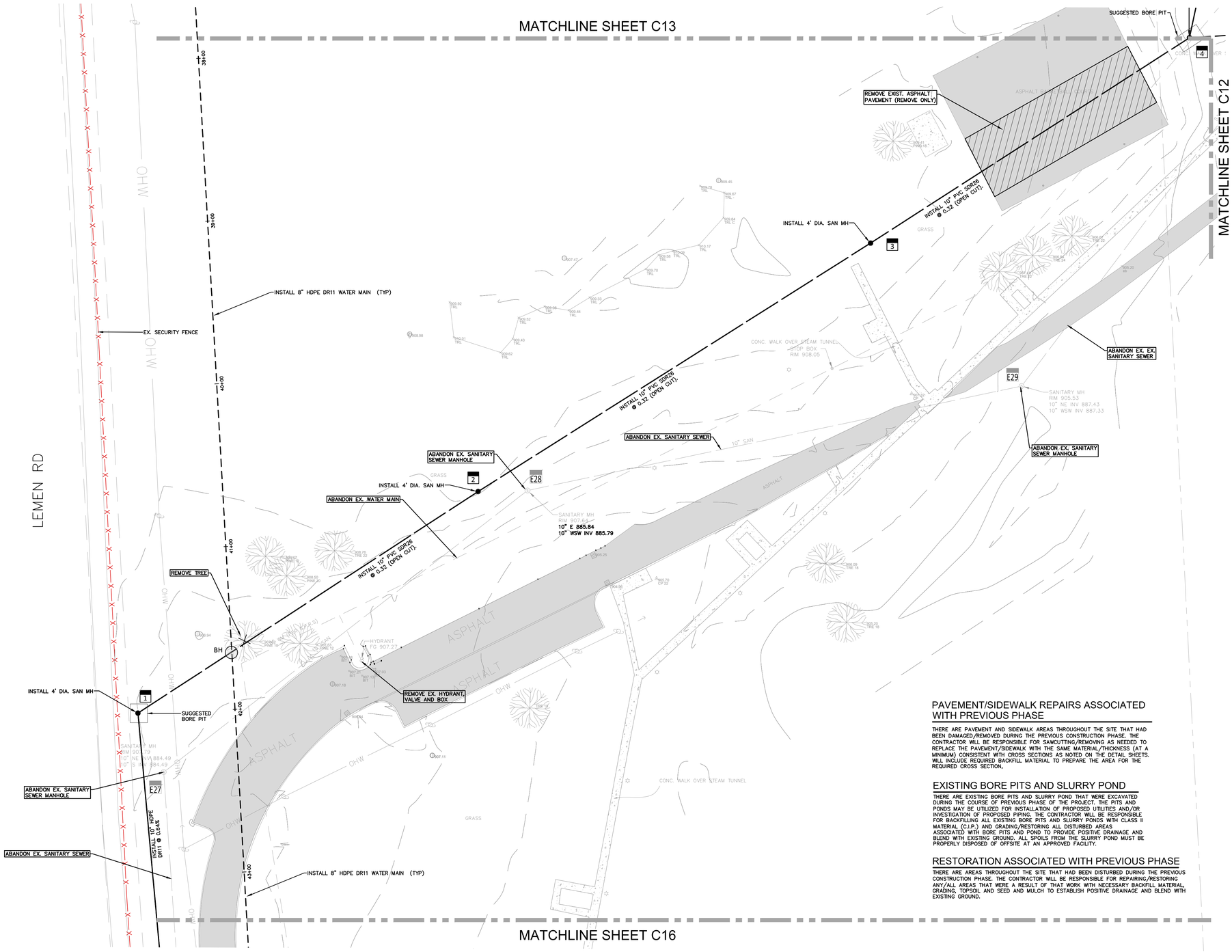
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|---|---|
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| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 500 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 12

| | |
|---|---|
| PROJECT NO. | 472231293KMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C14




## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## CROSSING SCHEDULE

(BH) FG. 907.30±
PR. 8" WATER B/P 901.30
PR. 10" SAN T/P 887.20

## SANITARY STRUCTURE SCHEDULE

**E27** EX. SANITARY MANHOLE
RIM 907.79
10" NE. INV. 884.49
10" S. INV. 884.49

**E28** EX. SANITARY MANHOLE
RIM 907.64
10" E. INV. 885.84
10" WSW. INV. 885.79

**E29** EX. SANITARY MANHOLE
RIM 905.53
10" NE. INV. 887.43
10" WSW. INV. 887.33

**4** PR. 4' SANITARY MANHOLE
RIM 904.81
10" N. INV. 888.60
10" SW. INV. 888.35
4" E. INV. 898.00

**3** PR. 4' SANITARY MANHOLE
RIM 909.46
10" NE. INV. 887.60
10" SW. INV. 887.55

**2** PR. 4' SANITARY MANHOLE
RIM 909.09
10" NE. INV. 886.64
10" SW. INV. 886.59

**1** PR. 4' SANITARY MANHOLE
RIM 908.02
10" NE. INV. 885.79
10" S. INV. 885.74

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

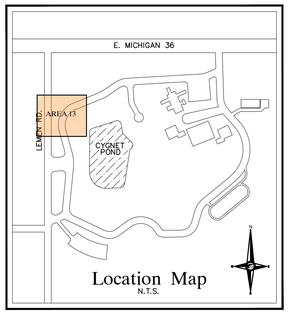
THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION.

## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

THERE ARE AREAS THROUGHOUT THE SITE THAT HAD BEEN DISTURBED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING/RESTORING ANY/ALL AREAS THAT WERE A RESULT OF THAT WORK WITH NECESSARY BACKFILL MATERIAL, GRADING, TOPSOIL AND SEED AND MULCH TO ESTABLISH POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND.




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- MANHOLE, CATCH BASIN — EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

N

W E

S

SCALE: 1" = 30'

30 15 0 15 30 45


NFE PROJECT NO. 6648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 900 90% |
| 08-15-2024 | Phase 900 50% |

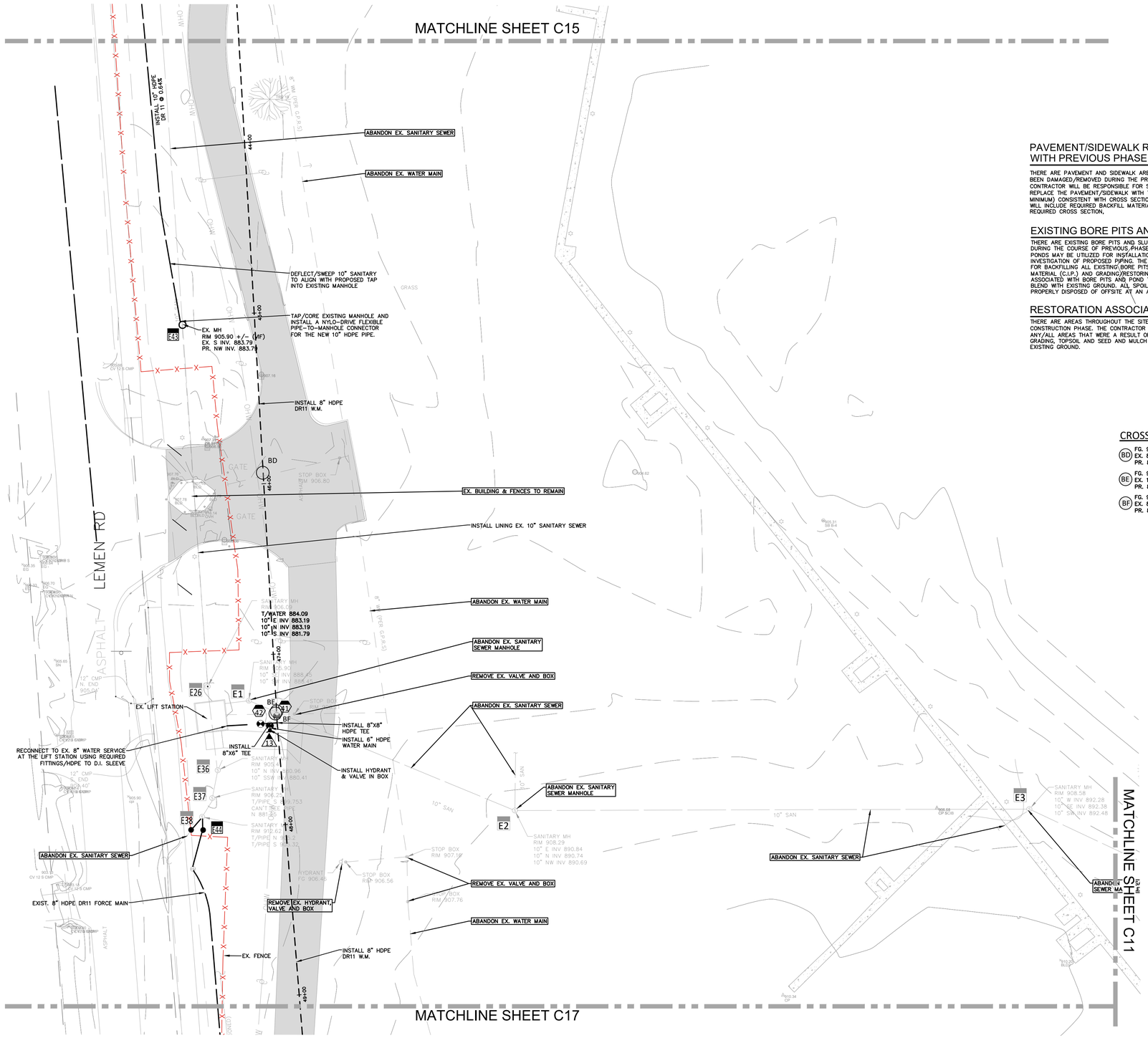
PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

# IMPROVEMENT PLAN AREA 13

| | |
|---|---|
| PROJECT NO. | 472223128.KMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

# C15

MATCHLINE SHEET C15




MATCHLINE SHEET C17

## CROSSING SCHEDULE

(BD) FG. 906.50±
EX. 8" WATER B/P 900.50
PR. 8" WATER T/P 898.50

(BE) FG. 906.20±
EX. 10" SAN T/P 889.59
PR. 8" WATER B/P 899.50

(BF) FG. 906.20±
EX. 8" WATER B/P 900.50
PR. 8" WATER T/P 898.50

## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION,

## EXISTING BORE PITS AND SLURRY POND

THERE ARE EXISTING BORE PITS AND SLURRY POND THAT WERE EXCAVATED DURING THE COURSE OF PREVIOUS PHASE OF THE PROJECT. THE PITS AND PONDS MAY BE UTILIZED FOR INSTALLATION OF PROPOSED UTILITIES AND/OR INVESTIGATION OF PROPOSED PIPING. THE CONTRACTOR WILL BE RESPONSIBLE FOR BACKFILLING ALL EXISTING BORE PITS AND SLURRY PONDS WITH CLASS II MATERIAL (C.I.P.) AND GRADING/RESTORING ALL DISTURBED AREAS ASSOCIATED WITH BORE PITS AND POND TO PROVIDE POSITIVE DRAINAGE AND BLEND WITH EXISTING GROUND. ALL SPOILS FROM THE SLURRY POND MUST BE PROPERLY DISPOSED OF OFFSITE AT AN APPROVED FACILITY.

## RESTORATION ASSOCIATED WITH PREVIOUS PHASE

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N

W NF E

S

SCALE:
1" = 30'
30 15 0 15 30 45

## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## BUILDING CONNECTIONS

CONTRACTORS SHALL INVESTIGATE THE INTERIOR PLUMBING TO VERIFY EXACT LOCATIONS AND TYPE OF MATERIALS TO ALLOW FOR PROPER EXTERIOR RECONNECTION OF NEW MAINS AT EACH PROPOSED REFEED. THIS EFFORT SHALL BE INCLUDED IN THE BID FEES.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## WATER STRUCTURE SCHEDULE

41 PR. 8" GATE VALVE IN BOX
FG 906.14

42 PR. 8" GATE VALVE IN BOX
FG 906.00

13 PR. HYDRANT
FG 905.97

## SANITARY STRUCTURE SCHEDULE

E1 EX. SANITARY MANHOLE
RIM 905.90
10" SE. INV. 888.45
10" SW. INV. 888.45

E3 EX. SANITARY MANHOLE
RIM 908.59
10" W. INV. 892.28
10" SE. INV. 892.38
10" SW. INV. 892.48

E26 EX. SANITARY MANHOLE
RIM 905.41
10" N. INV. 880.96
10" SSW. INV. 880.41

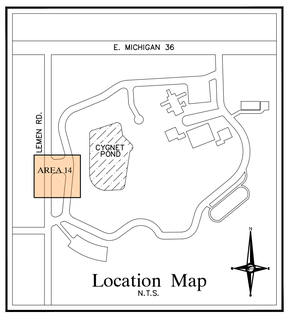
43 EX. SANITARY MANHOLE
RIM 905.90 +/- (VIF)
10" N. INV. 883.79
10" SSW. INV. 883.79

44 EX. SANITARY GATE VALVE IN BOX
RIM – VIF
8" FM INV – VIF

48 EX. SANITARY MANHOLE
RIM 905.41
10" N. INV. 880.96
10" SSW. INV. 880.41

37 EX. SANITARY MANHOLE
RIM 906.25
10" S. T/P 899.75
10" N. INV. 881.25

38 EX. SANITARY MANHOLE
RIM 912.62
10" N. INV. 905.2
8" S. INV. 905.32




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

NFE PROJECT NO. K648-06


CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
NF ENGINEERS


STATE OF MICHIGAN
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STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

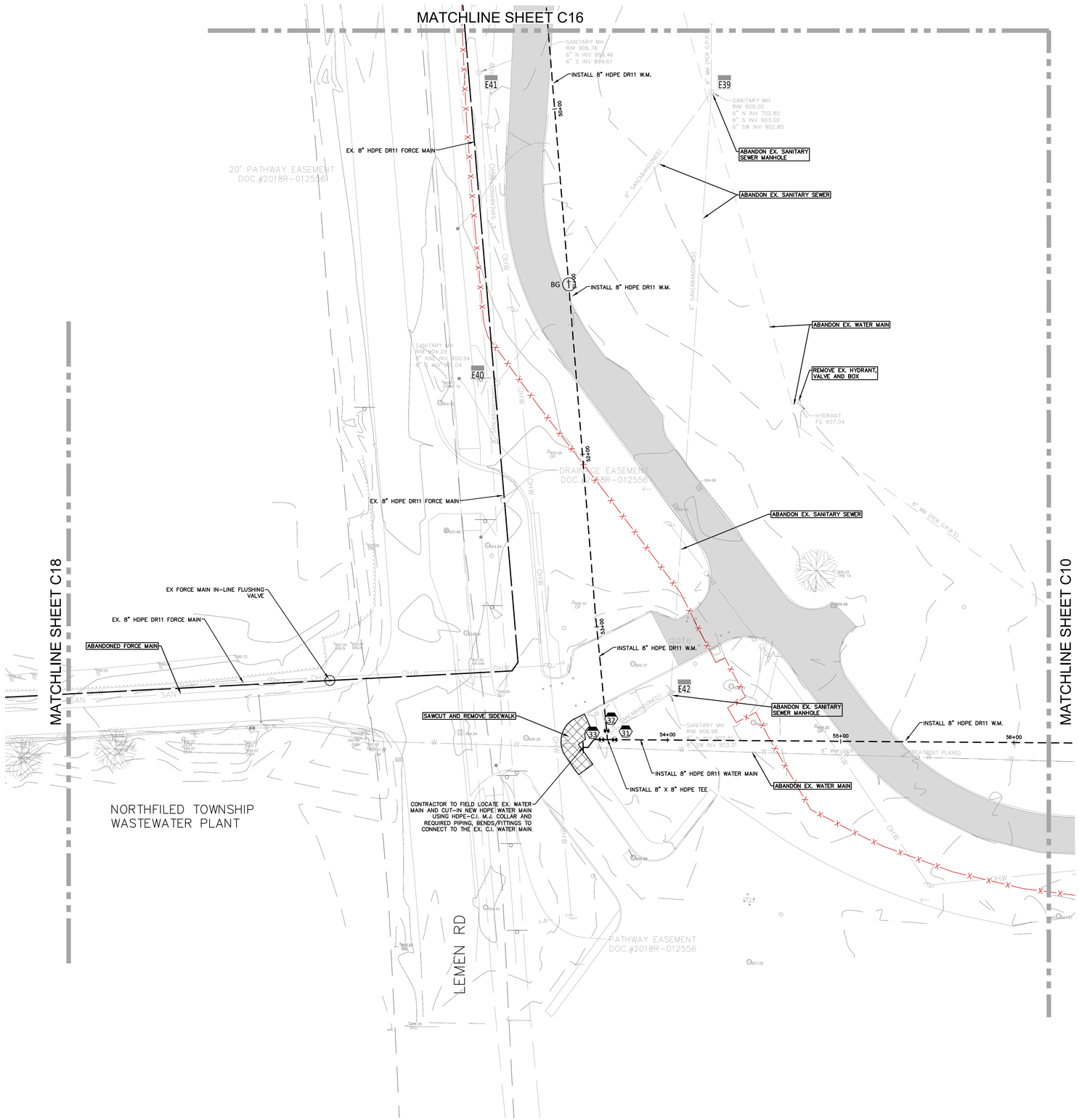
| DATE | REVIEW |
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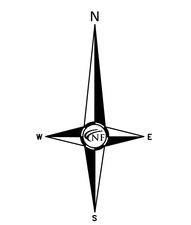
PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

IMPROVEMENT PLAN
AREA 14

| | |
|---|---|
| PROJECT NO. - 472231293XMM | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JC/ENG BY | |

C16




## PAVEMENT/SIDEWALK REPAIRS ASSOCIATED WITH PREVIOUS PHASE

THERE ARE PAVEMENT AND SIDEWALK AREAS THROUGHOUT THE SITE THAT HAD BEEN DAMAGED/REMOVED DURING THE PREVIOUS CONSTRUCTION PHASE. THE CONTRACTOR WILL BE RESPONSIBLE FOR SAWCUTTING/REMOVING AS NEEDED TO REPLACE THE PAVEMENT/SIDEWALK WITH THE SAME MATERIAL/THICKNESS (AT A MINIMUM) CONSISTENT WITH CROSS SECTIONS AS NOTED ON THE DETAIL SHEETS. WILL INCLUDE REQUIRED BACKFILL MATERIAL TO PREPARE THE AREA FOR THE REQUIRED CROSS SECTION.

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## CROSSING SCHEDULE

(BG) FG. 906.50±
EX. 6" SAN B/P 901.54
PR. 8" WATER T/P 900.00

## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## LEMEN ROAD CROSSING NOTES

- MAINTAIN MINIMUM 6' COVER ON SANITARY SEWER.
- BORE PITS MUST BE AT LEAST 10' FROM EDGE OF LEMEN ROAD PAVEMENT.

## SURFACE REPAIRS

ANY PAVED OR GRAVEL AREA THAT IS DAMAGED DURING THE PROJECT SHALL BE REPAIRED "IN KIND" OR PER THE PROVIDED CROSS SECTIONS (WHICHEVER IS MORE STRINGENT).

## WATER STRUCTURE SCHEDULE

30 PR. 8" GATE VALVE IN BOX
FG 907.16

31 PR. 8" GATE VALVE IN BOX
FG 906.96

32 PR. 8" GATE VALVE IN BOX
FG 906.98

## SANITYARY STRUCTURE SCHEDULE

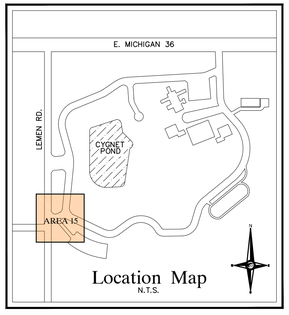
E39 EX. SANITARY MANHOLE
RIM 909.00
6" E. INV. 902.85
6" S. INV. 903.00
6" SW. INV. 902.85

E40 EX. SANITARY MANHOLE
RIM 904.29
8" NNE. INV. 900.94
8" S. INV. 901.04

E43 EX. SANITARY MANHOLE
RIM 906.76
6" N. INV. 899.46
6" S. INV. 899.61

E44 EX. SANITARY MANHOLE
RIM 906.96
8" N. INV. 903.31
8" S. INV. 903.31

PR. FLUSHING VALVE
18 72" DIA MANHOLE
~~FG 901.32~~
8" E. INV 895.65
8" W. INV 895.65
BULLETIN #




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT — SAN. CLEAN OUT
- GATE VALVE — EXISTING WATER MAIN
- MANHOLE CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE — GUY POLE — GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O. — MANHOLE — PR. SANITARY SEWER
- HYDRANT — GATE VALVE — PR. WATER MAIN
- INLET — C.B. — MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

| DATE | REVIEW |
|---|---|
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| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 900 90% |
| 08-15-2024 | Phase 900 50% |

PROJECT DESCRIPTION

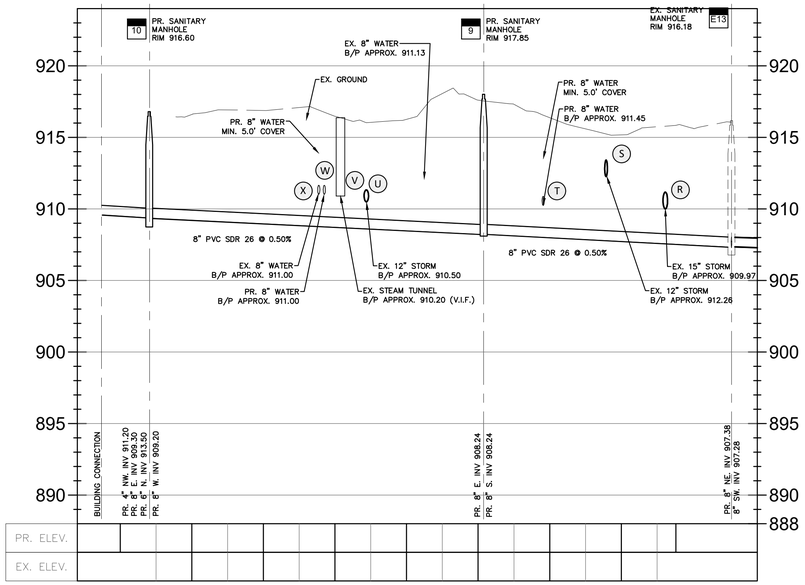
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY

WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

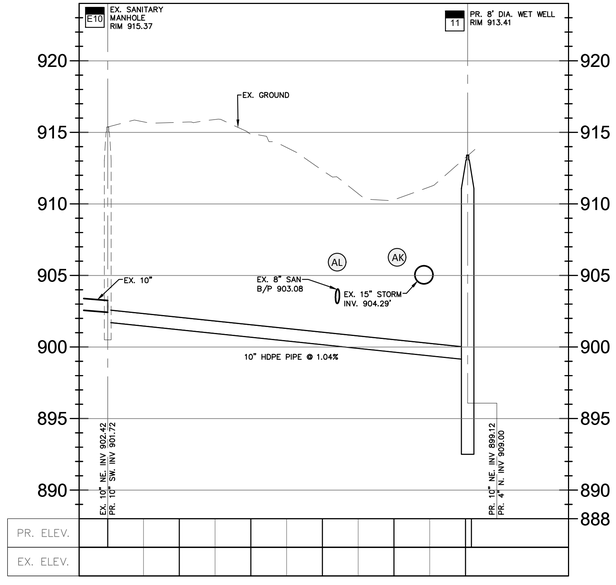
## IMPROVEMENT PLAN AREA 15

| | |
|---|---|
| PROJECT NO. | 472231293XMM |
| INDEX | - |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C17




PROFILE VIEW
STRUCTURES E13 TO 12




PROFILE VIEW
STRUCTURES E10 TO 13

## CROSSING SCHEDULE

(AK) FG. 910.90±
EX. 15" STORM B/P 904.08 (V.I.F.)
PR. 10" SAN T/P 900.28

(AL) FG. 911.85±
EX. 8" SAN B/P 903.08 (V.I.F.)
PR. 10" SAN T/P 901.31

(R) FG. 915.77±
EX. 15" STORM B/P APPROX. 909.97
PR. 8" SAN T/P 908.30

(S) FG. 915.88±
EX. 12" STORM B/P APPROX. 912.26
PR. 8" SAN T/P 908.50

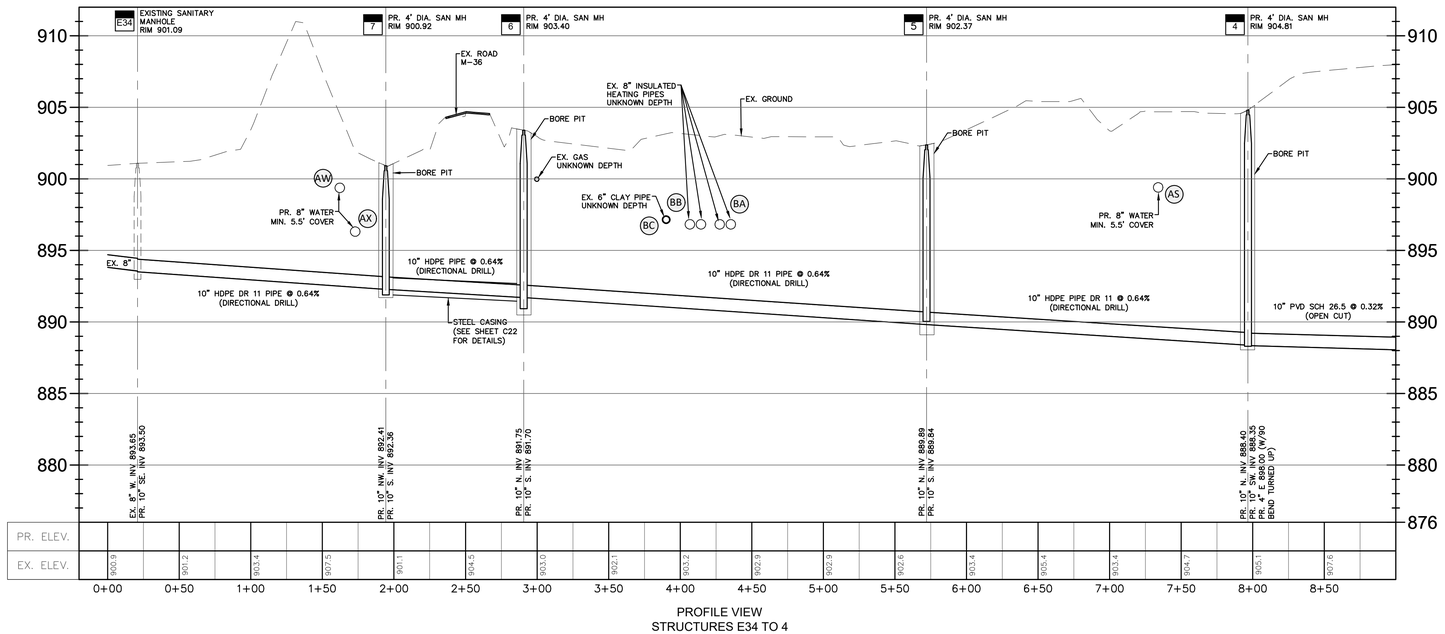
(T) FG. 916.30±
PR. 8" WATER B/P APPROX. 910.25
PR. 8" SAN T/P 908.72

(U) FG. 915.90±
EX. 8" STORM B/P 910.50
PR 8" SAN. T/P 909.34

(V) FG. 916.40±
EX. STEAM TUNNEL B/T APPROX. 910.90 (V.I.F.)
PR. 8" SANITARY T/P 909.34

(W) FG. 917.00±
PR. 8" SAN T/P 909.40
PR. 8" WM B/P 911.10

(X) FG. 916.80±
PR. 8" SAN T/P 909.42
EX. 8" WM B/P 911.00




PROFILE VIEW
STRUCTURES E34 TO 4

## CROSSING SCHEDULE

(AS) FG. 904.65±
PR. 10" SAN B/P 890.57
PR. 8" WATER T/P 899.15

(BA) FG. 903.00±
EX. UNDERGROUND HEAT CONDUIT – 897.0 +/– B/T (V.I.F.)
PR. 10" SAN T/P 892.47

(BB) FG. 903.10±
EX. UNDERGROUND HEAT CONDUIT – 897.0 +/– B/T (V.I.F.)
PR. 10" SAN T/P 892.62

(BC) FG. 903.10±
EX. STORM – FIELD INVESTIGATE
PR. 10" SAN T/P 892.71

(AX) FG. 902.20±
PR. 8" WATER B/P 896.03
PR. 10" SAN T/P 893.62

(AW) FG. 905.62±
PR. 8" WATER B/P 899.45
PR. 10" SAN T/P 893.67

SCALE:
1" = 50' / 1"=5'
50 25 0 25 50 75


NFE PROJECT NO. K648-06
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
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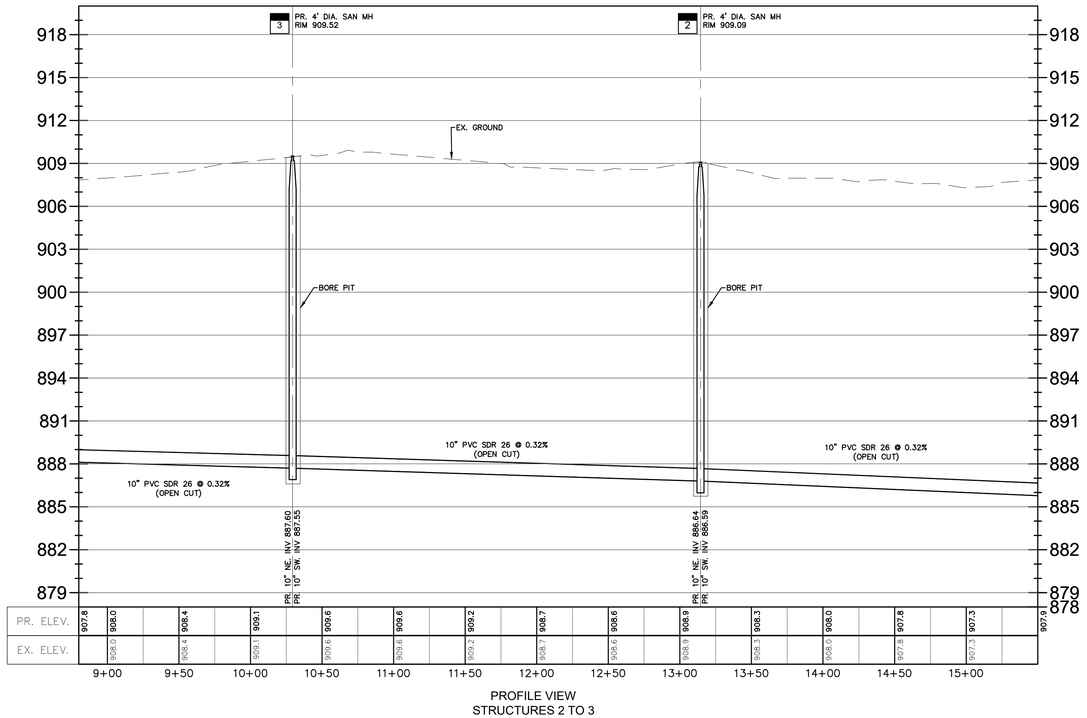
| DATE | DESCRIPTION |
|---|---|
| 08-15-2024 | REVIEW |
| 12-05-2024 | Phase 500 90% |
| 12-01-2025 | Phase 500 50% |
| 10-05-2026 | EGLE WM AB Resubmit |
| 10-09-2026 | Bid Documents |

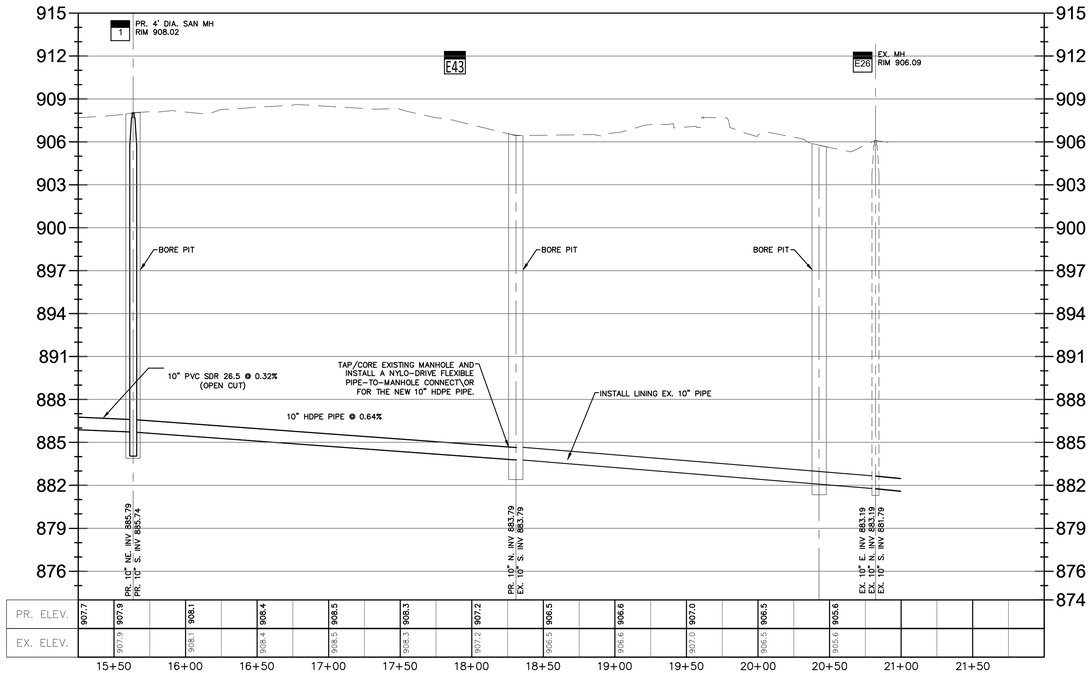
PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## SANITARY PROFILES

| | |
|---|---|
| PROJECT NO. 47223123XXXM | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JCJENG BY | |

C18




SCALE:
1" = 50' / 1"=5'
50 25 0 25 50 75


NFE PROJECT NO. K648-06
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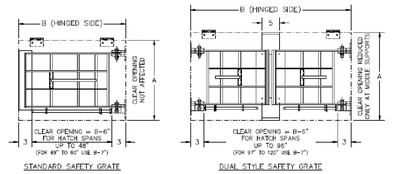
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SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

SANITARY PROFILES

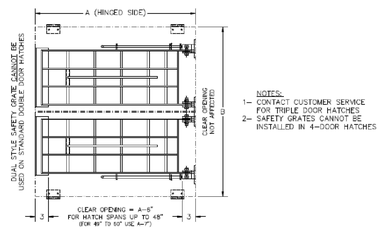
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|---|---|
| PROJECT NO. 47223123XXXM | |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCIENG BY | SWS |

C19

EFFECT OF SAFETY GRATE ON HATCH CLEAR OPENINGS



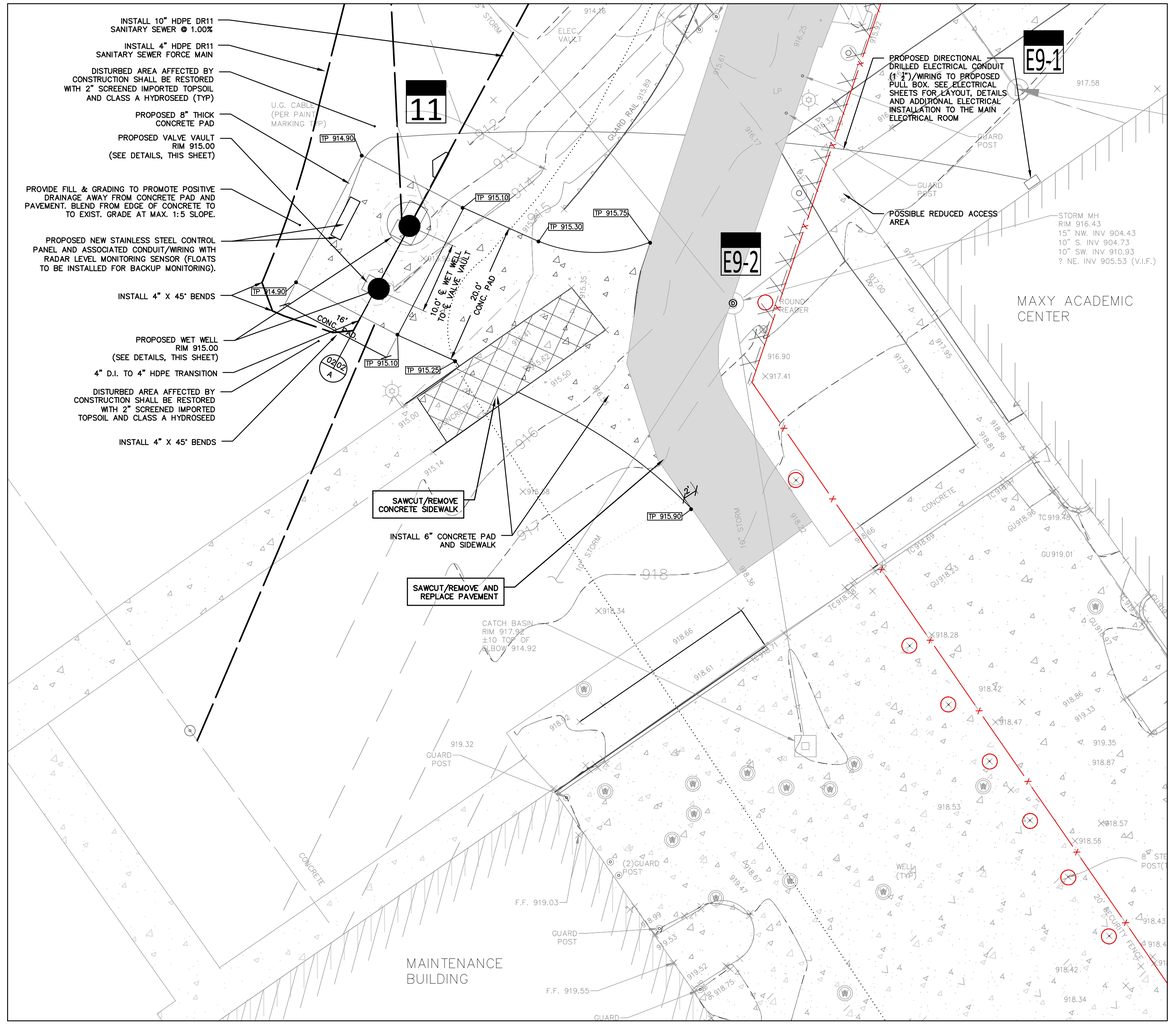

SINGLE DOOR HATCH
(ALSO APPLIES TO DOUBLE DOOR HATCH WHEN HINGED ON THE SAME SIDE)

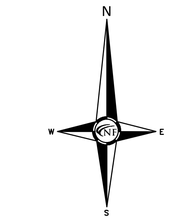



NOTES:
1- CONTACT CUSTOMER SERVICE FOR TRIPLE DOOR HATCHES.
2- SAFETY GRATES CANNOT BE INSTALLED IN 4-DOOR HATCHES.

STANDARD DOUBLE DOOR HATCH (HINGED OPPOSITE SIDES) WITH STANDARD SAFETY GRATE

EFFECT OF SAFETY GRATE ON HATCH CLEAR OPENINGS




SCALE: 1" = 10'

10 5 0 5 10 5

## REDUCED ACCESS AREAS

THERE MAY BE AREAS THAT PROVIDE LIMITED OR REDUCED ACCESS WIDTH/AREA WITHIN THE FACILITY TO PERFORM THE PREFERRED METHOD OF HYDRO EXCAVATION DUE TO SIZE OF THE REQUIRED VEHICLES/EQUIPMENT. THE CONTRACTOR MAY REQUEST AN ALTERNATE MEANS OF EXCAVATION TO BE REVIEWED AND APPROVED BY THE FACILITY PRIOR TO PERFORMING THE WORK. LOCATIONS WHERE THIS MAY OCCUR HAVE BEEN NOTED IN EACH AREA OF WORK.

## DEWATERING / BY-PASS PUMPING

THE CONTRACTOR SHALL ANTICIPATE DEWATERING AS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT. ALL COSTS FOR THIS EFFORT SHALL BE INCLUDED IN THE PROJECT COST AND WILL NOT BE PAID FOR SEPARATELY. THE CONTRACTOR SHALL WORK WITH DOC STAFF TO FIND AN AGREEABLE OUTLET TO PUMP GROUNDWATER, SO AS TO NOT CAUSE EROSION OR SATURATE THE WORKSITE.

THE CONTRACTOR SHALL ALSO BE PREPARED FOR BY-PASS SEWER PUMPING DURING THE TURN OVER OF THE SYSTEM, SUCH THAT SEWER FLOW IS NOT INTERRUPTED TO THE FACILITY. REVIEW SPECIFICATIONS FOR REQUIREMENTS INCLUDING PREPARATION OF A BY-PASS PLAN FOR REVIEW AND APPROVAL, NEED FOR SUPERVISION AND OVERSIGHT OF PUMPS WHILE OPERATING AND STANDBY PUMP REQUIREMENTS.

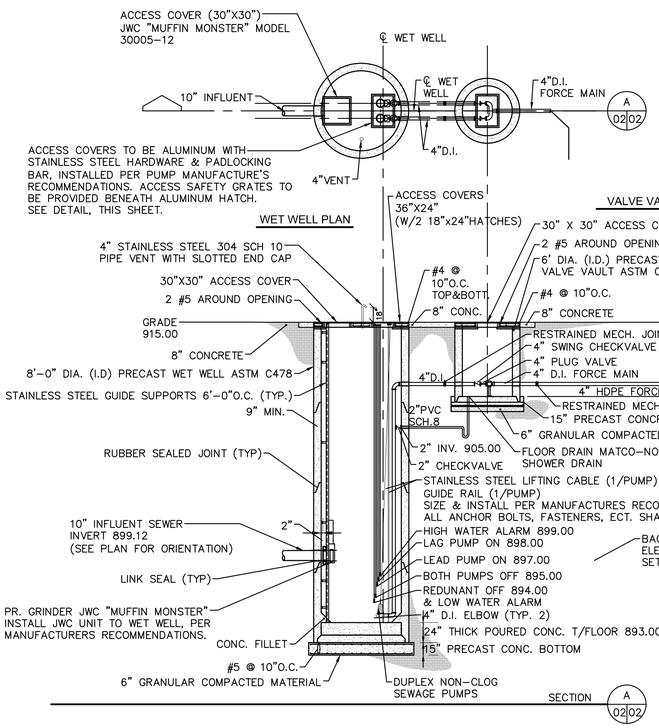
## PUMP AND HAUL

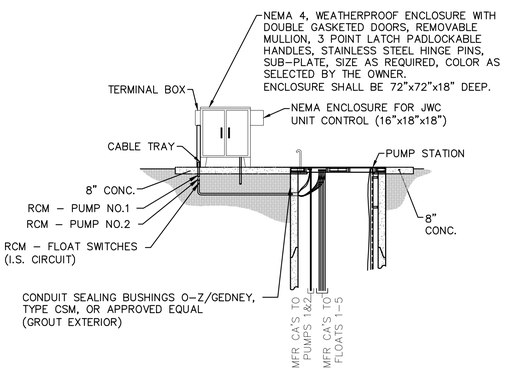
CONTRACTOR SHALL ANTICIPATE PUMP AND HAUL OPERATION DURING THE SHUT DOWN OF EXISTING STATION AND TO ALLOW THE EX. FORCE MAIN TO DRAIN DOWN.
FOLLOWING DRAINING OF EXISTING MAIN, TEMPORARY BY-PASS CONNECTION TO BE MADE TO ALLOW FOR BY-PASS PUMPING.
NO EXISTING VALVES EXIST ON THE FORCE MAIN TO SEGREGATE THE SYSTEM.

## SANITARY STRUCTURE SCHEDULE

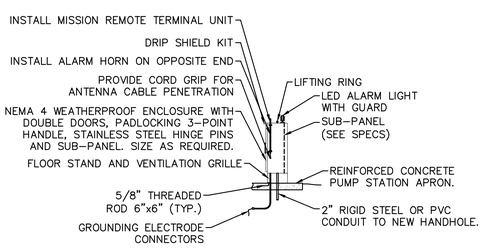
11 PR. 8' SANITARY MANHOLE
RIM 915.00
10" NE. INV. 899.12
4" S. INV. 909.00
6" SW INV 906.00 +/- (VIF)

12 PR. GATE VALVE AND BOX
RIM 910.10
4" S. INV. 904.60
4" N. INV. 904.60

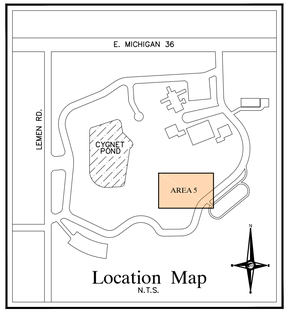



SUBMERSIBLE PUMP STATION BELOW GRADE CONDUIT LAYOUT




SUBMERSIBLE PUMP STATION BELOW GRADE CONDUIT LAYOUT




## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- MANHOLE, CATCH BASIN — EXISTING WATER MAIN
- EX. R. Y. CATCH BASIN — EXISTING STORM SEWER
- UTILITY POLE, GUY POLE, GUY WIRE — EXISTING BURIED CABLES
- LIGHT POLE — OVERHEAD LINES
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE


NFE PROJECT NO. K648-06
CIVIL ENGINEERS — 46777 WOODWARD AVENUE, PONTIAC, MI 48342-5032
LAND SURVEYORS — TEL (248) 332-7931
LAND PLANNERS — FAX (248) 332-8257
NF ENGINEERS


STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

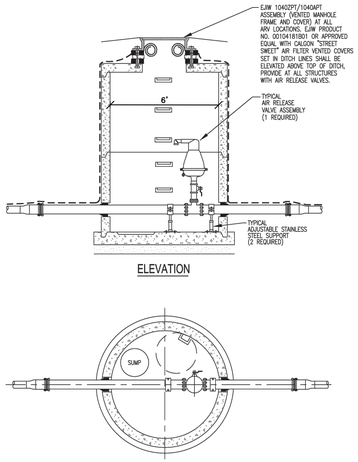
| DATE | REVIEW |
|---|---|
| 08-15-2024 | Phase 500 50% |
| 12-05-2024 | Phase 500 90% |
| 12-01-2025 | EGLE WM As-Built |
| 10-05-2026 | EGLE WM AB Resubmit |
| 10-09-2026 | Bid Documents |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

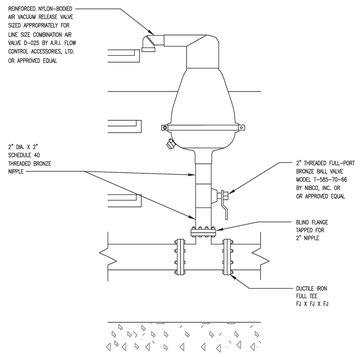
SANITARY SEWER LIFT STATION IMPROVEMENT PLAN AND LIFT STATION DETAILS

| | |
|---|---|
| PROJECT NO. | 47223123XXXM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCIENG BY | SWS |

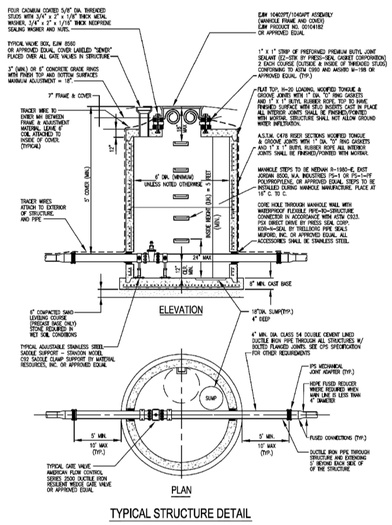
C20



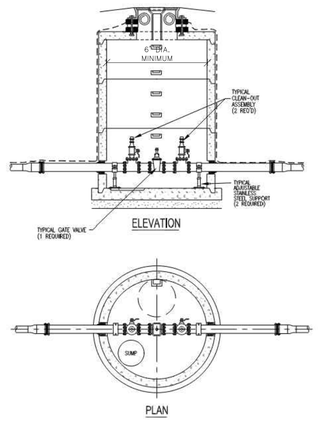

AIR/VACUUM RELEASE VALVE (ARV)
IN WELL



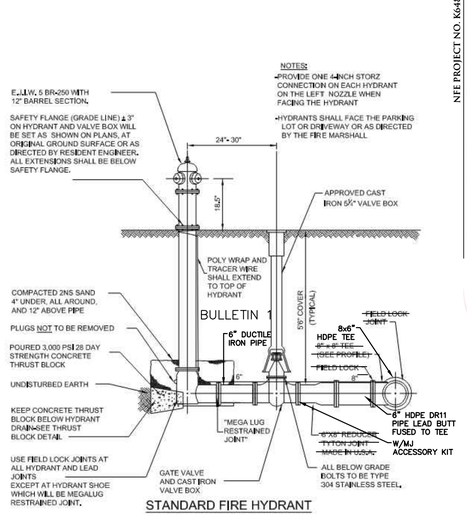

TYPICAL AIR VACUUM
RELEASE VALVE ASSEMBLY



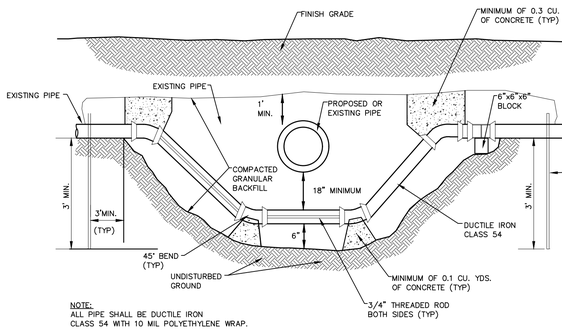

TYPICAL STRUCTURE DETAIL




INTERMEDIATE FLUSHING CONNECTION (IFC)
IN WELL

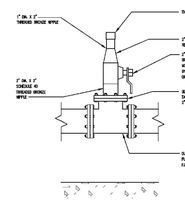



STANDARD FIRE HYDRANT
HYDRANT ASSEMBLY
N.T.S.

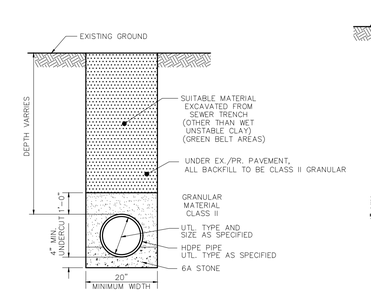



NOTE:
ALL PIPE SHALL BE DUCTILE IRON CLASS 54 WITH 10 MIL POLYETHYLENE WRAP.

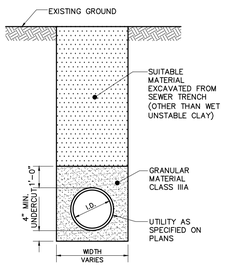
WATERMAN LOWERING DETAIL
N.T.S.



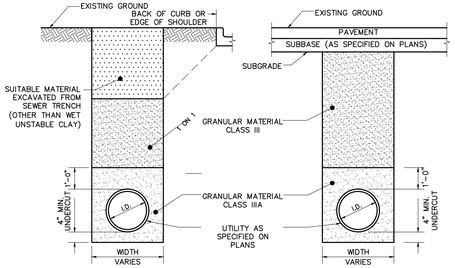

TYPICAL CLEAN OUT ASSEMBLY



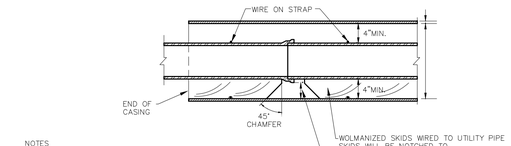

HDPE STANDARD TRENCH DETAIL
N.T.S.




TRENCH DETAIL A
UTILITY NOT UNDER PAVEMENT
N.T.S.




TRENCH DETAIL B
UTILITY UNDER PAVEMENT OR WITHIN INFLUENCE OF PAVEMENT
N.T.S.




NOTES
MAINTAIN A MINIMUM OF 5.5 FEET OF COVER BETWEEN BASE OF RAIL & TOP OF CASING UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

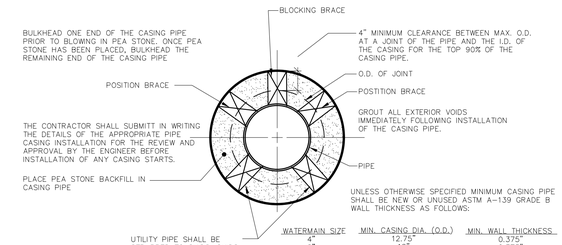
THE ENDS OF THE CASING SHALL BE SUITABLY PROTECTED AGAINST THE ENTRANCE OF FOREIGN MATERIAL.

WHEN BORING, ALL VOIDS OUTSIDE OF CASING PIPE SHALL BE FILLED BY MEANS OF PRESSURE GROUTING WITH 1:3 CEMENT SAND MORTAR. THIS WORK SHALL BE COMPLETED WITHIN 24 HOURS AFTER THE CROSSING HAS BEEN COMPLETED.

BORING SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE EDGE OF PAVEMENT.

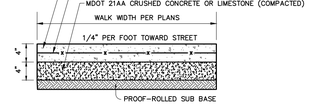
1" FOR 6"–12" UTILITY PIPE
2" FOR 16"–24" UTILITY PIPE

STANDARD CASING SECTION
N.T.S.

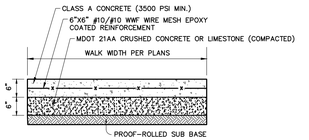



| WATERMAIN SIZE | MIN. CASING DIA. (O.D.) | MIN. WALL THICKNESS |
|---|---|---|
| 4" | 12.75" | 0.375" |
| 6" | 16" | 0.375" |
| 8" | 16" | 0.375" |
| 12" | 20" | 0.375" |
| 16" | 24" | 0.406" |
| 20" | 30" | 0.438" |
| 24" | 36" | 0.562" |

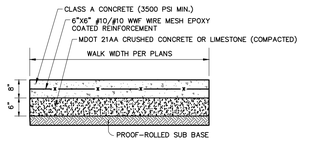
PIPE BARREL SUPPORT FOR UTILITY PIPE CONSTRUCTED IN CASING PIPE
N.T.S.



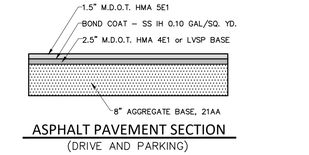

4" CONCRETE SIDEWALK SECTION
N.T.S.



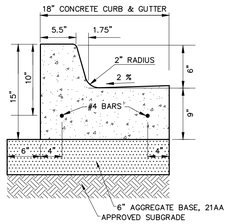

6" CONCRETE SECTION
N.T.S.



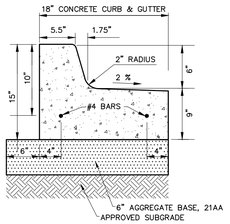

8" CONCRETE PAVEMENT SECTION
N.T.S.



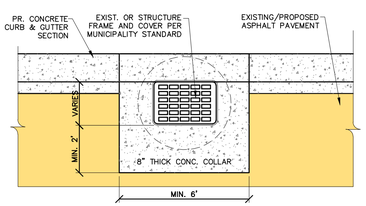

ASPHALT PAVEMENT SECTION
(DRIVE AND PARKING)



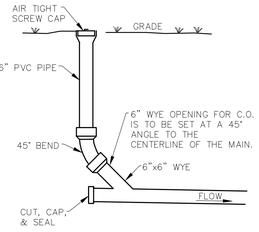

CONCRETE CURB DETAIL 'A'
N.T.S.



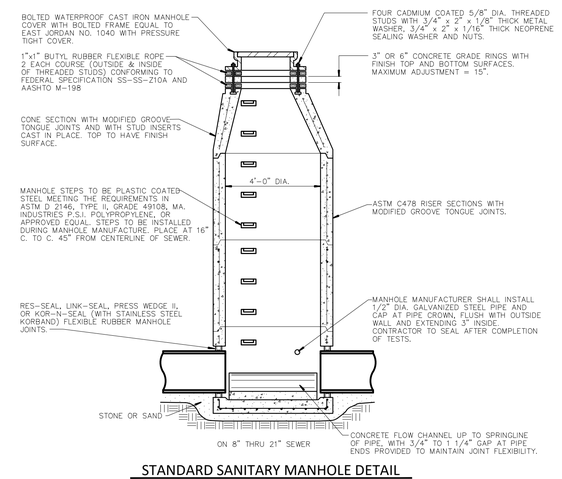

CONCRETE CURB DETAIL 'B'
N.T.S.




STRUCTURE BOXOUT DETAIL I
N.T.S.




STANDARD SANITARY SEWER CLEANOUT
N.T.S.




STANDARD SANITARY MANHOLE DETAIL
N.T.S.


NFE PROJECT NO. 6648-06
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
NF ENGINEERS


STATE OF MICHIGAN
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STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

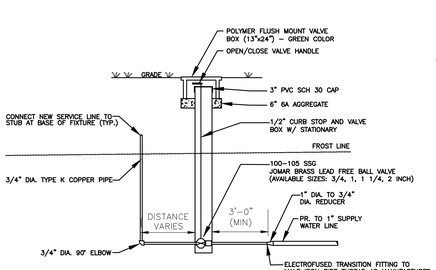
| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 600 90% |
| 08-15-2024 | Phase 500 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

STANDARD DETAILS AND NOTES

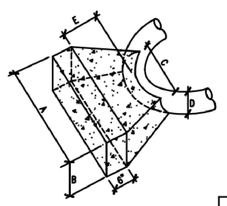
| | |
|---|---|
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| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| J/C/ENG BY | SWS |

C21



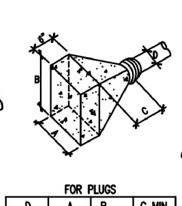

GATE VALVE DETAIL

N.T.S.



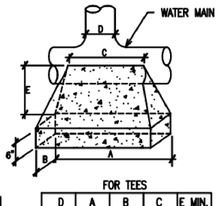
FOR 90° BENDS OR SMALLER

| D | A | B | C | E MIN. |
|---|---|---|---|---|
| 20" | 8' | 6.5' | 3.5' | 2.5' |
| 16" | 6' | 4' | 2.5' | 2' |
| 12" | 4' | 3' | 2' | 1.75' |
| 10" | 3' | 3' | 2' | 1.75' |
| 8" | 3' | 2' | 2' | 1.5' |
| 6" | 2' | 1.5' | 2' | 1.25' |



FOR PLUGS

| D | A | B | C MIN. |
|---|---|---|---|
| 20" | 7' | 5' | 2.5' |
| 16" | 4'-10" | 4'-10" | 2' |
| 12" | 4'-4" | 3' | 1'-9" |
| 10" | 3' | 2' | 1'-6" |
| 8" | 2'-10" | 2'-6" | 1'-6" |
| 6" | 1'-6" | 1'-6" | 3' |

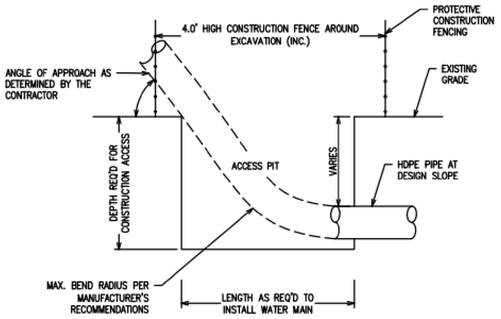



FOR TEES

| D | A | B | C | E MIN. |
|---|---|---|---|---|
| 20" | 6.5' | 4.5' | 3.5' | 3' |
| 16" | 4'-8" | 4'-8" | 2.5' | 2.75' |
| 12" | 4' | 3' | 2.5' | 2.5' |
| 10" | 3' | 2' | 2' | 2.25' |
| 8" | 2'-6" | 2' | 2' | 2.25' |
| 6" | 2' | 2' | 2' | 2.25' |

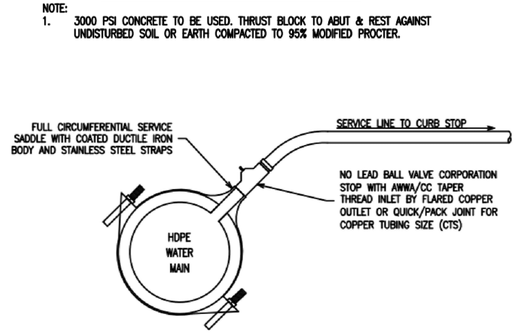
## THRUST BLOCK DETAILS

NOTE:
1. 3000 PSI CONCRETE TO BE USED. THRUST BLOCK TO ABUT & REST AGAINST UNDISTURBED SOIL OR EARTH COMPACTED TO 95% MODIFIED PROCTER.



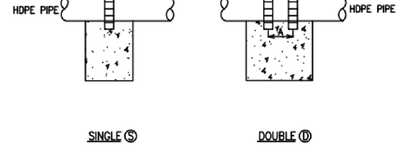

## ACCESS PIT DETAIL

ACCESS PIT NOTES:
1. ACCESS PIT WIDTH SHALL BE KEPT TO THE MINIMUM NECESSARY TO ALLOW CONSTRUCTION ACCESS.
2. ACCESS PITS WITHIN PAVED AREAS SHALL INCLUDE BARRIER WALLS (TEMP. WATER FILLED OR CONCRETE) IN ADDITION TO THE CONSTRUCTION FENCING.
3. BRACE AND/OR SUPPORT EXCAVATION AS NECESSARY TO CONTAIN EXCAVATION TO PLANNED DIMENSIONS.
4. PROVIDE ANY NECESSARY DEWATERING TO MAINTAIN A DRY WORKING SPACE (INC).
5. BACKFILL ACCESS PIT WITH COMPACTED CLASS II SAND BACKFILL OR SUITABLE EXCAVATED MATERIAL IN ACCORDANCE WITH THE DETAIL ON SHEET 3 AND THE PROJECT SPECIFICATIONS.



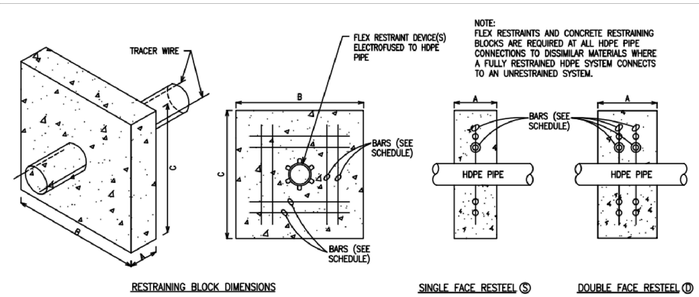

## SERVICE LINE CONNECTION TO HDPE PIPE

NOTES:
1. FLARED HDPE SERVICE LINES ARE PROHIBITED.




SINGLE Ⓢ DOUBLE Ⓓ

## RESTRAINING BLOCK RESTRAINTS



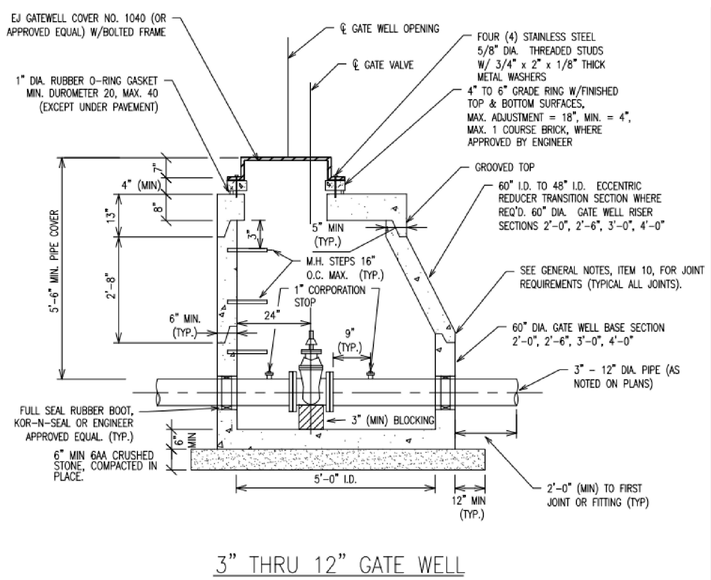

RESTRAINING BLOCK DIMENSIONS — SINGLE FACE RESTEEL Ⓢ — DOUBLE FACE RESTEEL Ⓓ

## RESTRAINING BLOCK RESTEEL

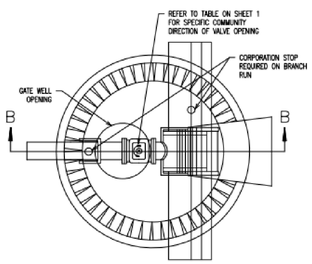
## HDPE SDR11 DIPS RESTRAINING BLOCK SCHEDULE

| HDPE SDR11 DIPS SIZE | A | B | C | EFFECTIVE AREA | # RESTRAINTS | REINFORCING |
|---|---|---|---|---|---|---|
| 4" | 1 FT | 2 FT | 2 FT | 3.5 S.F. | 1 | 4 #6 Ⓢ |
| 6" | 1 FT | 2.75 FT | 2.75 FT | 7.5 S.F. | 2 | 4 #6 Ⓢ |
| 8" | 1 FT | 3.75 FT | 3.75 FT | 12.5 S.F. | 2 | 4 #6 Ⓢ |
| 10" | 1 FT | 4.5 FT | 4.5 FT | 19 S.F. | 3 | 8 #4 Ⓢ |
| 12" | 1.5 FT | 5.25 FT | 5.25 FT | 27 S.F. | 4 | 8 #6 Ⓢ |
| 14" | 1.5 FT | 6 FT | 6 FT | 36 S.F. | 6 | 8 #6 Ⓢ |
| 16" | 2 FT | 7 FT | 7 FT | 46.5 S.F. | 7 | 16 #6 Ⓓ |
| 18" | 2 FT | 7.75 FT | 7.75 FT | 58 S.F. | 9 | 16 #6 Ⓓ |
| 20" | 2 FT | 8.5 FT | 8.5 FT | 71.5 S.F. | 11 | 16 #6 Ⓓ |
| 24" | 2 FT | 10.25 FT | 10.25 FT | 102 S.F. | 15 Ⓓ | 16 #6 Ⓓ |
| 30" | 2.5 FT | 12.75 FT | 12.75 FT | 157 S.F. | 23 Ⓓ | 16 #6 Ⓓ |
| 36" | 2.5 FT | 15 FT | 15 FT | 224 S.F. | 31 Ⓓ | 16 #6 Ⓓ |

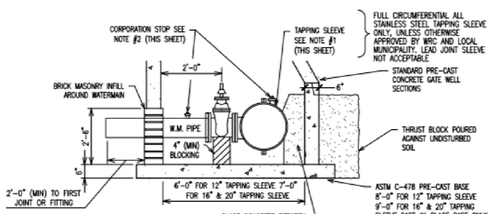
1. RESTRAINING BLOCKS SHALL HAVE A MINIMUM OF 3.0' OF COVER.
2. RESTRAINING BLOCK DIMENSIONS "B" AND "C" MAY BE CHANGED DUE TO DEPTH OF COVER LIMITATIONS PROVIDED THE EFFECTIVE AREA IS MAINTAINED.
3. THE EFFECTIVE AREA OF ALL THE RESTRAINING BLOCKS ARE BASED ON A RECURRING SURGE PRESSURE OF 250 PSI AND 1,000 PSF BEARING SOIL. SHOULD SOILS THAT ABUT THE RESTRAINING BLOCK BE LESS THAN 1,000 PSF, PROVIDE STAMPED ENGINEERING CALCULATIONS TO DETERMINE THE APPROPRIATE EFFECTIVE AREA FOR THE RESTRAINING BLOCK.
4. THE NUMBER OF FLEX RESTRAINTS INDICATED IS BASED ON PROVIDING 7,000 LBS OF SHEAR FORCE EACH. SHOULD THE FLEX RESTRAINTS INTENDED FOR USE PROVIDE LESS THAN 7,000 LBS OF SHEAR FORCE EACH, INCLUDE STAMPED ENGINEERING CALCULATIONS FOR THE NUMBER OF RESTRAINTS REQUIRED.




## 3" THRU 12" GATE WELL

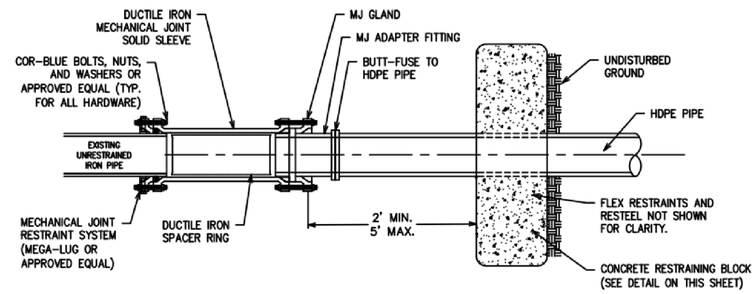



PLAN TAPPING SLEEVE VALVE & WELL (TYPICAL)




20" x 12", 20" x 8", 16" x 12", 16" x 8", 12" x 8" TAPPING SLEEVE, VALVE & WELL

NOTES:
1. REFER TO NOTE 7 OF "VALVE AND SLEEVE NOTES" ON SHEET 1.
2. FOR PIPE SMALLER THAN 16" USE 1" CORPORATION STOP, FOR 16" PIPE OR LARGER USE 2" CORPORATION STOP WITH BRONZE SADDLE.




## HDPE TO DUCTILE IRON TRANSITIION

### WATER MAIN MATERIALS NOTES

1. WATER SUPPLY SYSTEM PIPING (3-INCH & LARGER) SHALL BE DUCTILE IRON OR HIGH DENSITY POLYETHYLENE (HDPE) UNLESS OTHERWISE APPROVED BY THE LOCAL COMMUNITY.
2. DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH EIGHTEEN (18) INCH, CLASS 55 FOR TWENTY (20) INCH, AND CLASS 56 FOR TWENTY-FOUR (24) INCH AND LARGER. (ABBRIVIATED "D.I." IN DETAILS AND ON THIS SHEET).
3. PIPES OF SIZES LARGER THAN TWENTY-FOUR (24) INCHES IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
4. THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
5. REFER TO SHEET 5 FOR HDPE MATERIAL REQUIREMENTS.
6. MECHANICAL AND SLIP-ON JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
7. FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
8. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON OR CAST IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 350 PSI, PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER. DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE DIAMETERS.
9. INSTALL BRASS WEDGES AT ALL PUSH ON JOINTS IN DUCTILE IRON PIPE INSTALLATIONS. TWO (2) WEDGES PER JOINT FOR PIPES 12 INCH IN DIAMETER AND LESS. FOUR WEDGES PER JOINT FOR PIPES GREATER THAN 12 INCHES IN DIAMETER.
10. ALL WATER MAINS SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
11. ALL BURIED BOLTS, NUTS, AND WASHERS SHALL BE AWWA C111 LOW ALLOY STEEL COATED WITH A MINIMUM OF TWO (2) COATS OF FLUOROPOLYMER EPOXY COATING AND HEAT CURED (COR-BLUE OR APPROVED EQUAL) AND POLY-WRAPPED WHEN SPECIFIED.
12. ALL BURIED BOLTS, NUTS, AND WASHERS FOR ALL FLANGED CONNECTIONS SHALL BE STAINLESS STEEL (ASTM A320, GRADE B8M) AND HAVE A NEVER SEIZE TYPE COMPOUND APPLIED TO THE THREADS PRIOR TO INSTALLATION.
13. CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE MUELLER TYPE H-15000, FORD METER BOX FB-1000-X-Q-NL OR FORD METER BOX FB1000-4-Q-NL. ALL STOPS SHALL HAVE BRONZE CAST BODIES. KEYS, STEM WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C800.
14. TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE REDUCE PRESSSURE ZONE (RPZ) VALVE WITH CURRENT CERTIFICATION.

### HYDROSTATIC PRESSURE TESTING

A. Refer to Section 02660 for general acceptance testing and hydrostatic testing requirements.

B. Before connection of installed water main to the municipal system is allowed, complete a hydrostatic pressure test of the system in accordance with ASTM F2164. The specified test pressure is 150 psi or 1.5 times the MEOP of the test section, whichever is greater. The test method is generally summarized as follows:
   1. Zero leakage allowed.
   2. The ambient air temperature and surface temperature of the pipe must be considered and adjustment to test pressure may be appropriate.
   3. Slowly fill the test section with water and carefully and completely exhaust all of the air from the test section.
   4. Allow time for test fluid and pipe temperature to equalize.
   5. Allow for initial expansion as full test pressure is applied. The initial expansion phase is four hours.
   6. Reduce pressure by 10 psi, observe target test pressure for one hour, and if the pressure remains within 5% of the target test pressure, then a passing test is indicated.
   7. If leaks are detected, depressurize main and repair as needed. Allow the test section to remain depressurized for 8 hours before retesting.

### FLUSHING, CLEANING, AND DISINFECTION

A. Disinfect the water main system in accordance with ANSI/AWWA C651 and as described in Section 02660, except that the disinfection solutions containing chlorine must not exceed 12 percent active chlorine.

B. Duration of disinfection should not exceed 24 hours.

C. Thoroughly flush system with fresh water upon successful completion of sampling.

D. Sample again to verify the disinfectant chlorine level has been reduced to potable drinking water concentrations.

### VALVE AND SLEEVE NOTES

1. GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED WITH NON-RISING STEM.
2. ALL IN LINE GATE VALVES THREE (3) INCH AND LARGER SHALL BE IN WELLS AS DETAILED. SPECIFICATIONS SHALL INCLUDE THE DIRECTION OF OPERATION OF ALL VALVES.
3. ALL GATE WELL COVERS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED.
4. ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH A STAINLESS STEEL EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY A STAINLESS STEEL EXTENSION STEM GUIDE SURELY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
5. TAPPING VALVES SHALL BE AWWA C515 FL X MJ AS MANUFACTURED BY EJ WITH RESILIENT SEATED GATE VALVES AS APPROVED BY LOCAL MUNICIPALITY.
6. TAPPING SLEEVES SHALL BE ALL STAINLESS STEEL (BODY, FLANGE AND HARDWARE), MANUFACTURED BY ROMAC INDUSTRIES SST; JCM 432; SMITH-BLAIR 663/665 OR APPROVED EQUAL BY THE WATER RESOURCES COMMISSIONER'S OFFICE.

### HYDRANT REQUIREMENTS

1. ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX. WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE, EJ VALVE BOX NO. 8560 OR APPROVED EQUAL.
2. ALL HYDRANTS SHALL BE EJ 5BR250 TRAFFIC MODEL, OR APPROVED EQUAL WITH A MINIMUM OF 6'-0" DEPTH OF BURY UNLESS OTHERWISE INDICATED. SELF-DRAINING HYDRANTS SHALL NOT BE USED. ALL HYDRANTS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED. HYDRANTS SHALL HAVE BREAKAWAY FLANGE.
3. ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW GROUND WITH A FINISH COAT OF GLAMORTEX 501 ENAMEL, COLOR 314 VERMILLION OR APPROVED EQUAL. HYDRANT CAP SHALL BE PAINTED SAME COLOR AS THE HYDRANT. FOR PONTIAC YELLOW RUST-OLEUM #7543 SAFETY YELLOW.


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STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
| 10-05-2026 | EGLE WM AB Resubmit |
| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 600 90% |
| 08-15-2024 | Phase 600 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

WATERMAIN DETAILS & NOTES

| | |
|---|---|
| PROJECT NO. | 4722312934MM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JOEING BY | SWS |

C22

HDPE pipe, appurtenances, and installation:

The pipe must meet American Water Works Association (AWWA Standard C901 or C906) and the C901 or C906 identification must appear on the exterior wall print line.

All HDPE materials must be listed and approved for use with potable water under ANSI/NSF standard 14. ANSI/NSF standard 14 meets the requirements of ANSI/NSF standard 61. The exterior wall print line of all HDPE pipe proposed must bear the NSF-pw identification. In addition to AWWA C901 or C906 and ANSI/NSF standard requirements, HDPE pipe shall be manufactured from high density PE 3408 polyethylene resin, having a dimension ratio (DR) of 11 or less and a minimum working pressure rating of 160 psi. The DR is calculated as the outside diameter of the pipe divided by the minimum wall thickness.

…Requirements for both HDPE and fusible PVC pipe:

Critical crossings, such as surface water crossings, require valving on each side of the crossing so that the section of piping may be isolated. In addition, a valve manhole with corporation stops on each side of the valve shall be installed for purposes of future chlorination, sampling, and leak testing.

Due to the high expansion and contraction rates compared to metal pipe materials, adequate restraint must be provided at connections to appurtenances or transitions to different pipe materials. Additional restraint is necessary on each side of the connection point. This restraint may be provided in the form of an anchor ring encased in concrete or other methods as approved by the DEQ. All proposed connection and restraint details shall be included with plans and specifications. The design engineer should refer to manufacturer's recommendations and/or the Plastic Pipe Institute for guidance on the best method and required degree of restraint.

**Leakage testing.**
Under 6.9 B. Hydrostatic Tests, the specifications state that the maximum allowable leakage is 2 quarts per hour per 100 joints; however, AWWA Manual M55 states that there should be zero leakage (for HDPE) since the joints are fused. Please explain or revise.

"Installed pipe shall be pressure tested and leakage tested in accordance with the applicable AWWA Standard."

**Suggested Practices, Part 11 (17). Pressure Testing**
"… The testing requirements shall be equal to or exceed the applicable AWWA standards as outlined in Act 399.

Special consideration must be given to HDPE water main while pressure testing to account for the expansion of the material. Currently, there is no applicable AWWA standard for pressure testing of HDPE water main. Lacking an applicable standard, specific test procedures must be included in the project specifications. The pressure test procedure for HDPE water main must include an initial expansion phase before conducting the actual pressure test. The pressure test should be conducted at 150 psi for at least 2 hours, to match the requirements for testing of other water main materials. The Plastic Pipe Institute's Handbook of Polyethylene Pipe is a good resource for determining the appropriate specifications for such a pressure test. AWWA Manual M55 also has valuable information on pressure testing of HDPE pipe."

UPDATED AWWA, ANSI, ASTM ASME STANDARDS

| Reference | Latest Edition |
|---|---|
| ASTM D2774 | ASTM D2774-21a |
| ASTM F645 | ASTM F645-18b |
| ASTM F2164 | ASTM F2164-21 |
| AWWA C110 | AWWA C110-21 |
| AWWA C111 | AWWA C111-23 |
| AWWA C509 | AWWA C509-23 |
| AWWA C515 | AWWA C515-20 |
| AWWA C550 | AWWA C550-24 |
| AWWA C600 | AWWA C600-23 |
| AWWA C651 | AWWA C651-23 |

**10 States, 8.1.1 Standards and Materials Selection**
"All materials including pipe, fittings, valves and fire hydrants, and those used for the rehabilitation of water mains shall conform to the latest standards issued by the ASTM, AWWA and ANSI/NSF, where such standards exist, and be acceptable to the reviewing authority."

**10 States, 8.7.5 Anchoring of Fusible Pipe**
"Additional restraint may be necessary on fusible pipe at the connection to appurtenances or transitions to different pipe materials to prevent joint separation. The restraint may be provided in the form of an anchor ring encased in concrete or other methods as approved by the reviewing authority."

NFE PROJECT NO. 6648-06
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PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

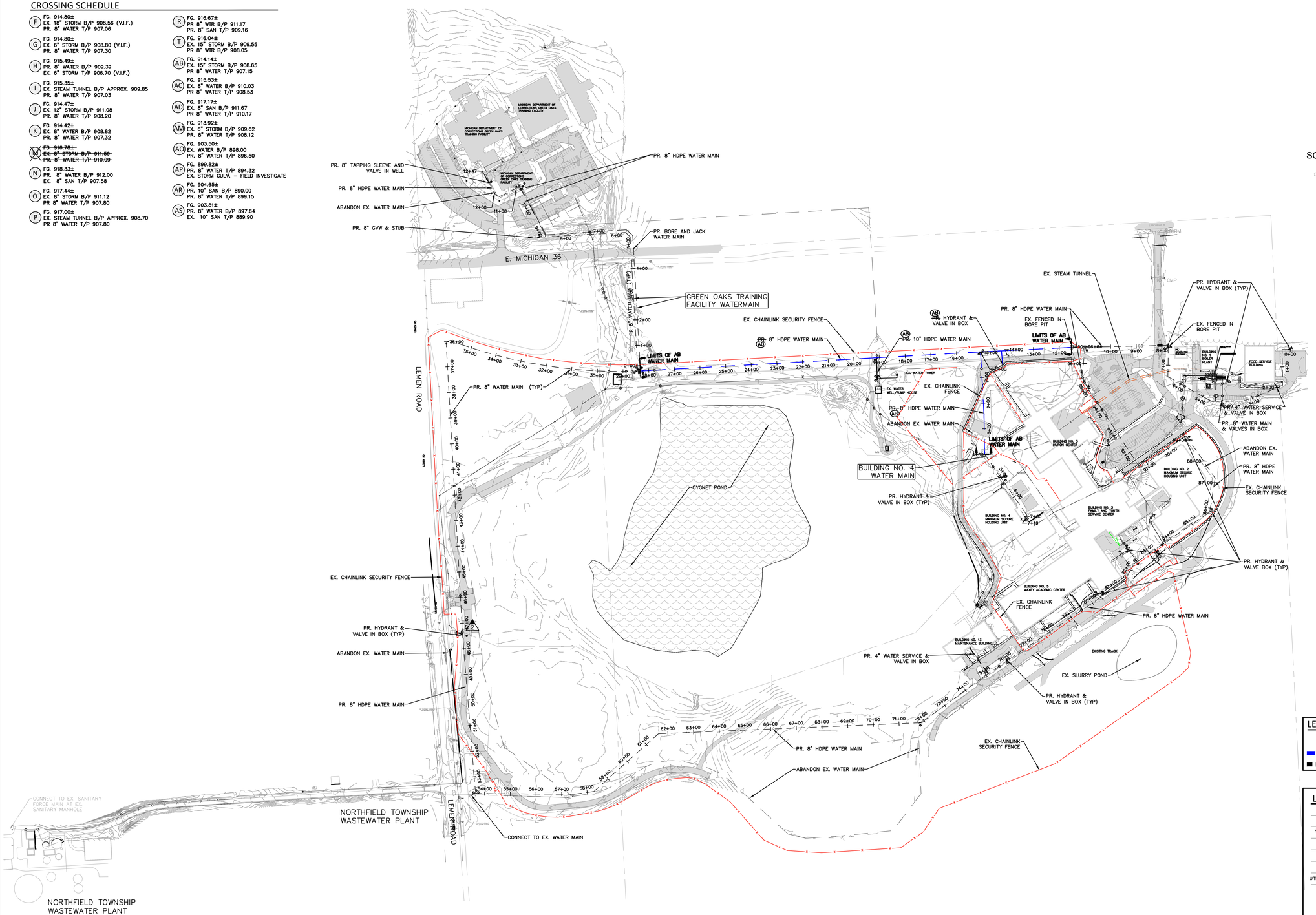
WATERMAIN DETAILS & NOTES

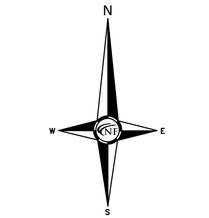
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| PROJECT NO. 472231830MW | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JC/ENG BY | |

C23

## CROSSING SCHEDULE

- (F) FG. 914.80± — EX. 18" STORM B/P 908.56 (V.I.F.) — PR. 8" WATER T/P 907.06
- (G) FG. 914.80± — EX. 6" STORM B/P 908.80 (V.I.F.) — PR. 8" WATER T/P 907.30
- (H) FG. 915.49± — PR. 8" WATER B/P 909.39 — EX. 6" STORM T/P 906.70 (V.I.F.)
- (I) FG. 915.35± — EX. STEAM TUNNEL B/P APPROX. 909.85 — PR. 8" WATER T/P 907.03
- (J) FG. 914.47± — EX. 12" STORM B/P 911.08 — PR. 8" WATER T/P 908.20
- (K) FG. 914.42± — EX. 8" WATER B/P 908.82 — PR. 8" WATER T/P 907.32
- ~~(M) FG. 916.78± — EX. 8" STORM B/P 911.59 — PR. 8" WATER T/P 910.09~~
- (N) FG. 918.33± — PR. 8" WATER B/P 912.00 — EX. 8" SAN T/P 907.58
- (O) FG. 917.44± — EX. 8" STORM B/P 911.12 — PR 8" WATER T/P 907.80
- (P) FG. 917.00± — EX. STEAM TUNNEL B/P APPROX. 908.70 — PR 8" WATER T/P 907.80
- (R) FG. 916.67± — PR 8" WTR B/P 911.17 — PR. 8" SAN T/P 909.16
- (T) FG. 916.04± — EX. 15" STORM B/P 909.55 — PR 8" WTR B/P 908.05
- (AB) FG. 914.14± — EX. 15" STORM B/P 908.65 — PR 8" WATER T/P 907.15
- (AC) FG. 915.53± — EX. 8" WATER B/P 910.03 — PR 8" WATER T/P 908.53
- (AD) FG. 917.17± — EX. 8" SAN B/P 911.67 — PR 8" WATER T/P 910.17
- (AM) FG. 913.92± — EX. 6" STORM B/P 909.62 — PR. 8" WATER T/P 908.12
- (AO) FG. 903.50± — EX. WATER B/P 898.00 — PR. 8" WATER T/P 896.50
- (AP) FG. 899.82± — PR. 8" WATER T/P 894.32 — EX. STORM CULV. – FIELD INVESTIGATE
- (AR) FG. 904.65± — PR. 10" SAN B/P 890.00 — PR. 8" WATER T/P 899.15
- (AS) FG. 903.81± — PR. 8" WATER B/P 897.64 — EX. 10" SAN T/P 889.90





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| 10-09-2026 | Bid Documents |

PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## OVERALL WATERMAIN LAYOUT PLAN

| | |
|---|---|
| PROJECT NO. 47223123XMM | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JCIENG BY | |

## LEGEND - WATER MAIN

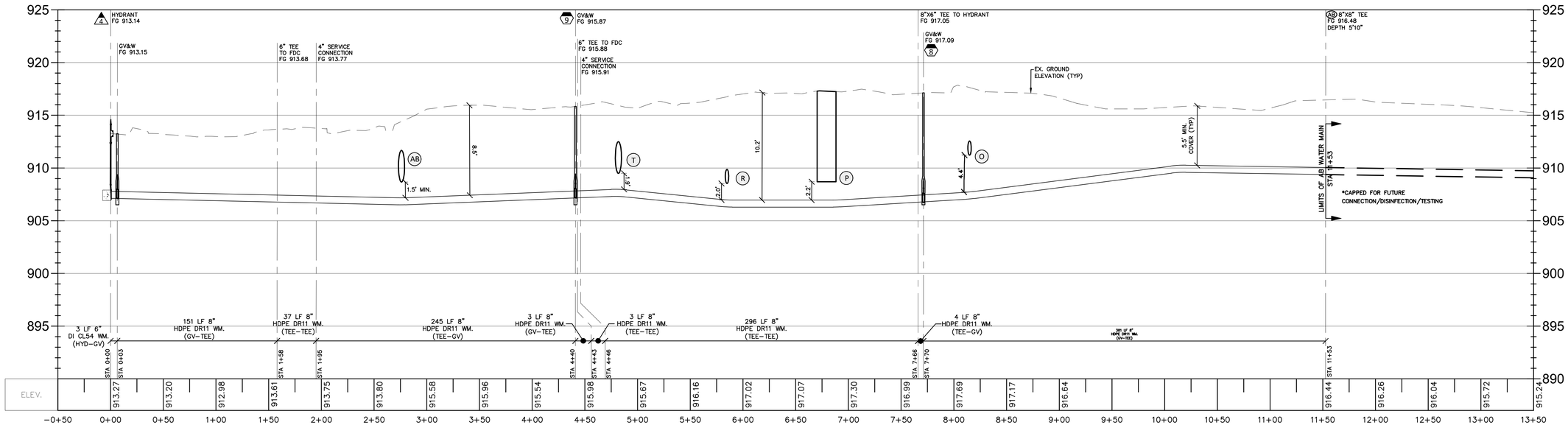
- (AB) — AS-BUILT LABELING
- AS-BUILT WATER MAIN
- PROPOSED WATER MAIN

## LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — SAN. CLEAN OUT
- MANHOLE, CATCH BASIN — EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
- HYDRANT, GATE VALVE — PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- SAND BACKFILL (95 % DENSITY)
- PROPOSED LIGHT POLE

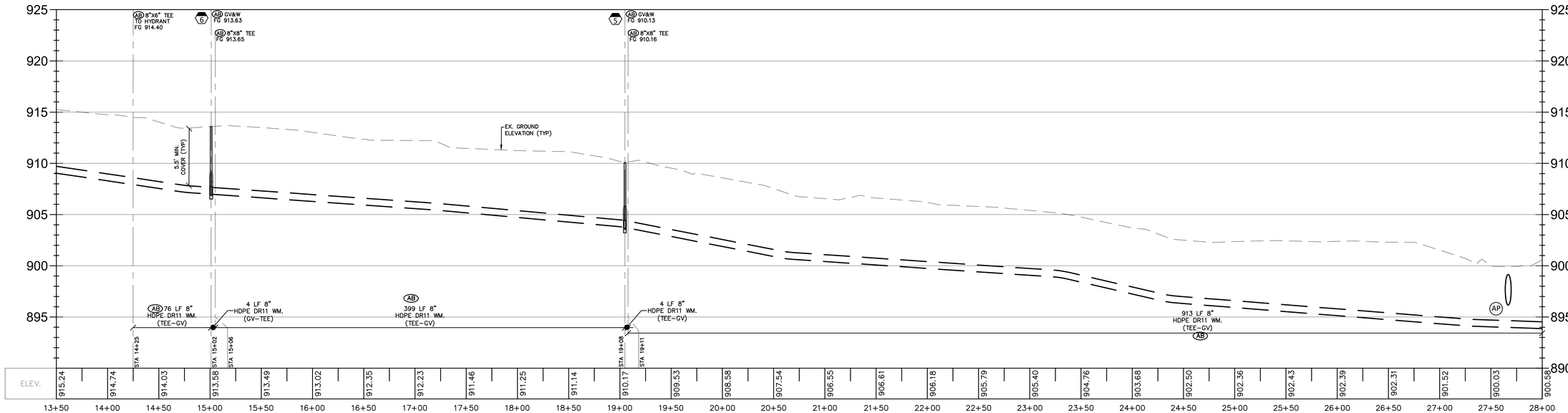
C24

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(-0+50.00 - 13+50.00)
SCALE: H 1"=50'
V 1"=5'

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(13+50.00 - 28+00.00)
SCALE: H 1"=50'
V 1"=5'

### WATER STRUCTURE SCHEDULE

- 4 PR. HYDRANT & VALVE IN BOX FG 913.14
- 5 PR. 8" GATE VALVE IN BOX FG 910.13
- 6 PR. 8" GATE VALVE IN BOX FG 913.63
- 8 PR. 8" GATE VALVE IN BOX FG 917.09
- 9 PR. 8" GATE VALVE IN BOX FG 915.87

### CROSSING SCHEDULE

- O FG. 917.44± EX. 8" STORM B/P 911.12 PR 8" WATER T/P 907.80
- P FG. 917.00± EX. STEAM TUNNEL B/P APPROX. 908.70 PR 8" WATER T/P 907.80
- R FG. 916.67± PR 8" SAN B/P 908.60 PR. 8" WTR T/P 907.10
- T FG. 916.04± EX. 15" STORM B/P 909.55 PR 8" WTR T/P 908.05
- AB FG. 914.14± EX. 15" STORM B/P 908.65 PR 8" WATER T/P 907.15
- AP FG. 899.82± PR. 8" WATER T/P 894.32 EX. STORM CULV. – FIELD INVESTIGATE

### LEGEND - WATER MAIN

- (AB) AS-BUILT LABELING
- AS-BUILT WATER MAIN
- PROPOSED WATER MAIN


NFE PROJECT NO. K648-06
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257
NF ENGINEERS


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DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

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| 08-15-2024 | Phase 900 50% |

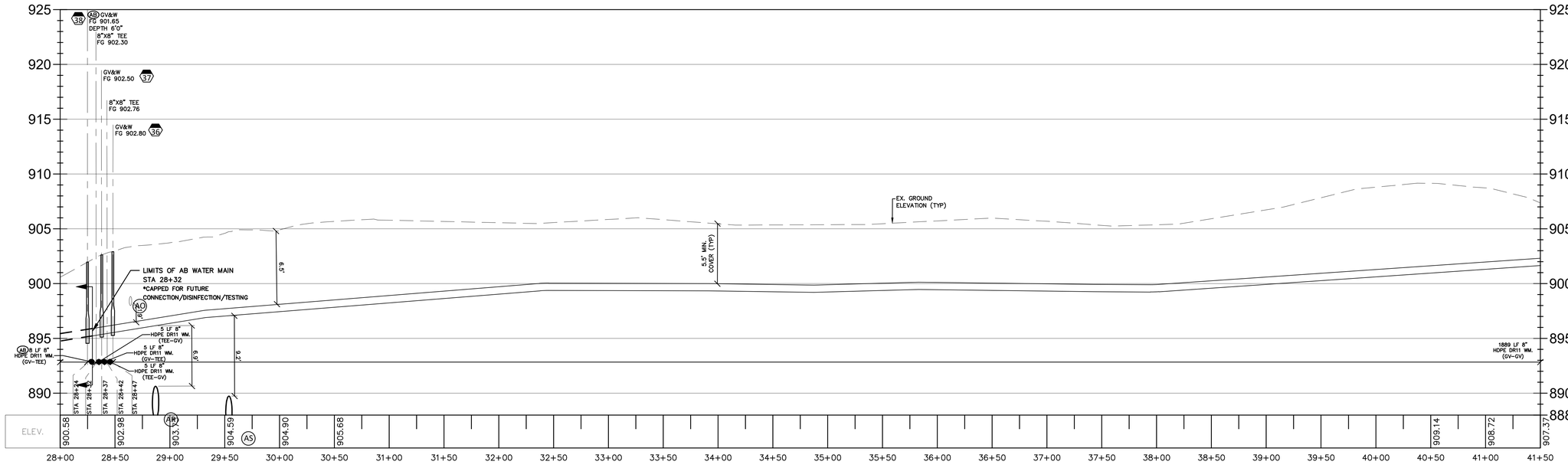
PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

WATERMAIN PROFILES

| | |
|---|---|
| PROJECT NO. 472233129XMM | |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

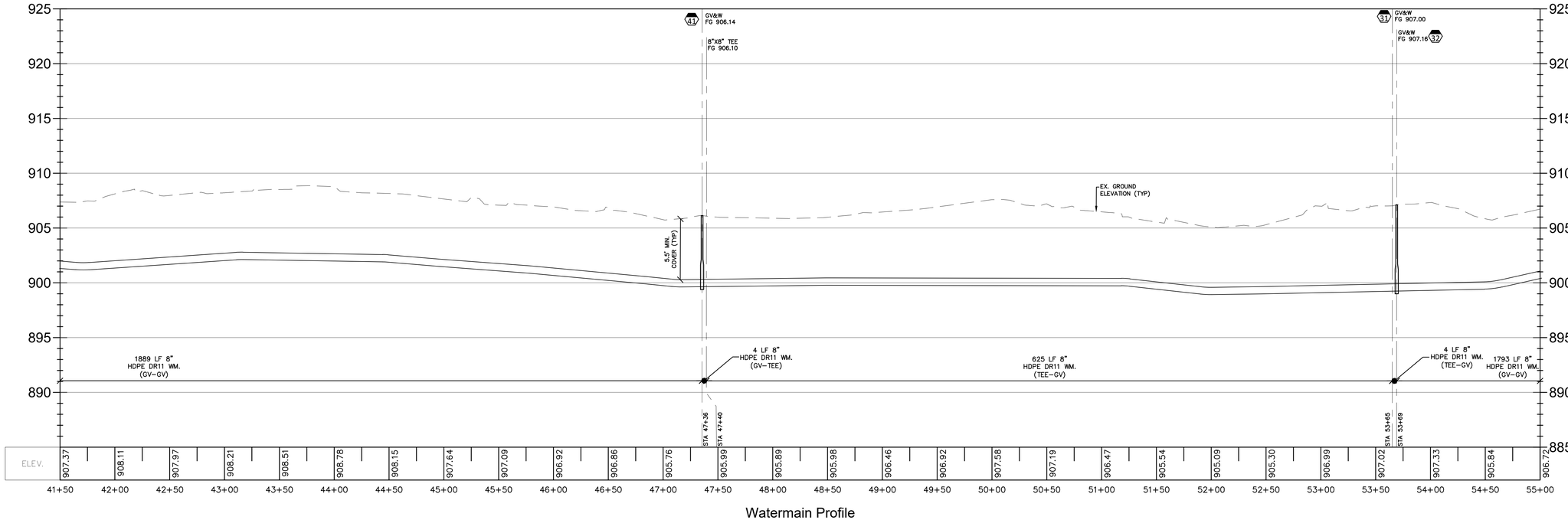
C25

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(28+00.00 - 41+50.00)
SCALE: H 1"=50'
V 1"=5'

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(41+50.00 - 55+00.00)
SCALE: H 1"=50'
V 1"=5'

### WATER STRUCTURE SCHEDULE

- 31 PR. 8" GATE VALVE IN BOX FG 907.16
- 32 PR. 8" GATE VALVE IN BOX FG 907.16 (TO EXISTING WM)
- 33 PR. 8" GATE VALVE IN BOX FG 906.98
- 36 PR. 8" GATE VALVE IN BOX FG 902.80
- 37 PR. 8" GATE VALVE IN BOX FG 902.50
- 38 PR. 8" GATE VALVE IN BOX FG 901.65
- 41 PR. 8" GATE VALVE IN BOX FG 906.14
- 42 PR. 8" GATE VALVE IN BOX FG 906.14 (TO LIFT STATION)

### CROSSING SCHEDULE

- (AO) FG. 903.50± EX. WATER B/P 898.00 PR. 8" WATER T/P 896.50
- (AR) FG. 904.65± PR. 8" WATER B/P 898.48 PR. 10" SAN T/P 890.83
- (AS) FG. 903.81± PR. 8" WATER B/P 897.64 EX. 10" SAN T/P 889.90

### LEGEND - WATER MAIN

- (AB) AS-BUILT LABELING
- AS-BUILT WATER MAIN
- PROPOSED WATER MAIN


NFE PROJECT NO. K648-06
46777 WOODWARD AVENUE
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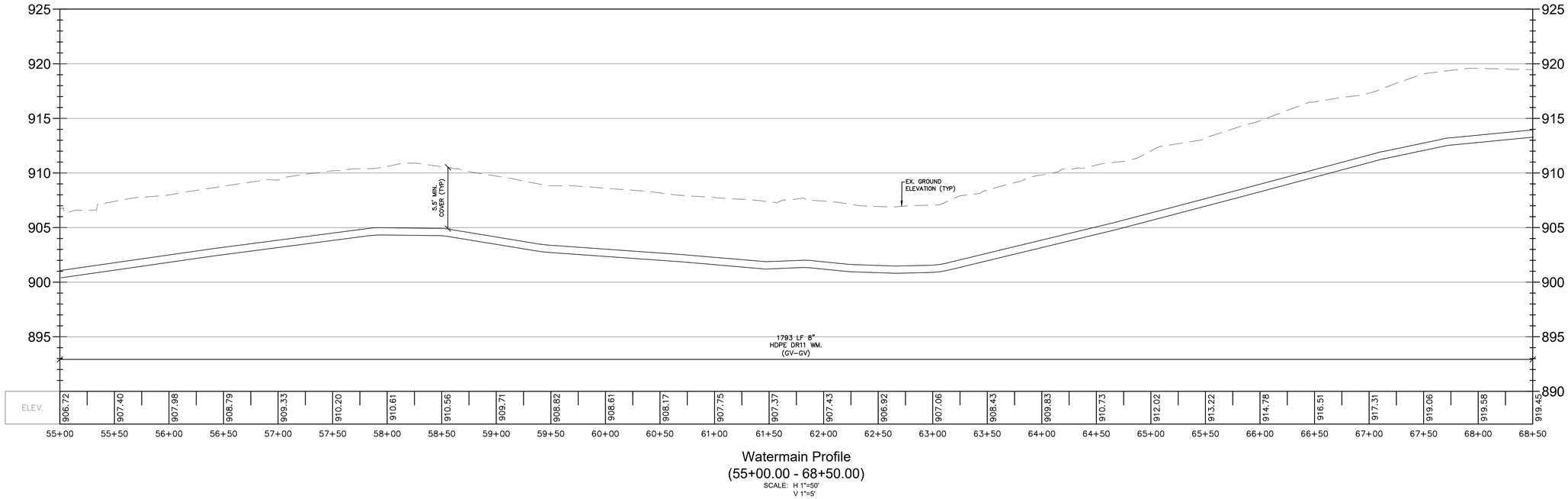
PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

WATERMAIN PROFILES

| | |
|---|---|
| PROJECT NO. 47223123XXM | |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

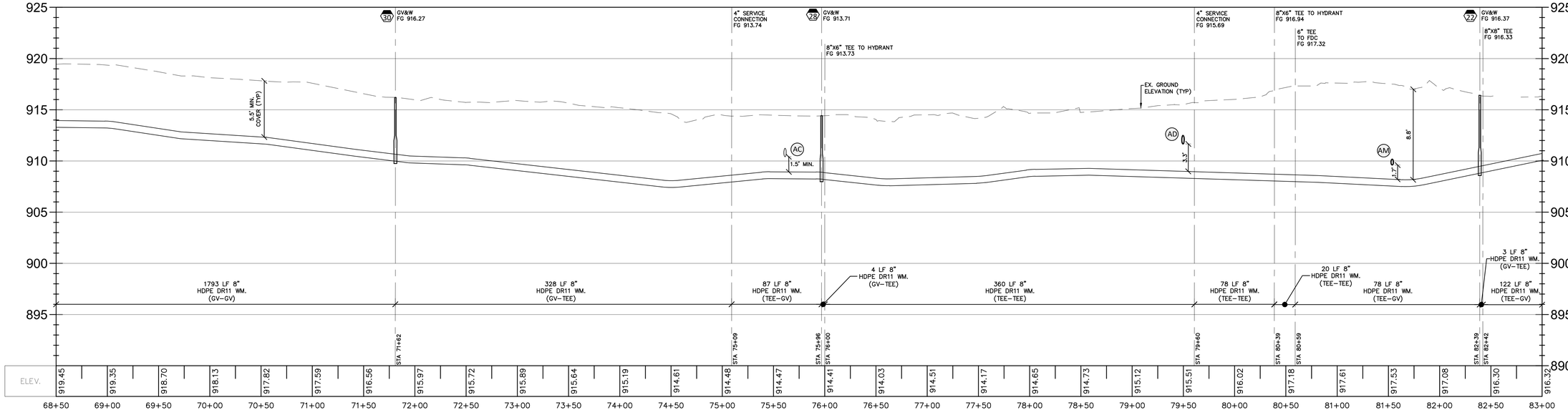
C26

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(55+00.00 - 68+50.00)
SCALE: H 1"=50'
V 1"=5'

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(68+50.00 - 83+00.00)
SCALE: H 1"=50'
V 1"=5'

### WATER STRUCTURE SCHEDULE

- 22 PR. 8" GATE VALVE IN BOX FG 916.37
- 28 PR. 8" GATE VALVE IN BOX FG 913.71
- 30 PR. 8" GATE VALVE IN BOX FG 916.27

### CROSSING SCHEDULE

- AC FG. 915.53± EX. 8" WATER B/P 910.03 PR 8" WATER T/P 908.53
- AD FG. 917.17± EX. 8" SAN B/P 911.67 PR 8" WATER T/P 910.17
- AM FG. 913.92± EX. 6" STORM B/P 909.62 PR. 8" WATER T/P 908.12

### LEGEND - WATER MAIN

- AB AS-BUILT LABELING
- AS-BUILT WATER MAIN
- PROPOSED WATER MAIN


NFE PROJECT NO. 6648-06
CIVIL ENGINEERS
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| DATE | DESCRIPTION |
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| 10-09-2026 | Bid Documents |
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| 12-01-2025 | EGLE WM As-Built |
| 12-05-2024 | Phase 900 90% |
| 08-15-2024 | Phase 900 50% |
| DATE | REVIEW |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

WATERMAIN PROFILES

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|---|---|
| PROJECT NO. 472231830KM | |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCIENG BY | SWS |

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PONTIAC, MI 48342-5032
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LAND SURVEYORS
LAND PLANNERS

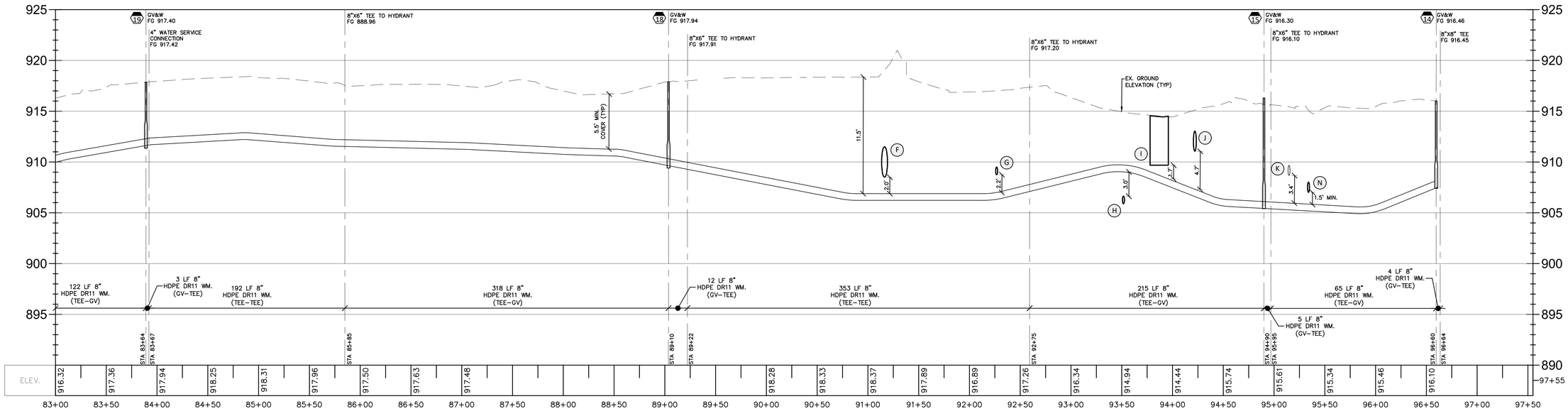
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| DATE | REVIEW |
|---|---|
| 10-09-2026 | Bid Documents |
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| 08-15-2024 | Phase 900 50% |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## Profile View of PRIMARY WATERMAIN




Watermain Profile
(83+00.00 - 97+55.00)
SCALE: H 1"=50'
V 1"=5'

### WATER STRUCTURE SCHEDULE

- 14 PR. 8" GATE VALVE IN BOX FG 916.46
- 15 PR. 8" GATE VALVE IN BOX FG 916.30
- 18 PR. 8" GATE VALVE IN BOX FG 917.94
- 19 PR. 8" GATE VALVE IN BOX FG 917.40

### CROSSING SCHEDULE

- F FG. 914.80±, EX. 18" STORM B/P 908.56 (V.I.F.), PR. 8" WATER T/P 907.06
- G FG. 914.80±, EX. 6" STORM B/P 908.80 (V.I.F.), PR. 8" WATER T/P 907.30
- H FG. 915.49±, PR. 8" WATER B/P 909.39, EX. 6" STORM T/P 906.70 (V.I.F.)
- I FG. 915.35±, EX. STEAM TUNNEL B/P APPROX. 909.85, PR. 8" WATER T/P 907.03
- J FG. 914.47±, EX. 12" STORM B/P 911.08, PR. 8" WATER T/P 908.20
- K FG. 914.42±, EX. 8" WATER B/P 908.82, PR. 8" WATER T/P 907.32
- M FG. 916.78±, EX. 8" STORM B/P 911.59, PR. 8" WATER T/P 905.51
- N FG. 918.33±, EX. 8" SAN B/P 906.91, PR. 8" WATER T/P 905.41

### LEGEND - WATER MAIN

- (AB) AS-BUILT LABELING
- AS-BUILT WATER MAIN
- PROPOSED WATER MAIN

WATERMAIN PROFILES

| | |
|---|---|
| PROJECT NO. | 472023129.KMM |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JCENG BY | SWS |

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46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
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LAND SURVEYORS
LAND PLANNERS

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ADAM P. LACH, RA, NCARB, DIRECTOR

| DATE | REVIEW |
|---|---|
| 08-15-2024 | Phase 50% |
| 12-05-2024 | Phase 90% |
| 12-01-2025 | EGLE WM As-Built |
| 10-05-2026 | EGLE WM AB Resubmit |
| 10-09-2026 | Bid Documents |

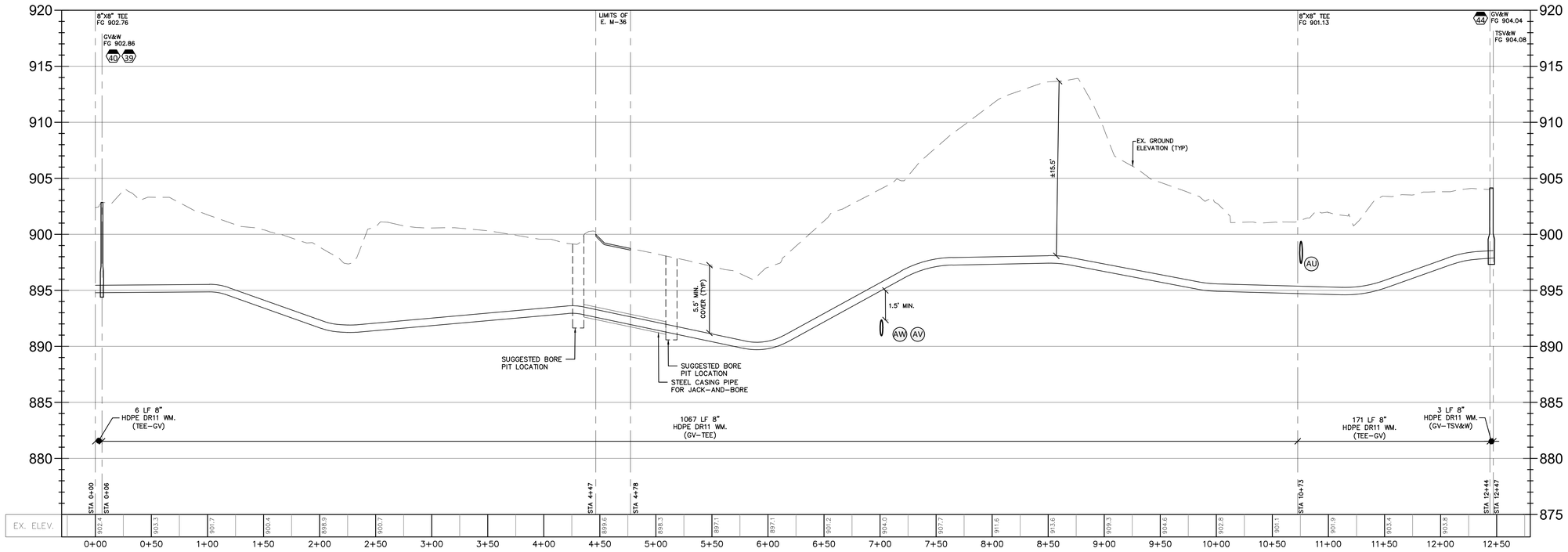
PROJECT DESCRIPTION
# SITE MECHANICAL UNDERGROUND - WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## GREEN OAKS TRAINING FACILITY WATERMAIN PROFILES

| | |
|---|---|
| PROJECT NO. | 47223\23XMI |
| INDEX | -- |
| PCA | 00-0000 |
| DRAWN BY | MAW |
| DESIGNED BY | MAW |
| JC/ENG BY | SWS |

C29

## Profile View of GREEN OAKS TRAINING FACILITY WATERMAIN




### Watermain Profile
### (-0+30.00 - 12+80.00)
SCALE: H 1"=50'
V 1"=5'

### WATER STRUCTURE SCHEDULE

- 39 PR. 8" GATE VALVE IN BOX FG 902.62
- 40 PR. 8" GATE VALVE IN BOX FG 902.62
- 44 PR. 8" GATE VALVE IN BOX FG 904.16

### CROSSING SCHEDULE

- AU FG. 901.40±
  EX. 12" SAN B/P 897.31
  PR. 8" WATER T/P 895.81
- AV FG. 905.62±
  PR. 8" WATER B/P 900.12
  PR. 10" SAN T/P 893.67
- AW FG. 902.20±
  PR. 8" WATER B/P 896.70
  PR. 10" SAN T/P 893.62

### LEGEND - WATER MAIN

- (AB) AS-BUILT LABELING
- AS-BUILT WATER MAIN
- PROPOSED WATER MAIN

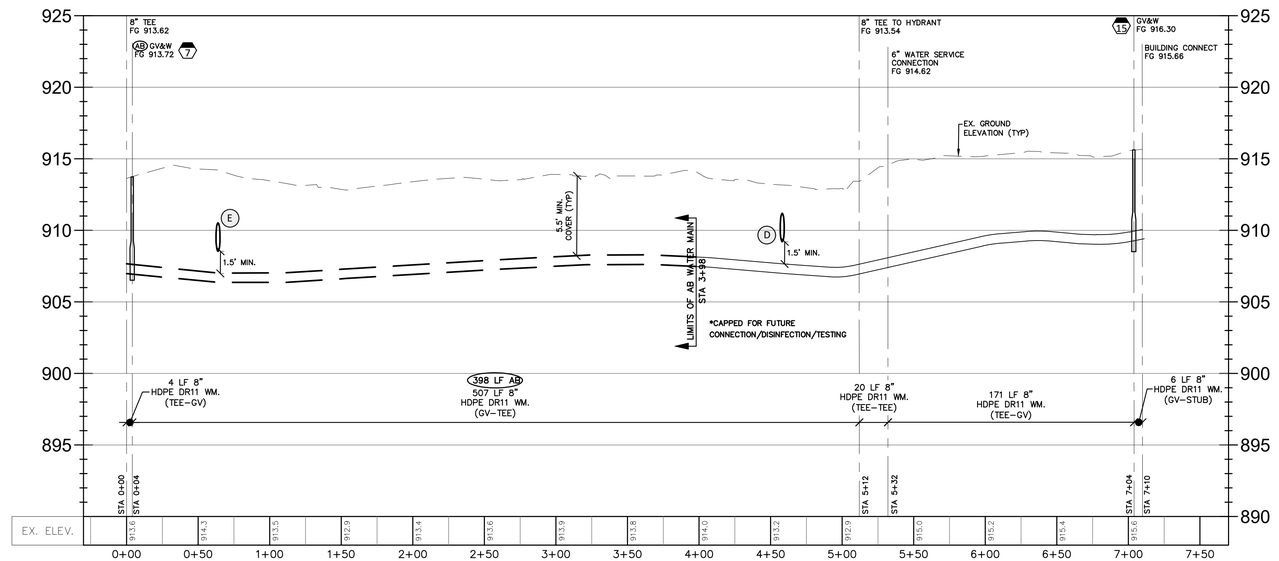
NFE PROJECT NO. 6648-06
CIVIL ENGINEERS
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46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
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DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, NCARB, DIRECTOR

| DATE | REVIEW |
|---|---|
| 08-15-2024 | Phase 50% 50% |
| 12-05-2024 | Phase 90% 90% |
| 12-01-2025 | EGLE WM As-Built |
| 10-05-2026 | EGLE WM AB Resubmit |
| 10-09-2026 | Bid Documents |

PROJECT DESCRIPTION
SITE MECHANICAL UNDERGROUND -
WOODLAND CORRECTIONAL FACILITY
WHITMORE LAKE, LIVINGSTON COUNTY, MICHIGAN

## Profile View of BUILDING No. 4 WATER MAIN




Watermain Profile
(-0+30.00 - 7+70.00)
SCALE: H 1"=50'
V 1"=5'

BUILDING NO. 4
WATERMAIN PROFILES

| | |
|---|---|
| PROJECT NO. - 472231293XMA | -- |
| INDEX | 00-0000 |
| PCA | MAW |
| DRAWN BY | MAW |
| DESIGNED BY | SWS |
| JC/ENG BY | |

C30

### WATER STRUCTURE SCHEDULE

7 PR. 6" GATE VALVE IN BOX
FG 913.72

15 PR. 8" GATE VALVE IN BOX
FG 916.30

### CROSSING SCHEDULE

D FG. 913.31±
EX. 12" STORM B/P FIELD INVESTIGATE
PR. 8" WATER T/P 907.80

E FG. 914.00±
EX. 12" WATER B/P APPROX. 908.50
PR. 8" WATER T/P 907.00

### LEGEND - WATER MAIN

AB — AS-BUILT LABELING
— — — — AS-BUILT WATER MAIN
——— PROPOSED WATER MAIN