Marina Wastewater System Improvements
Harry S Truman State Park
Warsaw, Missouri

OWNER:	STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR DEPARTMENT OF NATURAL RESOURCES DIVISION OF STATE PARKS
PROJECT MANAGEMENT:	OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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Springfield, MO 65807
417.866.2741
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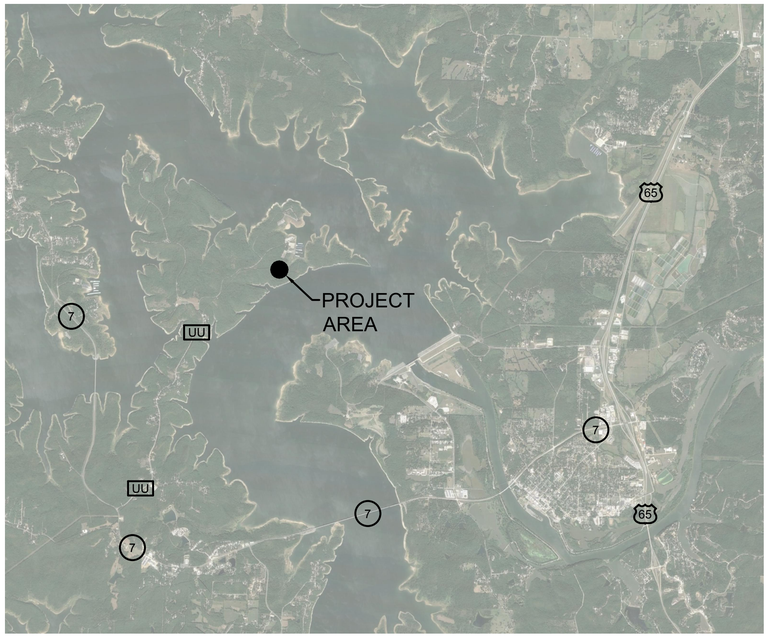
DESIGNER:	OWN, Inc.
PROJECT NUMBER:	X2308-01
SITE NUMBER:	5604
FACILITY NUMBER:	7815604027

SHEET NUMBER:
C-001
1 OF 9 SHEETS
MAY 15, 2024



LOCATION PLAN

4000 0 2000 4000

FEET

DRAWING INDEX

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS BY DETAILED INSPECTION PRIOR TO SUBMITTING BID AND BEGINNING CONSTRUCTION. NOTIFY ENGINEER IF EXISTING CONDITIONS DEVIATE SUBSTANTIALLY FROM THOSE INDICATED HEREIN.
2. THE ENGINEER IS NOT RESPONSIBLE FOR FIELD ACTIVITIES ON THIS PROJECT. IF FIELD CONDITIONS ARE UNCOVERED THAT REQUIRE A CHANGE OR ADDITIONAL INFORMATION, THE ENGINEER DOES NOT DELEGATE HIS AUTHORITY TO ANYONE ELSE FOR DETERMINING THE MEANING OF HIS PLANS OR SPECIFICATIONS.
3. CONTRACTOR TO SCHEDULE WORK WITH OWNER. OWNER TO MAINTAIN OPERATION OF SITE AND BUILDINGS. BUILDINGS TO BE SECURABLE AFTER BUSINESS HOURS.
4. CONTRACTOR TO MAINTAIN CLEAR UNOBSTRUCTED PATHS OF EGRESS AND EXITS AT ALL TIMES DURING CONSTRUCTION.
5. EXISTING FACILITIES AND CONSTRUCTION TO REMAIN TO BE PROTECTED AS REQUIRED DURING PROPOSED WORK. REMOVE AND REPLACE ANY ITEMS DAMAGED DUE TO CONTRACTOR'S ACTIVITIES WITH LIKE KIND.
6. ALL REMOVED EQUIPMENT TO OWNER UNLESS OTHERWISE INDICATED. CONTRACTOR TO REMOVE EXCESS DEBRIS AND FILL PER APPLICABLE GUIDELINES.
7. ALL DISTURBED AREAS TO BE RESTORED TO PREVIOUS CONDITION INCLUDING FENCES AND PIPING. VEGETATED AREAS SHALL BE SEEDED AND MULCHED.
8. GRADES, ELEVATIONS, AND EXISTING FEATURES SHOWN ARE APPROXIMATE AND PARTIALLY BASED ON INFORMATION PROVIDED BY OTHERS. NO GUARANTY TO ACCURACY IS GIVEN AND ALL CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
9. COSTS ASSOCIATED WITH TESTING OF ALL MATERIALS, PIPING, AND EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR EXCEPT AS NOTED.
10. ALL EQUIPMENT TO BE PROVIDED AND INSTALLED PER THE MANUFACTURE'S RECOMMENDATIONS FOR THE INTENDED APPLICATION INCLUDING MOUNTING AND WIRING. CONTRACTOR SHALL VERIFY DIMENSIONS AND REQUIREMENTS PRIOR TO CONSTRUCTION.
11. EQUIPMENT SHALL BE FIELD TESTED BY THE CONTRACTOR PRIOR TO THE COMPLETION OF CONSTRUCTION.
12. CONTRACTOR IS RESPONSIBLE FOR STORAGE & SECURITY OF ALL MATERIALS DURING CONSTRUCTION.
13. ALL WORK AND MATERIALS SHALL CONFORM TO THE PROJECT DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS AS AMENDED WITH ALL PROVISIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR MEANS & METHODS OF CONSTRUCTION AND PROVISION OF PROPOSED WORK.
15. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ANY UNDERGROUND UTILITIES OR OTHER OBSTRUCTIONS AND TO BE LIABLE FOR DAMAGE AND CONSEQUENT REPAIR TO SUCH IN THE COURSE OF HIS OPERATIONS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE UTILITY SUPPLIERS AND ARRANGE FOR ANY NECESSARY MODIFICATIONS REQUIRED TO FACILITATE CONSTRUCTION ACTIVITIES.
16. CONTRACTOR SHALL NOT HAVE MORE THAN ONE (1) ACRE OF GROUND DISTURBED AT ANY ONE TIME. ONCE THE ONE (1) ACRE LIMIT HAS BEEN REACHED, CONTRACTOR SHALL RESTORE THE DISTURBED AREA TO ITS PREVIOUS CONDITION BY FINE GRADING, SEEDING, AND MULCHING. NO FURTHER OPERATIONS ARE TO TAKE PLACE UNTIL THIS IS DONE.
17. CONTRACTOR SHALL PROVIDE NECESSARY SEDIMENT AND EROSION CONTROL. CONTRACTOR SHALL INSTALL, MAINTAIN, AND REPLACE SEDIMENT AND EROSION CONTROLS AS NECESSARY INCLUDING, BUT LIMITED TO SILT FENCE OR EQUAL DOWNSLOPE OF ALL DISTURBED AREAS.

PROJECT CONSTRUCTION NOTES

1. CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND TYPES OF ALL IMPROVEMENTS, FENCES, PIPES, AND OTHER ITEMS WHICH MAY AFFECT CONSTRUCTION AND SHALL MAKE ALL NECESSARY PROVISIONS FOR CONSTRUCTION THROUGH AND REPLACEMENT OF PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE ALL WORK AND SHALL PROVIDE ALL REQUIRED MATERIALS AND SERVICES NEEDED TO RELOCATE, REPLACE OR MODIFY EACH APPURTENANCE OR IMPROVEMENT.
2. CONTRACTOR TO FIELD VERIFY THE LOCATION OF EXISTING PIPING AND ALL RELATED EASEMENTS AND PROPERTY BOUNDARY LINES PRIOR TO THE START OF CONSTRUCTION. CONSTRUCTION ACTIVITIES SHOULD NOT BE ALLOWED OUTSIDE OF EASEMENTS OR BOUNDARIES GRANTED FOR CONSTRUCTION OR OTHER APPLICABLE RIGHT-OF-WAY.
3. ALL DISTURBED AREAS SHALL BE SEEDED, MULCHED, AND/OR RETURNED TO A STATE AS GOOD OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION ACTIVITIES. FINAL GRADING SHALL BE SLOPED TO DRAIN AT 1% MIN. AND 4:1 MAX. SLOPES.
4. TOP SOIL SHALL BE REMOVED AND STOCKPILED ON SITE. EXISTING AND/OR NEW TOP SOIL SHALL BE DISTRIBUTED TO A MINIMUM DEPTH OF 2" OVER DISTURBED GROUND AND SHALL HAVE ROCKS REMOVED BEFORE BEING FINISHED WITH SEED/MULCH. CONTRACTOR SHALL PROVIDE TOP SOIL FROM OFF-SITE IF ON-SITE MATERIALS ARE INSUFFICIENT. HAVE CLEAN-UP SHALL BE COMPLETED BY SUBSTANTIAL COMPLETION WITH ONE YEAR FOLLOW-UP SERVICE EXPECTED.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES. THE CONTRACTOR SHALL ADJUST PROPOSED WORK ALIGNMENTS AS REQUIRED AND WITH ENGINEER'S APPROVAL TO FACILITATE CONSTRUCTION AROUND EXISTING UTILITIES WITHOUT ADDITIONAL COMPENSATION.
6. ALL DISTURBED GRAVEL SURFACES ARE TO BE REPLACED WITH A SURFACE EQUAL OR SUPERIOR TO THAT WHICH EXISTED IMMEDIATELY PRIOR TO CONSTRUCTION AND/OR AS NOTED.
7. CONTRACTOR SHALL PROVIDE LEGIBLE SKETCHES OF ANY REVISIONS OR AS-BUILT CONDITIONS TO THE ENGINEER PRIOR TO THE FINAL PAY REQUEST.
8. ALL MATERIALS TO BE PROVIDED PER PROJECT SPECIFICATIONS AND SUPPLIERS' GUIDELINES. CONTRACTOR TO VERIFY REQUIREMENTS AND SHALL PROVIDE AS REQUIRED FOR COMPLETE AND PROPER FUNCTION.
9. PROVIDE & MAINTAIN EROSION CONTROL PER PROJECT & OWNER'S REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO KEEP ROCK, MUD, AND OTHER DEBRIS FROM ACCESS STREETS CAUSED BY CONSTRUCTION EQUIPMENT THROUGHOUT THE DAY AND AT THE END OF EACH WORK DAY.
10. ALL SUBMERGED FASTENERS TO BE STAINLESS STEEL UNLESS APPROVED BY ENGINEER.

SAFETY NOTICE TO CONTRACTOR

1. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

2. THE DUTY OF THE ENGINEER OR OWNER TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

CAUTION

EXISTING UNDERGROUND IMPROVEMENTS SUCH AS WATERLINES, GAS MAINS, SEWERS, TELEPHONE LINES, FIBER OPTIC LINES, POWER LINES AND BURIED STRUCTURES ARE INDICATED ON THE DRAWING ONLY TO THE EXTENT SUCH INFORMATION HAS BEEN MADE AVAILABLE TO OR DISCOVERED BY THE SURVEYOR IN PREPARING THIS DRAWING. THERE IS NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION.

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STATE OF MISSOURI
MICHAEL L. PARSON,
GOVERNOR

STATE OF MISSOURI
ANDREW TRUE
NOVINGER
NUMBER
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REGISTERED PROFESSIONAL ENGINEER

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DEPARTMENT OF
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Division of State Parks

MARINA WASTEWATER
SYSTEM IMPROVEMENTS

HARRY S TRUMAN STATE PARK
WARSAW, MISSOURI

PROJECT # X2308-01
SITE # 5604
FACILITY # 7815604027

REVISION:
DATE:
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DATE:
REVISION:
DATE:
ISSUE DATE: 5/15/2024

CAD DWG FILE:
DRAWN BY: OWN STAFF
CHECKED BY: OWN STAFF
DESIGNED BY: OWN INC.

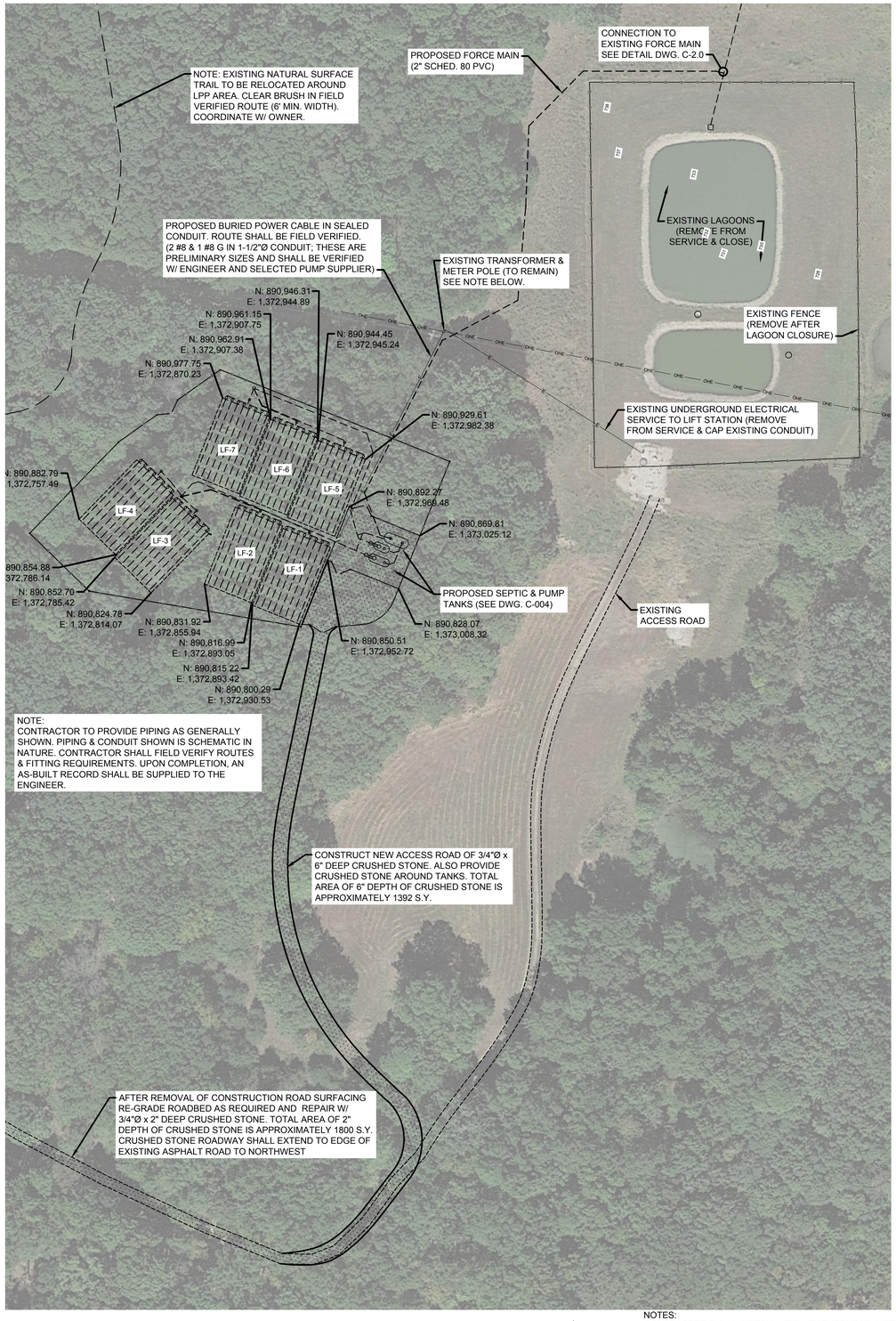
SHEET TITLE:

LOCATION PLAN,
DRAWING INDEX,
& GENERAL NOTES

SHEET NUMBER:

C-002

2 OF 9 SHEETS



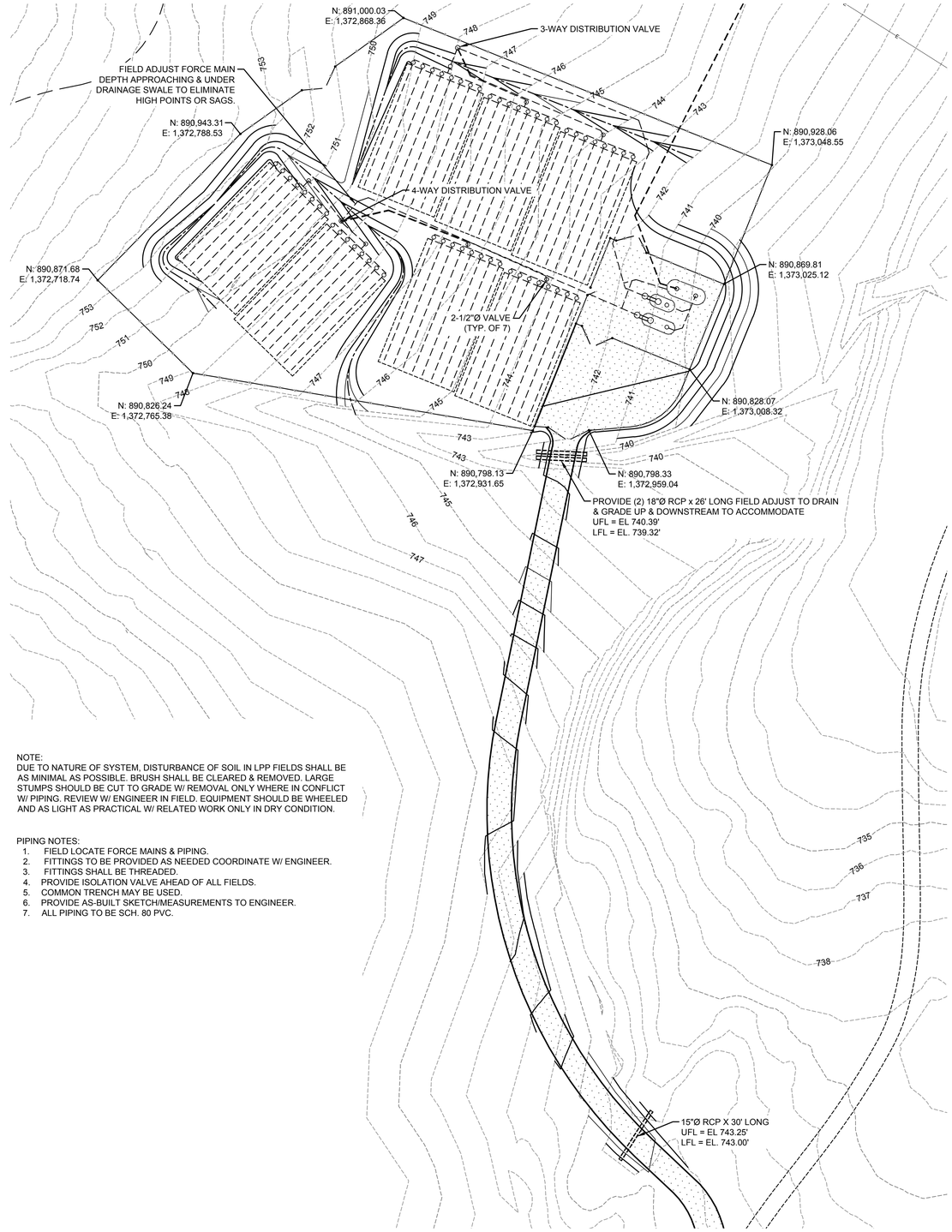
SITE PLAN

50 0 25 50

FEET

NOTES:
CONTRACTOR SHALL INSTALL NEW WEATHERHEAD, METER BASE, & PANELBOARD ON EXISTING POWER POLE. CONTRACTOR SHALL ALSO INSTALL CONDUIT & CONDUCTORS FROM NEW PANELBOARD (LOCATED ON POLE) TO NEW EQUIPMENT RACK. VERIFY CONDUCTOR & CONDUIT SIZES W/ ENGINEER & PUMP MANUFACTURER. AFTER NEW EQUIPMENT IS OPERATIONAL, THE EXISTING WEATHERHEAD, METER BASE & PANELBOARD SHALL BE REMOVED.

CONTRACTOR TO PROVIDE FOR CLEARING AND BRUSH REMOVAL TO FACILITATE CONSTRUCTION. FIELD VERIFY LIMITS.



NOTE:
DUE TO NATURE OF SYSTEM, DISTURBANCE OF SOIL IN LPP FIELDS SHALL BE AS MINIMAL AS POSSIBLE. BRUSH SHALL BE CLEARED & REMOVED. LARGE STUMPS SHOULD BE CUT TO GRADE W/ REMOVAL ONLY WHERE IN CONFLICT W/ PIPING. REVIEW W/ ENGINEER IN FIELD. EQUIPMENT SHOULD BE WHEELED AND AS LIGHT AS PRACTICAL W/ RELATED WORK ONLY IN DRY CONDITION.

PIPING NOTES:
1. FIELD LOCATE FORCE MAINS & PIPING.
2. FITTINGS TO BE PROVIDED AS NEEDED COORDINATE W/ ENGINEER.
3. FITTINGS SHALL BE THREADED.
4. PROVIDE ISOLATION VALVE AHEAD OF ALL FIELDS.
5. COMMON TRENCH MAY BE USED.
6. PROVIDE AS-BUILT SKETCH/MEASUREMENTS TO ENGINEER.
7. ALL PIPING TO BE SCH. 80 PVC.

GRADING PLAN

30 0 15 30

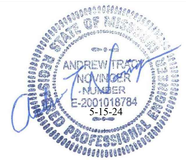
FEET

NOTE:
BASE BID FOR FENCE SHALL BE FOR 210 L.F. OF 4 STRAND SMOOTH WIRE FENCE AROUND SEPTIC & PUMP TANKS W/ (2) 16' DOUBLE SWING GATES & (1) 4' PERSONNEL GATE.

ALTERNATE BID 1 FOR FENCE SHALL BE 815 L.F. OF 4 STRAND SMOOTH WIRE FENCE AROUND ENTIRE SITE W/ (2) 12' GATES.

FIELD VERIFY FENCE & GATE LOCATIONS WITH ENGINEER/OWNER.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR



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Division of State Parks

MARINA WASTEWATER SYSTEM IMPROVEMENTS

HARRY S TRUMAN STATE PARK
WARSAW, MISSOURI

PROJECT #	X2308-01
SITE #	5604
FACILITY #	7815604027

REVISION:
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DATE:
REVISION:
DATE:
ISSUE DATE: 5/15/2024

CAD DWG FILE:
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CHECKED BY: OWN STAFF
DESIGNED BY: OWN INC.

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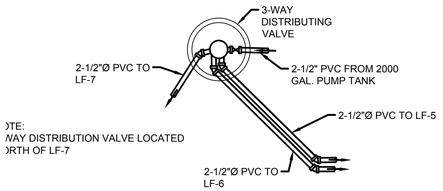
SITE PLAN & GRADING PLAN

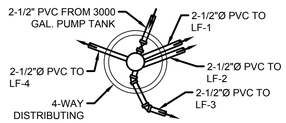
SHEET NUMBER:

C-003

3 OF 9 SHEETS



NOTE:
REDUCERS NOT SHOWN. PROVIDE COMPARABLE PIPING TO FACILITATE PIPE SIZE.



NOTE:
4-WAY DISTRIBUTION VALVE LOCATED NEAR SOUTHWEST CORNER OF LF-7

3-WAY DISTRIBUTING VALVE DETAIL

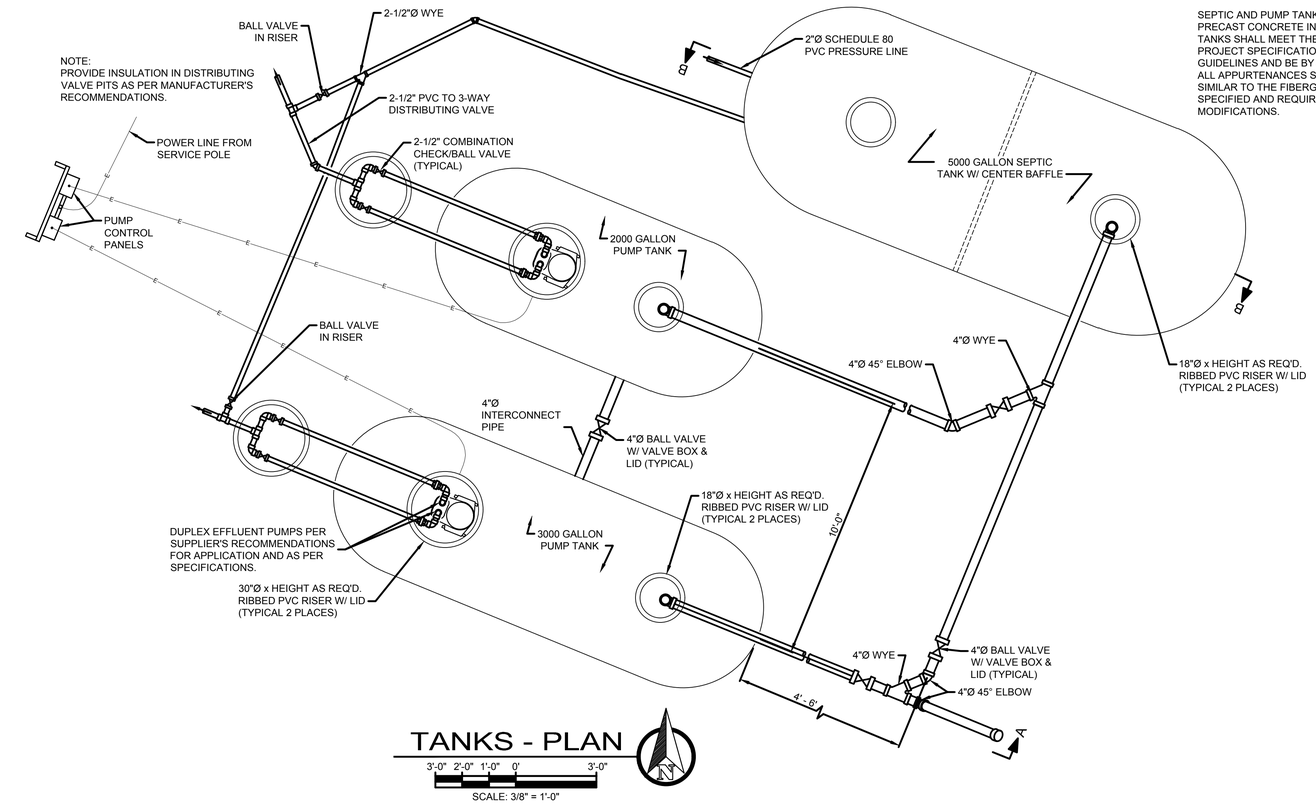
3'-0" 2'-0" 1'-0" 0' 3'-0"
SCALE: 3/8" = 1'-0"

4-WAY DISTRIBUTING VALVE DETAIL

3'-0" 2'-0" 1'-0" 0' 3'-0"
SCALE: 3/8" = 1'-0"

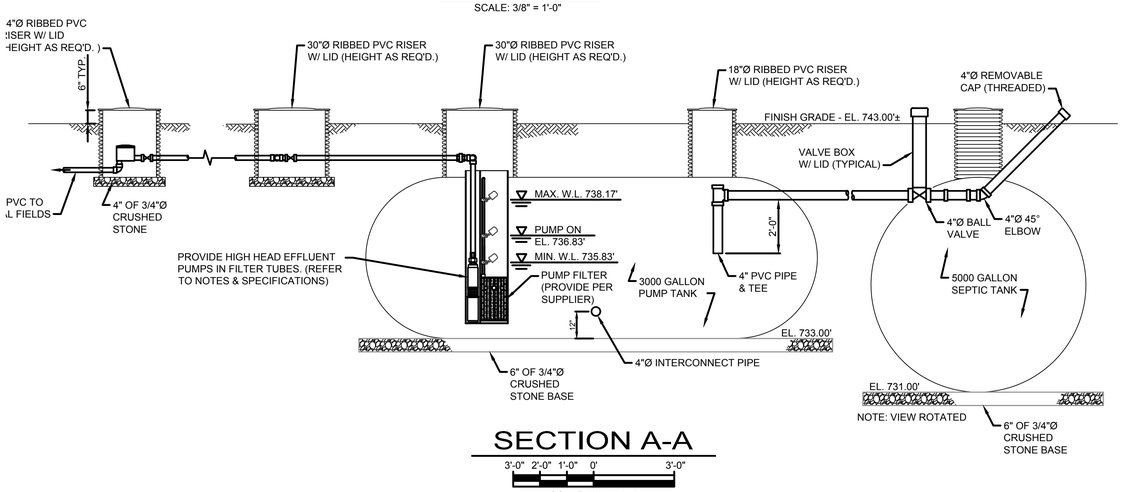
NOTE:
ALL 2" PIPING TO BE SCH. 80 PVC W/ THREADED FITTINGS. 4" PIPING SHALL BE SCH. 40 PVC.

SEPTIC AND PUMP TANKS MAY BE PROVIDEDAS PRECAST CONCRETE IN LIEU OF FIBERGLASS. TANKS SHALL MEET THE REQUIREMENTS OF PROJECT SPECIFICATIONS AND APPLICABLE GUIDELINES AND BE BY A QUALIFIED PROVIDER. ALL APPURTENANCES SHALL BE PROVIDED SIMILAR TO THE FIBERGLASS TANKS AND AS SPECIFIED AND REQUIRED WITH ANY REQUIRED MODIFICATIONS.



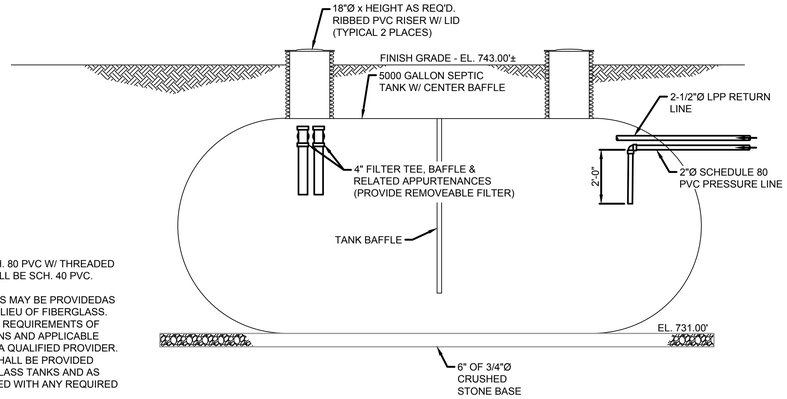
TANKS - PLAN

3'-0" 2'-0" 1'-0" 0' 3'-0"
SCALE: 3/8" = 1'-0"



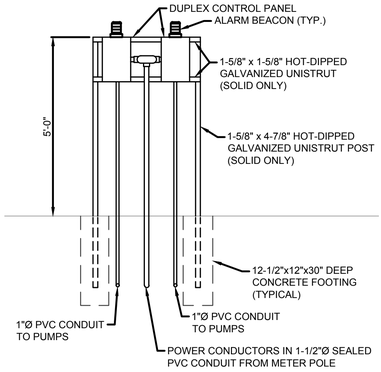
SECTION A-A

3'-0" 2'-0" 1'-0" 0' 3'-0"
SCALE: 3/8" = 1'-0"



SECTION B-B

3'-0" 2'-0" 1'-0" 0' 3'-0"
SCALE: 3/8" = 1'-0"



CONTROL PANEL

NTS

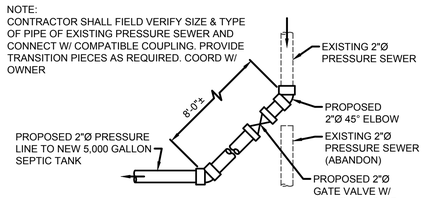
NOTES:
ALL NUTS, BOLTS, WASHERS, AND HARDWARE SHALL BE STAINLESS STEEL.

PUMP CONTROL SYSTEM SHALL BE AS PER SUPPLIER AND FOR APPLICATION.

SYSTEM SHALL GENERALLY CONSIST OF A PROGRAMMABLE LOGIC CONTROLLER WHICH WILL PROVIDE TIMER CONTROLS WITH FLOAT OVER-RIDES AND ALARM SYSTEM. CONTROL PANELS SHALL ALSO INCLUDE PROVISION FOR ALTERNATING PUMPS.

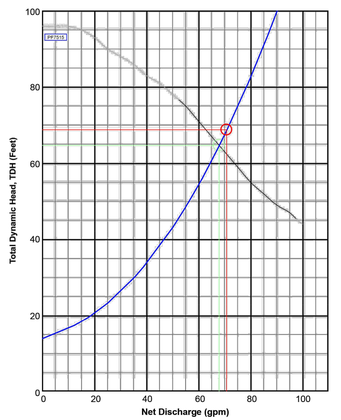
POWER SHALL BE PROVIDED FROM EXISTING METER POLE IN SEALED CONDUIT AND CONNECTED PER SUPPLIER'S RECOMMENDATIONS FOR PANELS/PUMPS.

NOTE:
CONTRACTOR SHALL FIELD VERIFY SIZE & TYPE OF PIPE OF EXISTING PRESSURE SEWER AND CONNECT W/ COMPATIBLE COUPLING. PROVIDE TRANSITION PIECES AS REQUIRED. COORD W/ OWNER



EXIST. FORCE MAIN CONNECTION DETAIL

NTS



NOTE:
CONTRACTOR SHALL PROVIDE COMPLETE PUMP SYSTEM PER SUPPLIER FOR APPLICATION.

Legend
System Curve:
Pump Curve:
Pump Optimal Range:
Operating Point:
Design Point:

PROPOSED PUMP CURVE

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

REGISTERED STATE OF MISSOURI ENGINEER ANDREW TRUITT NUMBER E-2001018784 5-15-24 REGISTERED LAND PROFESSIONAL ENGINEER

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MARINA WASTEWATER SYSTEM IMPROVEMENTS

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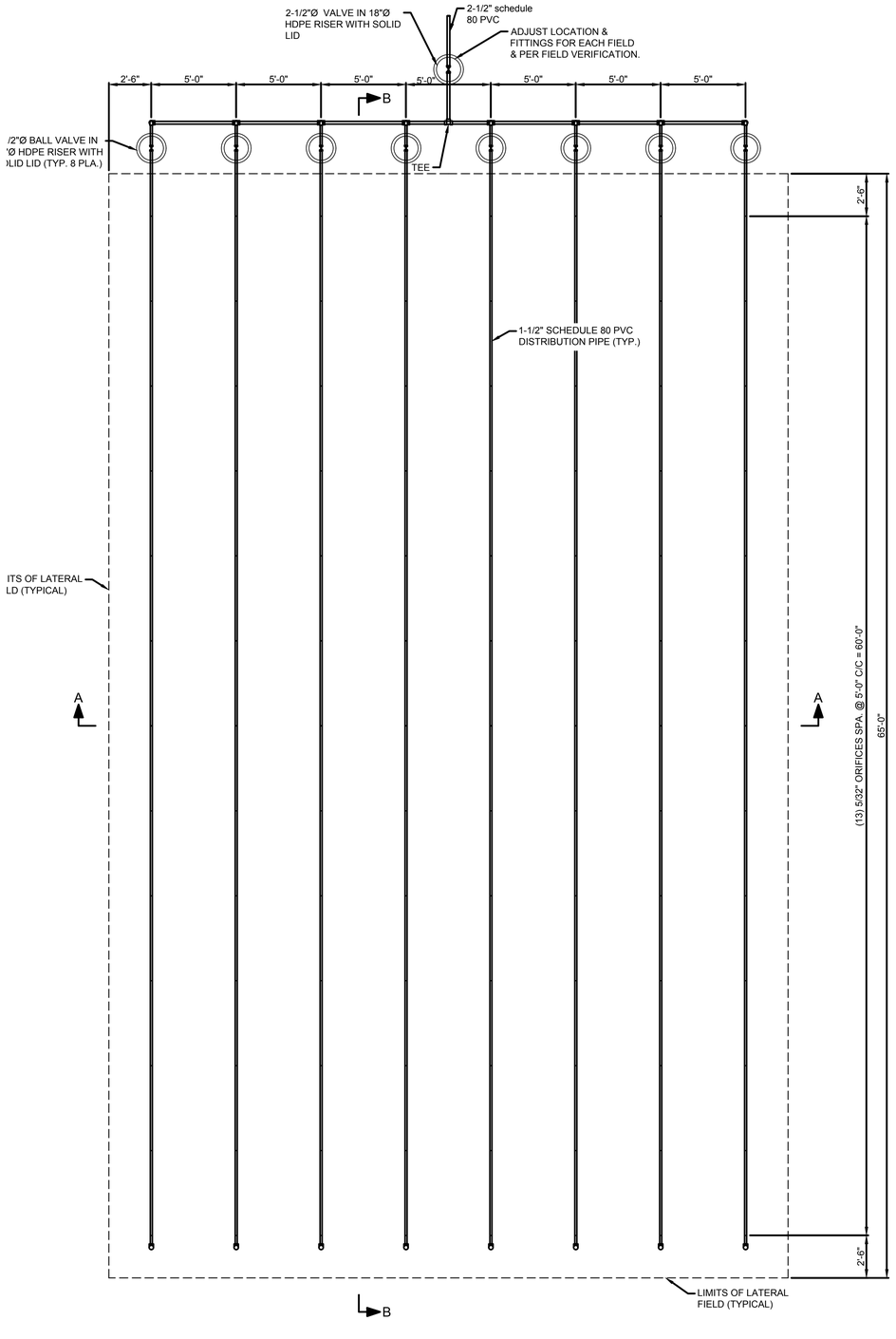
CHECKED BY: OWN STAFF
DESIGNED BY: OWN INC.

SHEET TITLE:
SEPTIC TANK & PUMP TANKS

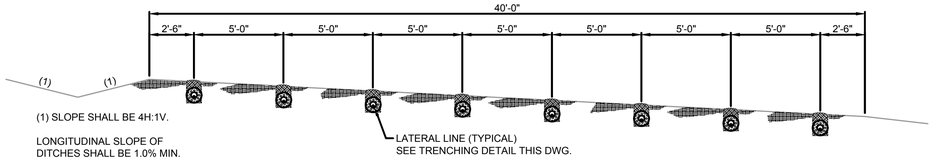
SHEET NUMBER:
C-004
4 OF 9 SHEETS



LATERAL FIELD - PLAN

4'-0" 2'-0" 0 4'-0"

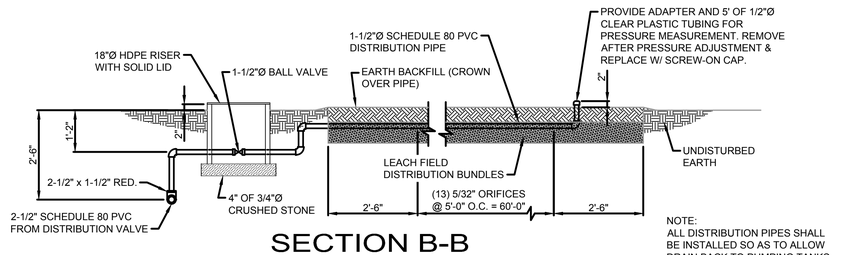
SCALE: 1/4" = 1'-0"



SECTION A-A

4'-0" 2'-0" 0 4'-0"

SCALE: 1/4" = 1'-0"

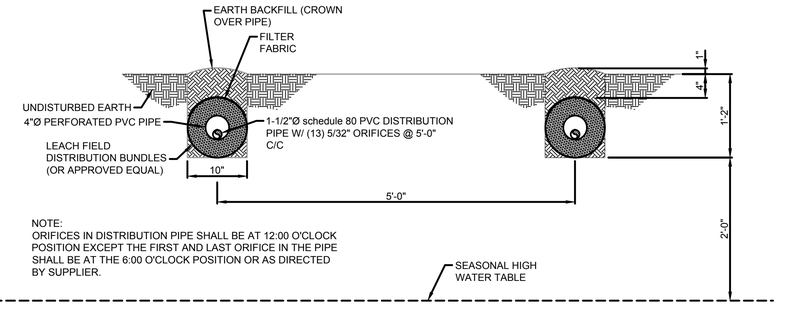


NOTE:
ALL DISTRIBUTION PIPES SHALL BE INSTALLED SO AS TO ALLOW DRAIN BACK TO PUMPING TANKS.

SECTION B-B

2'-0" 1'-0" 0' 2'-0"

SCALE: 1/2" = 1'-0"



NOTE:
ORIFICES IN DISTRIBUTION PIPE SHALL BE AT 12:00 O'CLOCK POSITION EXCEPT THE FIRST AND LAST ORIFICE IN THE PIPE SHALL BE AT THE 6:00 O'CLOCK POSITION OR AS DIRECTED BY SUPPLIER.

TRENCHING DETAIL

1'-0" 0'-6" 0' 1'-0"

SCALE: 1" = 1'-0"

SOILS REQUIREMENTS

REGARDING SOILS USED FOR LEACH FIELD TRENCHES. IF ANY SOILS ARE TO BE IMPORTED TO THE PROPERTY, THE CONTRACTOR SHALL SUPPLY THE FOLLOWING::

1) PHYSICAL CHARACTERISTICS THAT ARE UNIFORM IN TEXTURE, STRUCTURE, AND PORE SPACE;

2) TRANSPORTATION METHODS THAT ENSURES UNIFORMITY AND CONSISTENCY OF THE PHYSICAL CHARACTERISTICS AS CLOSE AS POSSIBLE TO THE ORIGINAL STATE UPON DELIVERY;

3) A SANDY TO LOAMY MATERIAL, WITH LESS THAN TEN PERCENT (10%) CLAY AND LESS THAN FIFTEEN PERCENT (15%) ORGANIC DEBRIS PRESENT;

4) METHODS FOR REMOVAL OF THE ORGANIC LAYER;

5) NO COMPACTION OF IMPORTED SOIL;

6) PLACEMENT IN SMALL "LIFT" INCREMENTS OF FOUR TO SIX INCHES (4"–6") INSTEAD OF ONE (1) THICK LAYER; AND

7) NATIVE SOIL IS TO BE USED FOR THE VERTICAL SEPARATION FOR THE SUBSURFACE SOIL DISPERSAL SYSTEMS WITH THE FILL FOR THE CAP BEING IMPORTED SOILS.

NOTES

SLOPE OF LATERAL FIELD SURFACE SHALL BE A MINIMUM OF 1%. INSTALLER SHALL PROVIDE ADEQUATE SURFACE DRAINAGE TO INSURE NO STANDING / PONDING WATER ON THE LATERAL FIELD SURFACE.

INSTALLER SHALL INSURE THAT THE BOTTOM OF THE PROPOSED TRENCHES ARE LOCATED A MINIMUM OF TWO FEET (24") ABOVE ROCK, WATER-IMPEDING FORMATION, SEASONALLY HIGH WATER TABLE, OR WHERE THERE IS EVIDENCE OF CHROMA 2 MOTTLES. REFER TO 10 CSR 20-8.2--(7)(A)2.

INSTALLER SHALL PROVIDE FOR FREEZE PROTECTION OF ALL COMPONENTS WITHIN THE TREATMENT SYSTEM.

INSTALLER SHALL ENSURE UNIFORM DISTRIBUTION OF FLOW IN EACH LATERAL. BETWEEN DOSING EVENTS DRAIN DOWN OF LATERALS AT LOWER ELEVATIONS SHALL BE MINIMIZED.

ADJUST FIELD LOCATION AND LAYOUT WITH OWNER APPROVAL BASED ON FIELD CONDITIONS.

RECORD DRAWINGS ARE REQUIRED FOR ANY SUBSTANTIAL DEVIATIONS.

DE-BURR ALL ORIFICES PRIOR TO INSTALLATION.

ALL FITTINGS SHALL BE WATERTIGHT AND GLUED PER APPLICABLE REQUIREMENTS.

FIVE FEET (5') OF RESIDUAL HEAD SHALL BE MAINTAINED AT THE LAST ORIFICE OF EACH LATERAL LINE.

DUE TO THE CUMULATIVE DESIGN FLOW OF THE PROPERTY THE SYSTEM FALLS UNDER DNR JURISDICTION.

FIELD SLOPE LATERALS TO DRAIN TO BOTTOM ORIFICE TO PREVENT FREEZING.

CONTRACTOR MAY OMIT LEACH FIELD DISTRIBUTION BUNDLES. LEACH FIELD DISTRIBUTION BUNDLES SHALL BE OMITTED AND IN LIEU CONSTRUCT LATERAL TRENCHES A MINIMUM OF 12" WIDE. THERE SHALL BE A MINIMUM OF FIVE INCHES (5") OF GRAVEL BELOW AND A MINIMUM OF TWO INCHES (2") OF GRAVEL ABOVE THE LPP LATERALS WITH A MINIMUM OF FOUR INCHES (4") OF BACKFILL. BEDDING MATERIAL SHALL BE CLEAN PEA GRAVEL OR OTHER APPROVED AGGREGATE ROCK AND GRADED OR SIZED BETWEEN THREE-EIGHTHS INCH AND ONE INCH (3/8" – 1"). DO NOT USE CRUSHED LIMESTONE OR DOLOMITE. FINES ARE LIMITED TO ONE PERCENT (1%) AND DO NOT USE MATERIALS PASSING THE NO. 100 SIEVE.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT,
DESIGN AND CONSTRUCTION

DEPARTMENT OF
Natural Resources
Division of State Parks

MARINA WASTEWATER SYSTEM IMPROVEMENTS

HARRY S TRUMAN STATE PARK
WARSAW, MISSOURI

PROJECT # X2308-01
SITE # 5604
FACILITY # 7815604027

REVISION:
DATE:
REVISION:
DATE:
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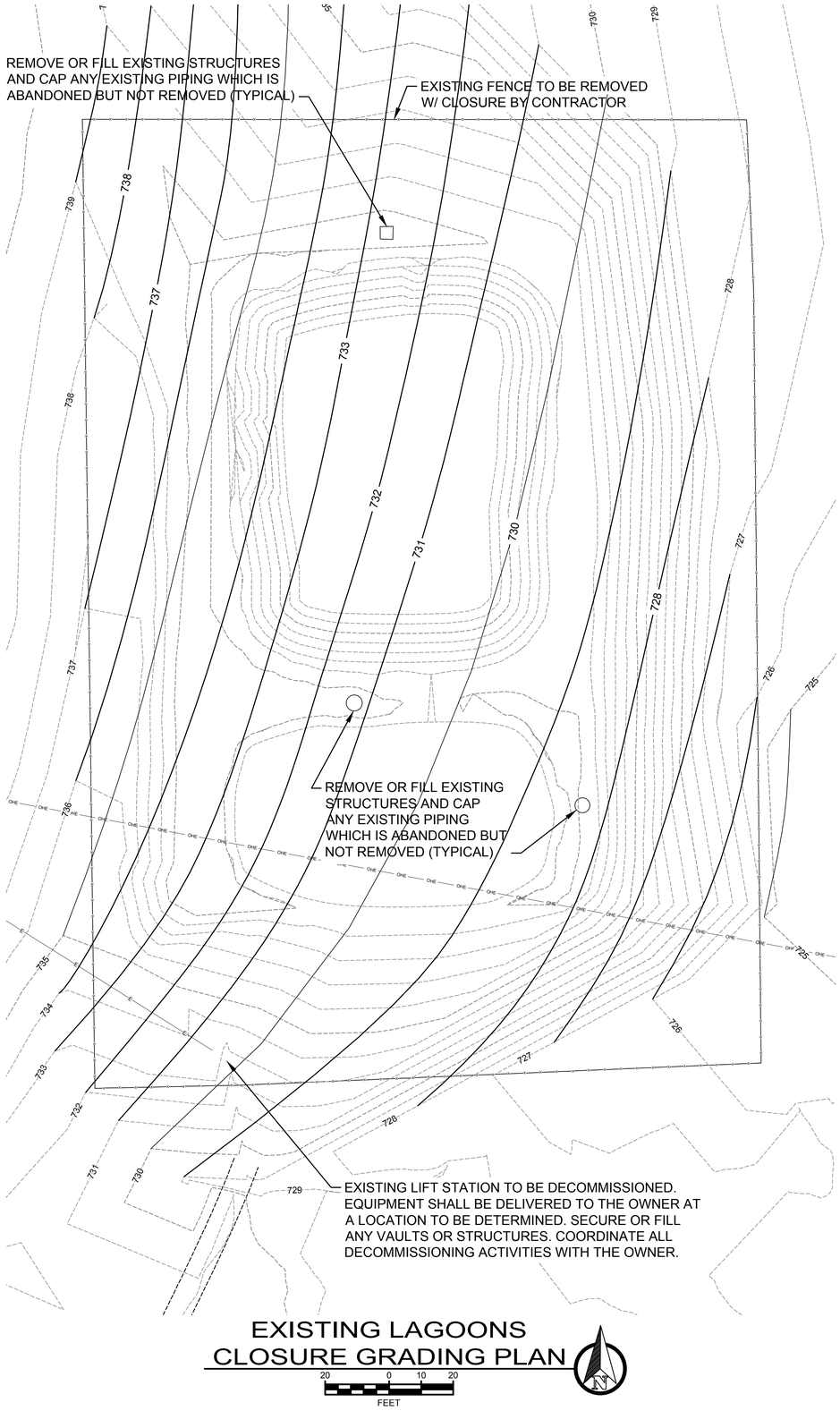
DATE:
ISSUE DATE: 5/15/2024

CAD DWG FILE:
DRAWN BY: OWN STAFF
CHECKED BY: OWN STAFF
DESIGNED BY: OWN INC.

SHEET TITLE:
LATERAL FIELD

SHEET NUMBER:
C-005

5 OF 9 SHEETS



EXISTING LAGOONS CLOSURE GRADING PLAN

GENERAL SUMMARY OF RELATED CLOSURE ACTIVITIES

1. A LICENSED HAULER SHALL PUMP SUPERNATANT INTO A PERMITTED TANK TRUCK AND HAUL TO A PERMITTED TREATMENT PLANT THAT WILL ACCEPT THE WASTEWATER FLOW OR DISPOSED OF BY THE HAULER VIA PERMITTED LAND APPLICATION. THE ESTIMATED VOLUME OF THE SUPERNATANT IS 435,000 GALLONS IN THE PRIMARY CELL AND 385,000 GALLONS IN THE SECONDARY CELL, HOWEVER THESE ARE APPROXIMATE ASSUMED VOLUMES AND THE FINAL VOLUME COULD VARY CONSIDERABLY. THE HAULER SHALL FIELD ASSESS AND COORDINATE WORK WITH THE OWNER AND ENGINEER.

2. SLUDGE SHALL BE REMOVED AND PROPERLY DISPOSED OF PER EPA 503 SLUDGE REGULATIONS. A SLUDGE VOLUME EQUAL TO A WET DEPTH OF 12" MAY BE INCORPORATED INTO THE FILL AND NOT REMOVED.
   a. DEWATER THE REMAINING SLUDGE TO A MAXIMUM WATER CONTENT OF 50%. DEWATERING SHALL BE ACCOMPLISHED BY ALLOWING THE LIQUID TO EVAPORATE, PLOWING OR STIRRING THE SLUDGE AND ALLOWING EVAPORATION TO AGAIN OCCUR. HYDRATED LIME OR OTHER APPROVED ADDITIVES MAY BE MIXED WITH THE SLUDGE TO AID IN THE DEWATERING PROCESS.

3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON-SITE IN ONE OR TWO AREAS. A VEGETATIVE COVER SHALL BE ESTABLISHED ON THE STOCKPILED MATERIAL.

4. REMOVE BERMS AND RE-GRADE SITE AS SHOWN. RIP-RAP MAY BE USED AS PART OF FILL FOR CLOSURE WITH LIME TREATMENT AND COMPACTED IN LIFTS.

5. RAZE OR ABANDON ALL STRUCTURES WITHIN THE FENCED AREA OF THE EXISTING LAGOON. ALL PIPES ABANDONED IN PLACE SHALL BE CAPPED ON EACH END.

6. PLACE TOPSOIL, FINISH GRADE TO FIELD SLOPED TO DRAIN, SEED AND MULCH.

7. ESTABLISH A VEGETATIVE COVER AND MAINTAIN AS REQUIRED.

8. ALL WORK TO BE COORDINATED WITH THE MDNR, OWNER AND ENGINEER.

9. CONTRACTOR SHALL PROVIDE FOR SAMPLING AS NOTED BELOW & IN LAGOON CLOSURE PLAN DOCUMENT. ALL SAMPLING SHALL BE COORDINATED W/ OWNER & ENGINEER.

A. SAMPLING REQUIREMENTS

1. ONCE THE SLUDGE DEPTH HAS BEEN REMOVED AS REQUIRED, SOIL SAMPLES FROM THE FLOOR AND SIDES OF EACH CELL WILL BE SUBMITTED FOR LABORATORY ANALYSIS.
   a. THE POND FLOORS WILL BE DIVIDED INTO TWO EQUAL SECTORS, AND EACH SECTOR WILL BE SUBDIVIDED INTO FOUR EQUAL QUADRANTS. ONE SAMPLE WILL BE COLLECTED FROM EACH QUADRANT. THE FOUR QUADRANT SAMPLES WILL BE COMBINED TO SERVE AS ONE COMPOSITE SAMPLE FOR THAT SECTOR (TWO TOTAL COMPOSITE SAMPLES WILL BE SUBMITTED FOR THE FLOOR).
   b. THE POND WALLS WILL HAVE ONE SAMPLE COLLECTED FROM EACH SIDE. THESE FOUR SAMPLES WILL THEN BE COMBINED TOGETHER TO SERVE AS A COMPOSITE SAMPLE FOR THE POND SIDEWALLS.
   c. ONE SAMPLE WILL BE COLLECTED FROM THE POND INLET.
   d. ONE SAMPLE WILL BE COLLECTED FROM THE POND OUTLET

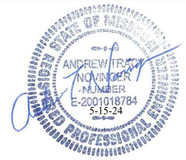
2. THESE FIVE COMPOSITE SAMPLES (PER POND) WILL THEN BE SUBMITTED FOR LABORATORY ANALYSIS FROM AN MDNR APPROVED LABORATORY.

3. IF THE RESULTS CONCLUDE CONTAMINATION WITHIN 40 FEET FROM GROUNDWATER, GROUNDWATER SAMPLING WILL BE REQUIRED.

4. A SAMPLING VERIFICATION REPORT DOCUMENTING POST CLOSURE SAMPLING ACTIVITIES MUST BE PROVIDED TO MDNR. IF THE ANALYTICAL RESULTS INDICATE CONTAMINATION AT OR ABOVE FEDERAL OR STATE GUIDELINES, ADDITIONAL CHARACTERIZATION MAY BE REQUIRED.

NOTE:
FINAL FINISH GRADES SHALL BE FIELD VERIFIED AND ADJUSTED TO BALANCE EARTHWORK VOLUMES (INCLUDING SLUDGE). FINAL FINISH GRADE SHALL PROVIDE POSITIVE DRAINAGE SIMILAR TO PATTERN SHOWN.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR



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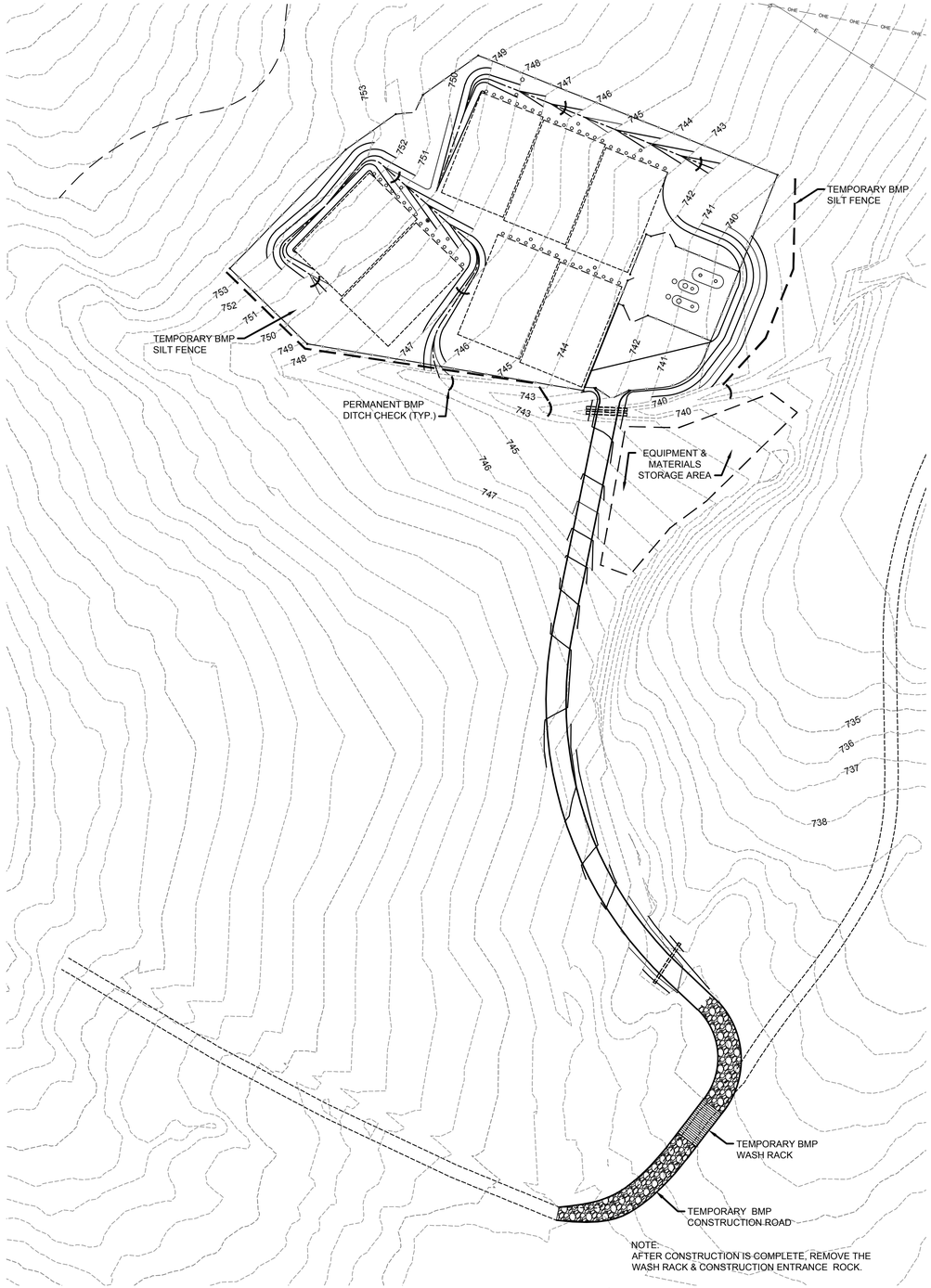
SHEET TITLE:

GRADING PLAN
EXISTING LAGOON
CLOSURE

SHEET NUMBER:

C-006



NOTE:
ANY ADDITIONAL EROSION CONTROL MEASURES REQUIRED BY PROJECT TO COMPLY WITH MDNR REGULATIONS NOT INCLUDED IN THE BID SCHEDULE SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

EROSION CONTROL & MAINTENANCE PLAN NOTES:

1. INSTALLATION OF ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY THE CITY OR STATE. CONTRACTOR TO VERIFY REQUIREMENTS PRIOR TO BEGINNING ANY WORK ON PROJECT SITE.
2. PROVIDE TEMPORARY EROSION CONTROL TO CONTAIN ALL SOILS ON SITE. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
3. CONTRACTOR TO RETAIN FLOATABLE WIND BLOWN MATERIALS ON SITE BY STORING ALL TRASH AND BUILDING MATERIAL WASTE IN ENCLOSURES UNTIL PROPER DISPOSAL AT OFF-SITE FACILITIES. CHECK ADJACENT AREAS DAILY AND PICK UP CONSTRUCTION WASTE MATERIALS AND DEBRIS THAT HAVE BLOWN OR WASHED OFF SITE.
4. PERMANENTLY STABILIZE ALL SURFACE AREA WITHIN AND ADJACENT TO THIS SITE THAT IS DISTURBED BY VEHICLES, GRADING AND OTHER CONSTRUCTION FOR THE PROPOSED FACILITY. STABILIZATION IS OBTAINED WHEN THE DISTURBED SURFACE IS COVERED WITH STRUCTURES, PAVING AND OR PERENNIAL VEGETATION HAVING A UNIFORM COVERAGE DENSITY OF AT LEAST 70%. STABILIZATION OF ALL DISTURBED AREA IS REQUIRED BEFORE TERMINATING MAINTENANCE AND REMOVAL OF EROSION CONTROL MEASURES.
5. CONTRACTORS SHALL INSPECT POLLUTION CONTROL MEASURES AT LEAST ONCE EVERY 7 DAYS AND WITHIN 24 HOURS AFTER A STORM EVENT OF 1/2 INCH OR GREATER. DAMAGED MEASURES THAT PROVE TO BE INEFFECTIVE SHALL BE REPLACED WITH MORE EFFECTIVE MEASURES OR ADDITIONAL MEASURES WITHIN SEVEN DAYS. REPEATED FAILURE OF A CONTROL MEASURE REQUIRES INSTALLATION OF A MORE SUITABLE DEVICE TO PREVENT DISCHARGE OF POLLUTANTS FROM THE CONSTRUCTION SITE.
6. CARE SHALL BE TAKEN TO ELIMINATE TO THE MAXIMUM EXTENT POSSIBLE THE ENCROACHMENT OF SEDIMENT INTO ALL STORM DRAIN APPURTENANCES, PUBLIC STREETS, AND ONTO PRIVATE PROPERTY UNTIL IMPERVIOUS MATERIAL (ROAD/PARKING AREA SURFACE) IS APPLIED OR UNTIL PROPOSED LANDSCAPE HAS BEEN ESTABLISHED.
7. REMOVE SEDIMENT DEPOSITS AS NECESSARY AFTER EACH STORM TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. CARE NEEDS TO BE TAKEN TO AVOID UNDERMINING THE FENCE WHEN REMOVING SEDIMENT. SEDIMENT IS TO BE REAPPLIED TO THE SITE AND STABILIZED.
8. ALL GRASS SLOPES WHICH EXCEED 3:1 (H:V) AND SELECT PIPE OUTFALLS SHALL UTILIZE TURF REINFORCEMENT. MATS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND STANDARDS. CONTRACTOR SHALL COORDINATE INSTALLATION INSPECTION WITH MANUFACTURER.
9. ALL DISTURBED AREAS ARE TO BE RE-SEEDED IN ACCORDANCE WITH THE CURRENT REQUIREMENTS AND DESIGN STANDARDS.
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11. CONSTRUCTION ACCESS TO THE SITE SHALL BE LIMITED TO THE APPROVED TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON THE STORMWATER POLLUTION PREVENTION PLAN.
12. EROSION CONTROL DEVICES SHALL BE MAINTAINED DURING THE WHOLE CONSTRUCTION PERIOD BY THE CONTRACTOR.
13. THE INSTALLATION OF SILT FENCE FOR CONSTRUCTION IS TO BE INSTALLED BY THE CONTRACTOR AND IN PLACE BEFORE BEGINNING SITE CONSTRUCTION. HAY BALES OR SIMILAR DEVICES ARE TO BE USED BY THE CONTRACTOR TO MEET THE REQUIREMENTS OF THE ENGINEER. DEVICES TO BE IN PLACE AS SHOWN ON THE PLANS. ADJUSTMENT OF THE LOCATION BY THE CONTRACTOR MAY BE DONE TO MEET EXISTING FIELD CONDITIONS. ALL CONTROLS ARE TO BE LACED WITHIN OWNER'S PROPERTY. ACCUMULATED SEDIMENT IN BASINS WILL REQUIRE REMOVAL DURING CONSTRUCTION OR AFTER EACH RAIN EVENT AND AT THE END OF CONSTRUCTION. EACH BASIN SHALL BE CHECKED AFTER EACH RAIN EVENT. CONTRACTOR TO MINIMIZE THE AREA DISTURBED BY CONSTRUCTION ACTIVITIES AT ANY ONE TIME AND TO PROMPTLY RE-VEGETATE (OR MECHANICALLY STABILIZE) ARE DISTURBED BY CONSTRUCTION ACTIVITY.
14. SILT FENCE SHALL BE PLACED AROUND ALL SOIL SPOIL PILES TO PREVENT EROSION.

SEDIMENT & EROSION CONTROL GENERAL NOTES

1. THIS PLAN SHOWS THE LOCATION AND DETAILS FOR PRIMARY SEDIMENT CONTROLS TO BE CONSTRUCTED. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING EROSION AND DISCHARGE OF SEDIMENT FROM THE SITE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE NECESSARY MEASURES DURING ALL PHASES OF HIS OPERATIONS REGARDLESS OF WHETHER THEY ARE SPECIFICALLY NOTED ON THIS PLAN AND SHALL MAINTAIN AND REPLACE CONTROLS AS NECESSARY DURING THE COURSE OF HIS OPERATIONS.
2. TEMPORARY CONSTRUCTION ENTRANCE(S) AND SILT FENCES, STRAW BALE DIKES OR OTHER INITIAL SEDIMENT CONTROLS SHOWN ON THIS PLAN MUST BE INSTALLED PRIOR TO ANY OTHER WORK.
3. SEDIMENT BASINS SHOWN ON THIS PLAN MUST BE INSTALLED WITHIN TEN (10) CALENDAR DAYS AFTER CONSTRUCTION BEGINS OR AS SOON AS TWO (2) OR MORE ACRES ARE DISTURBED, WHICHEVER OCCURS FIRST.
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5. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST DURING CONSTRUCTION AND SHALL WATER THE CONSTRUCTION AREAS WHENEVER CONDITIONS WARRANT.
6. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ACCUMULATED SEDIMENT FROM STORM DRAINS PRIOR TO APPROVAL OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT RECEIVING OTHER PERMANENT STABILIZATION SUCH AS PAVEMENT, ROOFS, SOD, ETC., SHALL BE SEEDED AND MULCHED, AS SPECIFIED BEFORE TEMPORARY SEDIMENT CONTROLS CAN BE REMOVED AND PRIOR TO FINAL APPROVAL OF CONSTRUCTION.
8. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING BEST MANAGEMENT PRACTICES, (BMPS), WEEKLY AND AFTER IT RAINS IN ACCORDANCE WITH THE MODNR EROSION CONTROL PERMIT.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING COPIES OF THE SEDIMENT AND EROSION CONTROL PLAN, THE STORMWATER POLLUTION PREVENTION PLAN, (SWPPP), AND THE WEEKLY INSPECTION REPORTS ON SITE AT ALL TIME.
10. APPROVAL FOR THESE EROSION CONTROL PLANS IN NO WAY RELEASES THE DEVELOPER/CONTRACTOR FROM THE RESPONSIBILITY FOR ALL SEDIMENT/EROSION CONTROL METHODS TO BE IN COMPLIANCE WITH THE STANDARDS AND CODES OF THE CITY. THIS INCLUDES, BUT IS NOT LIMITED TO; PROPER MAINTENANCE OF ALL CONTROLS IN PLACE AND PROVIDING ADDITIONAL CONTROL AS REQUIRED FOR BOTH SHEET FLOW AND CONCENTRATED FLOW AREAS.

STATE OF MISSOURI
MICHAEL L. PARSON, GOVERNOR

ANDREW TRUE NOWLIN NUMBER E-2001018784 5-15-24

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CAD DWG FILE:
DRAWN BY: OWN STAFF
CHECKED BY: OWN STAFF
DESIGNED BY: OWN INC.

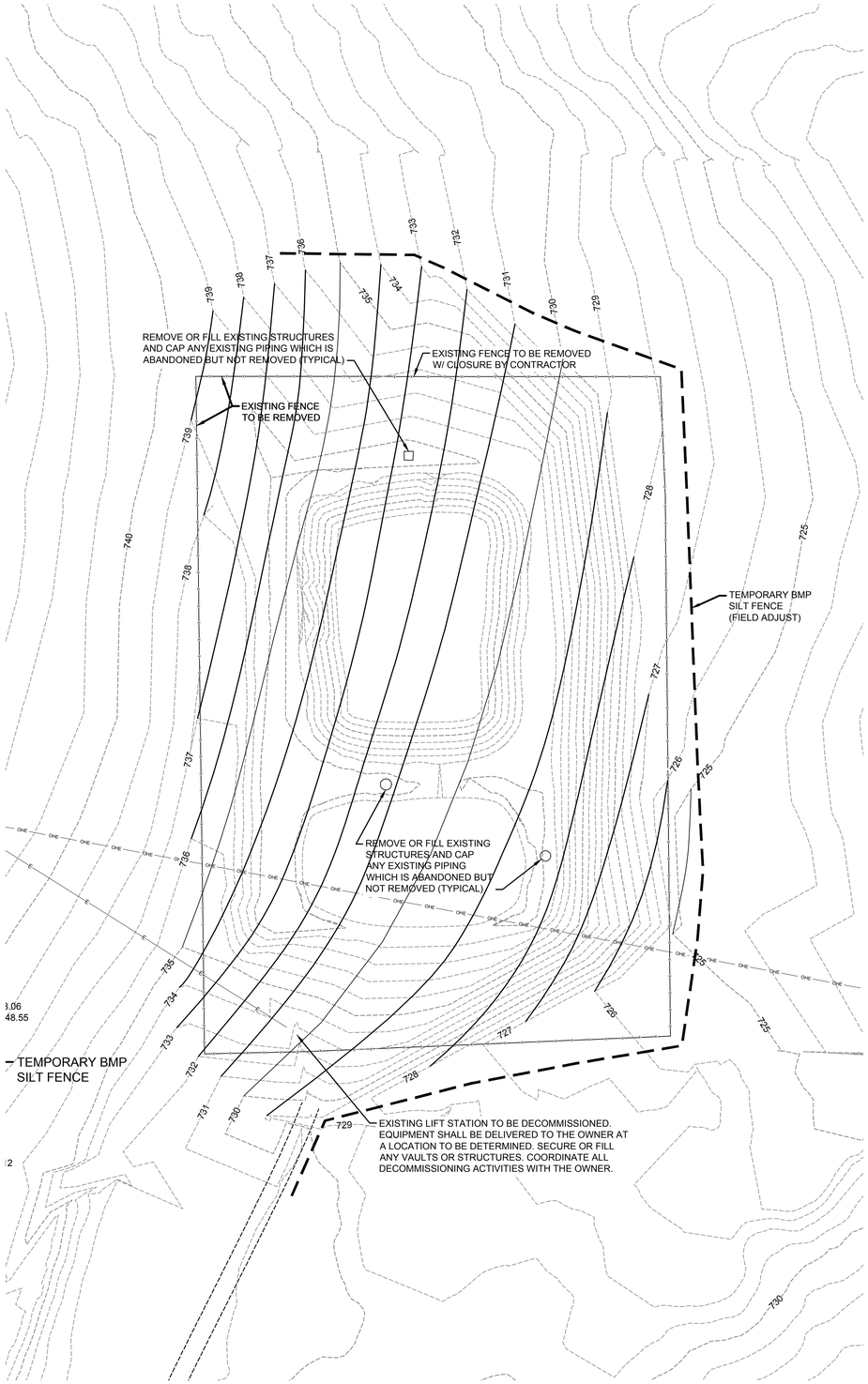
SHEET TITLE:

EROSION CONTROL
PLAN - WWTP

SHEET NUMBER:

C-007

7 OF 9 SHEETS



EROSION CONTROL PLAN

30 0 15 30

FEET

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EQUIPMENT STORAGE FOR THIS PORTION OF THE SITE MAY BE ANYWHERE WITHIN THE TEMPORARY SILT FENCE AREA. NO DESIGNATED SITE WILL BE SHOWN.

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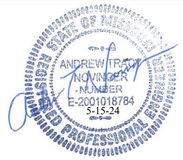

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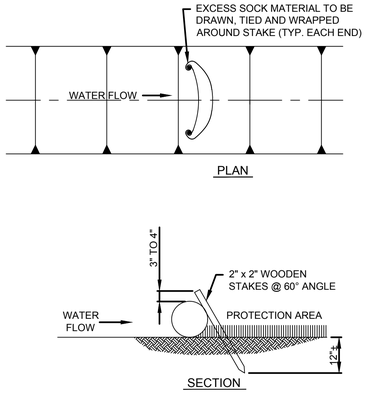
EROSION CONTROL PLAN - LAGOON

SHEET NUMBER:

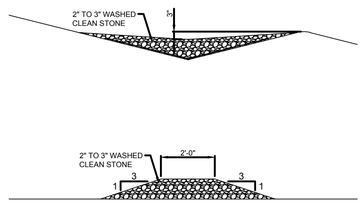
C-008

8 OF 9 SHEETS



COMPOST FILTER SOCK DITCH CHECK DETAILS

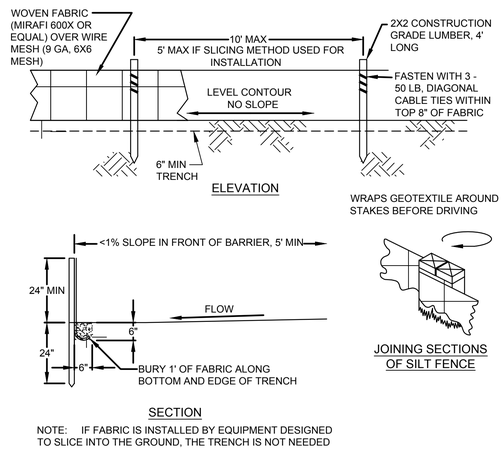
NTS



ROCK DITCH CHECK

NTS

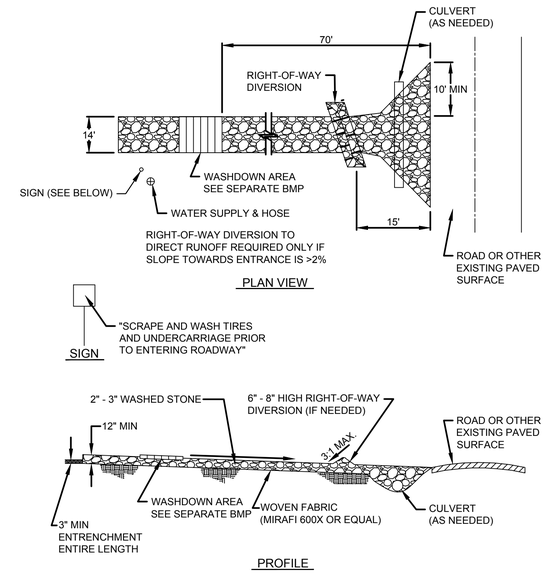
NOTE:
COMPOST FILTER SOCK OR ROCK DITCH CHECKS MAY BE USED



NOTE: IF FABRIC IS INSTALLED BY EQUIPMENT DESIGNED TO SLICE INTO THE GROUND, THE TRENCH IS NOT NEEDED

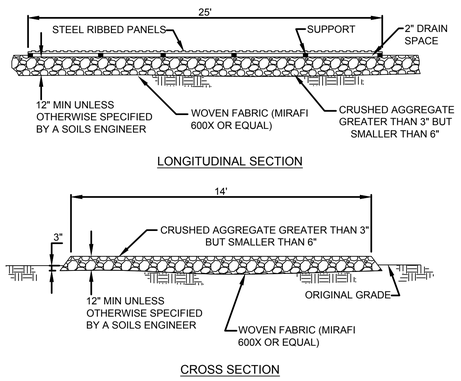
SILT FENCE

NTS



CONSTRUCTION ACCESS ROAD

NTS



WASHDOWN RACK DETAILS

NTS

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ANDREW TRUE NOVINGER
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OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

DEPARTMENT OF
Natural Resources
Division of State Parks

MARINA WASTEWATER SYSTEM IMPROVEMENTS

HARRY S TRUMAN STATE PARK
WARSAW, MISSOURI

PROJECT # X2308-01
SITE # 5604
FACILITY # 7815604027

REVISION:
DATE:
REVISION:
DATE:
REVISION:
DATE:
ISSUE DATE: 5/15/2024

CAD DWG FILE:
DRAWN BY: OWN STAFF
CHECKED BY: OWN STAFF
DESIGNED BY: OWN INC.

SHEET TITLE:

EROSION CONTROL DETAILS (BMPS)

SHEET NUMBER:

C-009

9 OF 9 SHEETS