# INDIAN HILL PARK SITE IMPROVEMENTS PHASE II

CITY OF WORCESTER, MASSACHUSETTS APRIL, 2022

DESIGN AND CONSTRUCTION DOCUMENTS



# INDEX OF DRAWINGS

EXISTING CONDITIONS PLAN	L-101
GENERAL NOTES SHEET	L-102
DEMOLITION PLAN	L-103
SITE LAYOUT PLAN	L-104
GRADING AND DRAINAGE PLAN	L-105
LANDSCAPE PLAN	L-106
LANDSCAPE NOTES AND DETAILS	L-107
LANDSCAPE DETAILS	L-108-L-114
IRRIGATION PLANS AND DETAILS	IR-1.0-IR-2.1
ELECTRICAL PLANS AND DETAILS	E-101-E-405



LOCUS MAP - 1:200

Map Source - MSN Maps Microsoft Corporation 2011

EDWARD M. AUGUSTUS, JR. CITY MANAGER

JAY J. FINK, Jr., P.E.

COMMISSIONER

DEPARTMENT OF PUBLIC WORKS AND PARKS

Robert C. Antonelli, Jr.

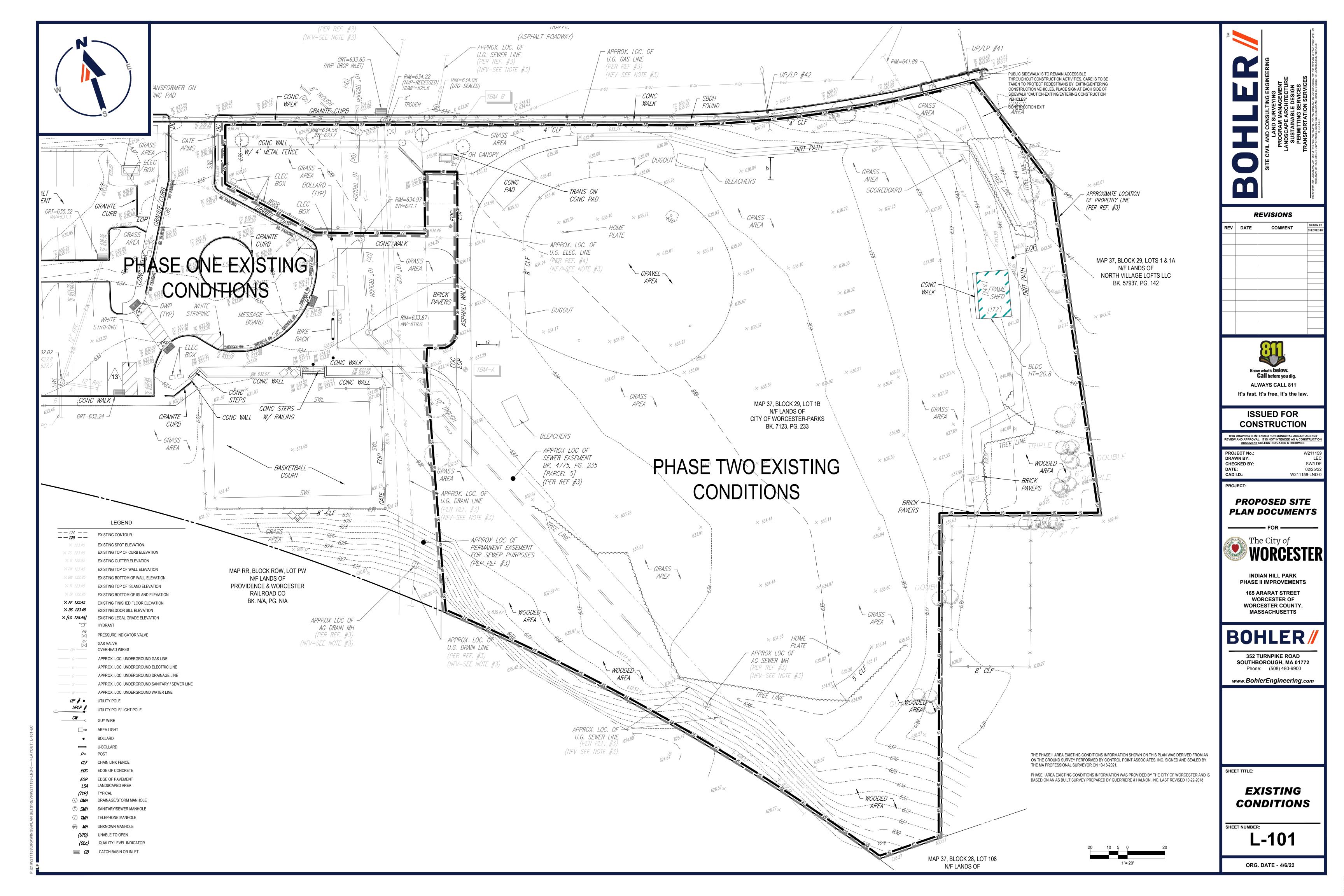
ASSISTANT COMMISSIONER

DEPARTMENT OF PUBLIC WORKS AND PARKS

Prepared For:

DEPARTMENT OF PUBLIC WORKS AND PARKS

Prepared By:
BOHLER ENGINEERING, MA. LLC
352 TURNPIKE RD
SOUTHBOROUGH, MA 01772
(508) 480-9900



UBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS.

THE FOLLOWING DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THIS SITE PLAN:

THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.

TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES. AT ANY TIME.

• TOPOGRAPHIC AND UTILITY SURVEY PREPARED FOR CITY OF WORCESTER-PARKS BY CONTROL POINT ASSOCIATES INC., ISSUED ON 09-16-2021.

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST VERIFY THAT HE/SHE HAS THE LATEST EDITION OF THE DOCUMENTS REFERENCED ABOVE.

THIS IS CONTRACTOR'S RESPONSIBILITY. ALL ACCESSIBLE (A/K/A ADA) PARKING SPACES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF THE REQUIREMENTS OF THE

PROJECT IS TO BE CONSTRUCTED, AND ANY AND ALL AMENDMENTS TO BOTH WHICH ARE IN EFFECT WHEN THESE PLANS ARE COMPLETED. PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE COMMENTS TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND CONFIRMED THAT ALL NECESSARY OR REQUIRED PERMITS HAVE BEEN OBTAINED.

CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.

5. ALL WORK MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND CONDITIONS OF APPROVAL, AND ALL APPLICABLE REQUIREMENTS RULES. REGULATIONS. STATUTORY REQUIREMENTS. CODES. LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT.

THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH HEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN THE PLANS AND THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR MUST NOTIFY THE TO PROCEEDING WITH ANY FURTHER WORK.

THESE PLANS ARE BASED ON INFORMATION PROVIDED TO BOHLER ENGINEERING BY THE OWNER AND OTHERS PRIOR TO THE TIME OF PLAN PREPARATION. CONTRACTOR MUST FIELD VERIFY EXISTING CONDITIONS AND NOTIFY BOHLER ENGINEERING, IN WRITING, IMMEDIATELY IF ACTUAL SITE CONDITIONS DIFFER FROM

ALL DIMENSIONS SHOWN ON THE PLANS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE REDONE OR REPAIRED DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO CONTRACTOR GIVING ENGINEER WRITTEN NOTIFICATION OF SAME AND ENGINEER, THEREAFTER, PROVIDING CONTRACTOR WITH WRITTEN 8 AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.

). CONTRACTOR MUST REFER TO THE ARCHITECTURAL/BUILDING PLANS "OF RECORD" FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.

10. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFUL REVIEW OF THE ENTIRE SITE PLAN AND THE LATEST ARCHITECTURAL PLANS (INCLUDING, BUT NOT LIMITED TO, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLAN, WHERE 10. APPLICABLE). CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND SITE ENGINEER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR

11. DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE AND ALL UNSUITABLE EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY AND ALL GOVERNMENTAL AUTHORITIES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER CONTRACTOR.

PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT. NEARBY AND CONTIGUOUS STRUCTURES AND PROPERTIES. 3. THE CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO

2. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION (TO BE

REMAIN FITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE. 11 MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.

14. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. AND SHALL BEAR ALL COSTS ASSOCIATED WITH SAME 12. TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL INTERCONNECTION CABLE. WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTORY REQUIREMENTS AND STATUTORY REQUIREMENT. ALL DEBRIS FROM CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND TO NOTIFY THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF

15. ALL CONCRETE MUST BE AIR ENTRAINED AND HAVE THE MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED ON THE PLANS,

16 THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS. MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEANS. METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF THE WORK DEPICTED BOTH ON THESE PLANS, AND FOR ANY CONFLICTS/SCOPE REVISIONS WHICH RESULT FROM SAME. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE METHODS/MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION

7. THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY. THE ENGINEER OF RECORD HAS NOT BEEN RETAINED TO PERFORM OR BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF ENGINEER'S SERVICES AS RELATED TO THE PROJECT. THE ENGINEER OF RECORD IS NOT RESPONSIBLE

8. ALL CONTRACTORS MUST CARRY THE SPECIFIED STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND LIMITS OF 17. COMMERCIAL GENERAL LIABILITY INSURANCE (CGL). ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER ENGINEERING, AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES AFFILIATES SUBSIDIARIES AND RELATED ENTITIES AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AS ADDITIONAL NAMED INSURED AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THIS HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED BY THE CONTRACTORS. ALL CONTRACTORS MUST FURNISH BOHLER ENGINEERING WITH CERTIFICATIONS OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE PRIOR TO COMMENCING WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION AND FOR ONE YEAR AFTER THE COMPLETION OF CONSTRUCTION. IN MPLOYEES AFFILIATES SUBSIDIADIES AND RELATED ENTITIES AND ITS SUBCONTRACTORS AND SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES OF ACTION, LIABILITIES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY NNECTED WITH OR TO THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTORS, ALL CLAIMS BY THIRD PARTIES AND ALL CLAIMS RELATED TO THE PROJECT. CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, AT LEAST THIRTY (30) DAYS PRIOR TO ANY TERMINATION, SUSPENSION OR CHANGE OF ITS 20. CONTRACTOR IS REQUIRED TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS FOR ALL OFF SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR 18 INSURANCE HEREUNDER.

SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND/OR METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY FOR SAME HEREUNDER. BOHLER ENGINEERING'S SHOP DRAWING REVIEW WILL BE 22 STORM DRAWING REVIEW WILL BE 23 STORM DRAWING REVIEW WILL BE 25 STO CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM MUST NOT INDICATE THAT BOHLER ENGINEERING HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT PROMPTLY AND IMMEDIATELY BROUGHT TO ITS ATTENTION, IN WRITING, BY THI CONTRACTOR. BOHLER ENGINEERING WILL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS 23. IF APPLICABLE-UNLESS INDICATED OTHERWISE ON THE DRAWINGS, SANITARY SEWER PIPE SHALL BE AS FOLLOWS:

20. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER ENGINEERING, NOR THE PRESENCE OF BOHLER ENGINEERING AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE GENERAL 25. STORM AND SANITARY SEWER PIPE LENGTHS INDICATED ARE NOMINAL AND MEASURED CENTER OF INLET AND/OR MANHOLES STRUCTURE TO CENTER OF STRUCTURE CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, OVERSEEING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT 26. STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON PRELIMINARY ARCHITECTURAL PLANS. CONTRACTOR IS RESPONSIBLE TO AND FOR VERIFYING LOCATIONS OF SAME BASED ON DOCUMENTS AND COMPLIANCE WITH ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER ENGINEERING AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR IS SOLELY 27. RESPONSIBLE FOR JOB SITE SAFETY. BOHLER ENGINEERING SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND MUST BE NAMED AN ADDITIONAL

21. IF THE CONTRACTOR DEVIATES FROM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE ENGINEER FOR SUCH DEVIATIONS, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK DONE WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE ENGINEER, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, IN ACCORDANCE WITH PARAGRAPH 19 HEREIN, FOR AND FROM ALL FEES, ATTORNEYS' FEES, DAMAGES, COSTS, JUDGMENTS, PENALTIES AND THE LIKE RELATED TO SAME.

INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE IN NOTE 19 FOR JOB SITE SAFETY.

ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE.

23. ALL SIGNING AND PAVEMENT STRIPING MUST CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES OR LOCALLY APPROVED SUPPLEMENT

24. ENGINEER IS NOT RESPONSIBLE FOR ANY INJURY OR DAMAGES RESULTING FROM CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS. IF CONTRACTOR AND/OR OWNER FAIL TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH APPROVED PLANS, THEY AGREE TO JOINTLY AND SEVERALLY INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER

ACCORDANCE WITH THE APPROVED PLAN(S) AND DESIGN AND, FURTHER ENGINEER IS NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A RESULT OF SAID FAILURE.

26. ALL DIMENSIONS MUST BE TO FACE OF CURB. EDGE OF PAVEMENT. OR EDGE OF BUILDING. UNLESS NOTED OTHERWISE.

27. ALL CONSTRUCTION AND MATERIALS MUST COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, ORDINANCES, RULES

28. CONTRACTOR AND OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY AND SEVERALLY INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A

29 CONTRACTOR IS RESPONSIBLE TO MAINTAIN ON-SITE STORMWATER POLITION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH EPA REQUIREMENTS FOR SITES WHERE ONE (1) ACRE OR MORE (UNLESS THE LOCAL JURISDICTION REQUIRES FEWER) IS DISTURBED BY CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE.

30 AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED APPLICATION DOCUMENTS PREPARED BY THE SIGNATORY PROFESSIONAL ENGINEER. THE USE OF THE WORDS CERTIFY OR CERTIFICATION CONSTITUTES AN EXPRESSION OF "PROFESSIONAL OPINION" REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE UNDERSIGNED PROFESSIONAL'S KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESSED OR IMPLIED.

# **GENERAL GRADING & UTILITY PLAN NOTES**

CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE NOTES AND SPECIFICATIONS CONTAINED HEREIN. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL 1. LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE INDEPENDENTLY CONFIRMED WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF 1. THIS PLAN REFERENCES DOCUMENTS AND INFORMATION BY ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS MUST BE INDEPENDENTLY CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL DISCREPANCIES MUST IMMEDIATELY BE REPORTED, IN WRITING, TO THE ENGINEER, CONSTRUCTION MUST COMMENCE . \*\*OPOGRAPHIC AND UTILITY SURVEY PREPARED FOR CITY OF WORCESTER-PARKS BY CONTROL POINT ASSOCIATES INC., ISSUED ON 09-16-2021. BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.

> 2. CONTRACTOR MUST VERTICALLY AND HORIZONTALLY LOCATE ALL UTILITIES AND SERVICES INCLUDING, BUT NOT LIMITED TO, GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE OR WORK SPACE, WHICHEVER IS GREATER. THE CONTRACTOR MUST USE, REFER TO, AND COMPLY 3. WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION, AT NO COST TO THE OWNER. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION

"AMERICANS WITH DISABILITIES ACT" (ADA) CODE (42 U.S.C. § 12101 et seq. AND 42 U.S.C. § 4151 et seq.) OR THE REQUIREMENTS OF THE JURISDICTION WHERE THE 3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT AND/OR DISCREPANCY 5. BETWEEN THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE OR APPLICABLE CODES. REGULATIONS, LAWS, RULES, STATUTES AND/OR ORDINANCES, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD, IN WRITING, OF SAID CONFLICT AND/OR DISCREPANCY PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR'S FAILURE TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE CONTRACTOR'S FULL AND COMPLETE ACCEPTANCE OF ALL RESPONSIBILITY TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, STATUTES, ORDINANCES AND CODES AND, FURTHER, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAME.

THE OWNER/CONTRACTOR MUST BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE 4. THE CONTRACTOR MUST LOCATE AND UNAMBIGUOUSLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE AND INACTI TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE AND INACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE

> THE CONTRACTOR MUST FAMILIARIZE ITSELF WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR THE PROJECT. THE CONTRACTOR MUST PROVIDE THE OWNER WITH WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH THE JURISDICTION AND UTILITY COMPANY REQUIREMENTS AND ALL OTHER APPLICABLE REQUIREMENTS. RULES. STATUTES, LAWS, ORDINANCES AND CODES.

ENGINEER, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORTS AND PLANS AND SPECIFICATIONS PRIOR 6. THE CONTRACTOR MUST INSTALL ALL STORM SEWER AND SANITARY SEWER COMPONENTS WHICH FUNCTION BY GRAVITY PRIOR TO THE INSTALLATION OF ALL OTHER UTILITIES. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS. GREASE TRAP REQUIREMENTS/DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE ARCHITECT WILL DETERMINE THE UTILITY SERVICE SIZES. THE CONTRACTOR MUST COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND TO ENSURE THAT PROPER DEPTHS ARE ACHIEVED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT INSTALLATION OF ALL IMPROVEMENTS COMPLIES WITH ALL UTILITY REQUIREMENTS WITH JURISDICTION AND/OR CONTROL OF THE SITE, AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES AND, FURTHER, IS RESPONSIBLE FOR COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE. WHERE A CONFLICT(S) EXISTS BETWEEN THESE SITE PLANS AND THE ARCHITECTURAL PLANS. OR WHERE ARCHITECTURAL PLAN UTILITY CONNECTION

POINTS DIFFER, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, AND PRIOR TO CONSTRUCTION, RESOLVE SAME

WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS MUST BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTOR'S PRICE FOR WATER SERVICE MUST INCLUDE ALL FEES, COSTS AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE FULL AND COMPLETE WORKING SERVICE. CONTRACTOR MUST CONTACT THE APPLICABLE MUNICIPALITY TO CONFIRM THE PROPER WATER METER AND VAULT, PRIOR TO COMMENCING CONSTRUCTION.

ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES/SERVICES MUST BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS

SITE GRADING MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT REFERENCED. IN THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING UNSUITABLE MATERIALS WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT. ALL EXCAVATED OR FILLED AREAS MUST BE COMPACTED AS OUTLINED IN THE GEOTECHNICAL REPORT. MOISTURE CONTENT AT TIME OF PLACEMENT MUST BE SUBMITTED IN A COMPACTION REPORT PREPARED BY A QUALIFIED GEOTECHNICAL ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT MUST BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE BY OWNER/DEVELOPER, OR OWNER/DEVELOPER'S REPRESENTATIVE. SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED AS DIRECTED BY THE GEOTECHNICAL REPORT. EARTHWORK ACTIVITIES INCLUDING, BUT NOT LIMITED TO, EXCAVATION, BACKFILL, AND COMPACTING MUST COMPLY WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. EARTHWORK ACTIVITIES MUST COMPLY WITH THE STANDARD STATE DOT SPECIFICATIONS FOR ROADWAY CONSTRUCTION (LATEST EDITION) AND ANY AMENDMENTS OR REVISIONS THERETO.

ALL FILL. COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION MUST BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND MUST 9. BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS. WHEN THE PROJECT DOES NOT HAVE GEOTECHNICAL RECOMMENDATIONS. FILL AND COMPACTION MUST. AT A MINIMUM, COMPLY WITH THE STATE DOT REQUIREMENTS AND SPECIFICATIONS AND CONSULTANT SHALL HAVE NO LIABILITY OR RESPONSIBILITY FOR OR AS RELATED TO FILL. COMPACTION AND BACKFILL. FURTHER, CONTRACTOR IS FULLY RESPONSIBLE FOR EARTHWORK BALANCE.

AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES AND CONSULTANT SHALL HAVE NO RESPONSIBILITY FOR OR AS RELATED FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES.

THE CONTRACTOR MUST COMPLY, TO THE FULLEST EXTENT, WITH THE LATEST OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION FOR EXCAVATION

REMOVAL OPERATIONS MUST BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.

APPLICABLE STANDARDS, REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. 15. DURING THE INSTALLATION OF SANITARY SEWER, STORM SEWER, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO IDENTIFY THE AS-INSTALLED LOCATIONS OF ALL UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR MUST CAREFULLY NOTE ANY INSTALLATIONS THAT DEVIATE

FROM THE INFORMATION CONTAINED IN THE UTILITY PLAN. THIS RECORD MUST BE KEPT ON A CLEAN COPY OF THE DRAINAGE OR UTILITY PLAN, WHICH CONTRACTOR MUST PROMPTLY

PROVIDE TO THE OWNER AT THE COMPLETION OF WORK 16. WHEN THE SITE IMPROVEMENT PLANS INVOLVE MULTIPLE BUILDINGS, SOME OF WHICH MAY BE BUILT AT A LATER DATE, THE CONTRACTOR MUST EXTEND ALL LINES, INCLUDING BUT NOT LIMITED TO STORM SEWER, SANITARY SEWER, UTILITIES, AND IRRIGATION LINE, TO A POINT AT LEAST FIVE (5) FEET BEYOND THE PAVED AREAS FOR WHICH THE CONTRACTOR IS RESPONSIBLE. CONTRACTOR MUST CAP ENDS AS APPROPRIATE, MARK LOCATIONS WITH A 2X4, AND MUST NOTE THE LOCATION OF ALL OF THE ABOVE ON A CLEAN COPY OF THE

THE CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCING ANY CONSTRUCTION CONTRACTOR MUST CONFIRM AND ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS; 1.0% ON ALL CONCRETE SURFACES; AND 1.5% MINIMUM ON ASPHALT (EXCEPT WHERE ADA REQUIREMENTS OR EXISTING TOPOGRAPHY LIMIT GRADES), TO PREVENT PONDING. CONTRACTOR MUST IMMEDIATELY IDENTIFY, IN WRITING TO THE ENGINEER, ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY. HEALTH OR GENERAL WELFARE, OR PROJECT COST. JE CONTRACTOR PROCEEDS WITH CONSTRUCTION. WITHOUT PROVIDING PROPER NOTIFICATION. MUST BE AT THE CONTRACTOR'S OWN RISK AND, FURTHER, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS THE DESIGN ENGINEER FOR ANY DAMAGES, COSTS, INJURIES, ATTORNEY'S FEES AND THE LIKE WHICH RESULT FROM SAME

ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, GUTTER GRADE ALONG CURB FACE. IT IS CONTRACTOR'S OBLIGATION TO ENSURE THAT DESIGN ENGINEER APPROVES FINAL CURBING CUT SHEETS PRIOR TO INSTALLATION OF SAME.

INJURIES, CLAIMS, ACTIONS, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, TORT DAMAGES, STATUTORY CLAIMS, STATUTORY CLAIMS, STATUTORY CLAIMS, OR RELATIVE TO OTHER PLANS, THE SITE PLAN WILL TAKE PRECEDENCE AND CONTROL. CONTRACTOR MUST 17. IMMEDIATELY NOTIFY THE DESIGN ENGINEER. IN WRITING, OF ANY DISCREPANCIES AND/OR CONFLICTS

MUST SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING ANY WORK 19. BOHLER ENGINEERING WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, 21. WHERE RETAINING WALLS (WHETHER OR NOT THEY MEET THE JURISDICTIONAL DEFINITION) ARE IDENTIFIED ON PLANS, ELEVATIONS IDENTIFIED ARE FOR THE EXPOSED PORTION OF THE WALL. WALL FOOTINGS/FOUNDATION ELEVATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/DETERMINED BY THE CONTRACTOR BASED ON FINAL STRUCTURAL DESIGN SHOP

> POLYETHYLENE PIPE (HDPE) IS CALLED FOR ON THE PLANS. IT MUST CONFORM TO AASHTO M294 AND TYPE S (SMOOTH INTERIOR WITH ANGULAR CORRUGATIONS) WITH GASKET FOR SILT TIGHT JOINT. PVC PIPE FOR ROOF DRAIN CONNECTION MUST BE SDR 26 OR SCHEDULE 40 UNLESS INDICATED OTHERWISE.

FOR PIPES LESS THAN 12 FT. DEEP: POLYVINYL CHLORIDE (PVC) SDR 35 PER ASTM D3034

DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS

DRAINAGE OR UTILITY PLAN, WHICH CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER UPON COMPLETION OF THE WORK.

FOR PIPES MORE THAN 12 FT, DEEP, POLYVINYL, CHI ORIDE (PVC), SDR 26 PER ASTM D3034 FOR PIPE WITHIN 10 FT. OF BUILDING, PIPE MATERIAL SHALL COMPLY WITH APPLICABLE BUILDING AND PLUMBING CODES. CONTRACTOR TO VERIFY WITH LOCAL OFFICIALS.

TRENCHES WITH THE SEWER AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, OR SUCH OTHER SEPARATION AS APPROVED BY THE GOVERNMENT AGENCY WITH

SEWERS CROSSING STREAMS AND/OR LOCATION WITHIN 10 FEET OF THE STREAM EMBANKMENT, OR WHERE SITE CONDITIONS SO INDICATE, MUST BE CONSTRUCTED OF STEEL REINFORCED CONCRETE, DUCTILE IRON OR OTHER SUITABLE MATERIAL. SEWERS CONVEYING SANITARY FLOW COMBINED SANITARY AND STORMWATER FLOW OR INDUSTRIAL FLOW MUST BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES MUST BE IN SEPARATE

JURISDICTION OVER SAME WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER MUST BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED ADA INSTRUCTIONS TO CONTRACTOR: SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER

22. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF TRAFFIC PLAN FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL WATER PURVEYOR. IN THE ABSENCE OF SUCH REQUIREMENTS, WATER MAIN PIPING MUST BE CEMENT-LINED DUCTILE IRON (DIP) MINIMUM CLASS 52 THICKNESS. ALL PIPE AND APPURTENANCES MUST COMPLY WITH THE APPLICABLE AWWA STANDARDS IN EFFECT AT THE TIME OF APPLICATION.

> 29. CONTRACTOR MUST ENSURE THAT ALL UTILITY TRENCHES LOCATED IN EXISTING PAVED ROADWAYS INCLUDING SEWER, WATER AND STORM SYSTEMS, MUST BE REPAIRED IN ACCORDANCE WITH REFERENCED MUNICIPAL, COUNTY AND/OR DOT DETAILS AS APPLICABLE. CONTRACTOR MUST COORDINATE INSPECTION AND APPROVAL OF COMPLETED WORK WITH THE AGENCY WITH JURISDICTION OVER SAME.

30. LOCATION OF PROPOSED UTILITY POLE RELOCATION IS AT THE SOLE DISCRETION OF UTILITY COMPANY

25. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES AND DESIGN FEATURES AND DESIGN FEATURES AND RELATED DOCUMENTS, IN STRICT 31. CONSULTANT IS NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, SHALL HAVE NO LIABILITY FOR ANY HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.

# **GENERAL DEMOLITION NOTES**

CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 et seq.), AS

AMENDED AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME BOHLER ENGINEERING HAS NO CONTRACTUAL, LEGAL, OR OTHER RESPONSIBILITY FOR JOB SITE SAFETY OR JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME

THE DEMOLITION PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION, ONLY, REGARDING ITEMS TO BE DEMOLISHED AND/OR REMOVED. THE CONTRACTOR MUST ALSO REVIEW THE OTHER SITE PLAN DRAWINGS AND INCLUDE IN DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY FOR THE CONSTRUCTION OF THE NEW SITE

CONTRACTOR MUST RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS OR SPECIFICATIONS. CONCERNS REGARDING THE APPLICABLE SAFETY STANDARDS, OR THE SAFETY OF THE CONTRACTOR OR THIRD PARTIES IN PERFORMING THE WORK ON THIS PROJECT, WITH BOHLER ENGINEERING, IN WRITING, AND RESPONDED TO BY BOHLER, IN WRITING, PRIOR TO THE INITIATION OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY. ALL DEMOLITION ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, RULES REQUIREMENTS, STATUTES, ORDINANCES AND CODES.

PRIOR TO STARTING ANY DEMOLITION CONTRACTOR IS RESPONSIBLE FOR/TO:

DIRECTION OF THE OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.

A.OBTAINING ALL REQUIRED PERMITS AND MAINTAINING THE SAME ON SITE FOR REVIEW BY THE ENGINEER AND OTHER PUBLIC AGENCIES WITH JURISDICTION THROUGHOUT THE DURATION OF THE PROJECT, SITE WORK, AND DEMOLITION WORK.

B. NOTIFYING, AT A MINIMUM, THE MUNICIPAL ENGINEER, DESIGN ENGINEER, AND LOCAL SOIL CONSERVATION DISTRICT, 72 HOURS PRIOR TO THE START OF WORK.

C.INSTALLING THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE.

D.IN ACCORDANCE WITH STATE LAW, THE CONTRACTOR MUST CALL THE STATE ONE-CALL DAMAGE PROTECTION SYSTEM FOR UTILITY MARKOUT, IN ADVANCE OF ANY

E.LOCATING AND PROTECTING ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN AND ADJACENT TO THE LIMITS OF PROJECT ACTIVITIES. THE CONTRACTOR MUST USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.

F. PROTECTING AND MAINTAINING IN OPERATION, ALL ACTIVE UTILITIES AND SYSTEMS THAT ARE NOT BEING REMOVED DURING ALL DEMOLITION ACTIVITIES. 3. ARRANGING FOR AND COORDINATING WITH THE APPLICABLE UTILITY SERVICE PROVIDER(S) FOR THE TEMPORARY OR PERMANENT TERMINATION OF SERVICE REQUIRED BY

THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR MUST PROVIDE THE UTILITY ENGINEER AND OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTIONAL AND UTILITY COMPANY REQUIREMENTS. H.COORDINATION WITH UTILITY COMPANIES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE AFFECTED

RTIES. WORK REQUIRED TO BE DONE "OFF-PEAK" IS TO BE DONE AT NO ADDITIONAL COST TO THE OWNER. I. IN THE EVENT THE CONTRACTOR DISCOVERS ANY HAZARDOUS MATERIAL. THE REMOVAL OF WHICH IS NOT ADDRESSED IN THE PROJECT PLANS AND SPECIFICATIONS. THE

CONTRACTOR MUST IMMEDIATELY CEASE ALL WORK AND IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF THE DISCOVERY OF SUCH MATERIALS. THE FIRM OR ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. CONTRACTOR MUST PROCEED WITH THE DEMOLITION IN A SYSTEMATIC

AND SAFE MANNER, FOLLOWING ALL THE OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY. THE CONTRACTOR MUST PROVIDE ALL "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN.

CONDITION, OR BETTER. CONTRACTOR SHALL PERFORM ALL REPAIRS AT THE CONTRACTOR'S SOLE EXPENSE. THE CONTRACTOR MUST NOT PERFORM ANY EARTH MOVEMENT ACTIVITIES, DEMOLITION OR REMOVAL OF FOUNDATION WALLS, FOOTINGS, OR OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE UNLESS SAME IS IN STRICT ACCORDANCE AND CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. AND/OR UNDER THE WRITTEN

CONTRACTOR MUST USE NEW MATERIAL FOR ALL REPAIRS. CONTRACTOR'S REPAIR MUST INCLUDE THE RESTORATION OF ANY ITEMS REPAIRED TO THE PRE-DEMOLITION

CONTRACTOR MUST BACKFILL ALL EXCAVATION RESULTING FROM, OR INCIDENTAL TO, DEMOLITION ACTIVITIES. BACKFILL MUST BE ACCOMPLISHED WITH APPROVED BACKFILL MATERIALS, AND MUST BE SUFFICIENTLY COMPACTED TO SUPPORT NEW IMPROVEMENTS AND PERFORMED IN COMPLIANCE WITH THE RECOMMENDATIONS AND GUIDANCE IN THE GEOTECHNICAL REPORT. BACKFILLING MUST OCCUR IMMEDIATELY AFTER DEMOLITION ACTIVITIES, AND MUST BE DONE SO AS TO PREVENT WATER ENTERING THE EXCAVATION. FINISHED SURFACES MUST BE GRADED TO PROMOTE POSITIVE DRAINAGE.

EXPLOSIVES MUST NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF BOTH THE OWNER AND ALL APPLICABLE GOVERNMENTAL AUTHORITIES. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS MUST BE IN PLACE PRIOR TO CONTRACTOR STARTING AN EXPLOSIVE PROGRAM AND/OR ANY DEMOLITION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES. 14. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS MUST BE ADJUSTED, AS NECESSARY, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL

> CONTRACTOR MUST PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE CURRENT FHWA "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), AND THE FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROADWAY

> 13. CONTRACTOR MUST CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY ROAD OPENING OR DEMOLITION ACTIVITIES IN OR ADJACENT TO THE RIGHT-OF-WAY

DEMOLITION ACTIVITIES AND EQUIPMENT MUST NOT USE AREAS OUTSIDE THE DEFINED PROJECT LIMIT LINE, WITHOUT WRITTEN PERMISSION OF THE OWNER AND ALL OVERNMENTAL AGENCIES WITH JURISDICTION.

THE CONTRACTOR MUST USE DUST CONTROL MEASURES TO LIMIT AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR IN ACCORDANCE WITH FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, CONTRACTOR MUST CLEAN ALL ADJACENT STRUCTURES AND IMPROVEMENTS TO REMOVE ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION"

ADDITION, ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS BOHLER ENGINEERING AND 18. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF 0.75%

CONTRACTOR IS RESPONSIBLE FOR SITE JOB SAFETY, WHICH MUST INCLUDE, BUT NOT BE LIMITED TO, THE INSTALLATION AND MAINTENANCE OF BARRIERS, FENCING AND OTHER APPROPRIATE SAFETY ITEMS NECESSARY TO PROTECT THE PUBLIC FROM AREAS OF CONSTRUCTION AND CONSTRUCTION ACTIVITY.

THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IT IS NOT INTENDED TO PROVIDE DIRECTION AS TO THE MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE USED TO ACCOMPLISH THAT WORK. ALL MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE USED MUST BE IN STRICT ACCORDANCE WITH ALL STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR MUST COMPLY WITH ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE

19 DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION WASTES AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH ALL MUNICIPAL COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES. THE CONTRACTOR MUST MAINTAIN RECORDS TO DEMONSTRATE PROPER DISPOSAL ACTIVITIES, TO BE PROMPTLY PROVIDED TO THE OWNER UPON REQUEST

20. CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES THAT ARE CAPPED, ABANDONED IN PLACE, OR RELOCATED DUE TO DEMOLITION ACTIVITIES. THIS RECORD DOCUMENT MUST BE PREPARED IN A NEAT AND WORKMAN-LIKE MANNER, AND TURNED OVER TO THE OWNER/DEVELOPER UPON COMPLETION OF THE WORK

CONTRACTORS MUST EXERCISE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION OF ADA (ACCESSIBLE) ACCESSIBLE COMPONENTS AND ACCESS ROUTES FOR THE SITE. THESE COMPONENTS, AS CONSTRUCTED, MUST COMPLY WITH ALL APPLICABLE STATE AND LOCAL ACCESSIBILITY LAWS AND REGULATIONS AND THE CURRENT ADA AND/OR STATE ARCHITECTURAL ACCESS BOARD STANDARDS AND REGULATIONS' BARRIER FREE ACCESS AND ANY MODIFICATIONS, REVISIONS OR UPDATES TO SAME. FINISHED SURFACES ALONG THE ACCESSIBLE ROUTE OF TRAVELEROM PARKING SPACE PUBLIC TRANSPORTATION, PEDESTRIAN ACCESS, INTER-BUILDING ACCESS TO POINTS OF ACCESSIBLE BUILDING ENTRANCE/EXIT. MUST COMPLY WITH THESE ADA AND/OR ARCHITECTURAL ACCESS BOARD CODE REQUIREMENTS. THESE INCLUDE, BUT

• PARKING SPACES AND PARKING AISLES - SLOPE SHALL NOT EXCEED 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) IN ANY DIRECTION.

CURB RAMPS - SLOPE MUST NOT EXCEED 1:12 (8.3%) FOR A MAXIMUM OF SIX (6) FEET.

ARE NOT LIMITED TO THE FOLLOWING:

• LANDINGS - MUST BE PROVIDED AT EACH END OF RAMPS, MUST PROVIDE POSITIVE DRAINAGE, AND MUST NOT EXCEED 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) IN ANY

 PATH OF TRAVEL ALONG ACCESSIBLE ROUTE - MUST PROVIDE A 36-INCH OR GREATER UNORSTRUCTED WIDTH OF TRAVEL (CAR OVERHANGS AND/OR HANDRAILS CANNOT REDUCE THIS MINIMUM WIDTH). THE SLOPE MUST BE NO GREATER THAN 1:20 (5.0%) IN THE DIRECTION OF TRAVEL, AND MUST NOT EXCEED 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) IN CROSS SLOPE. WHERE PATH OF TRAVEL WILL BE GREATER THAN 1:20 (5.0%), ADA RAMP MUST BE ADHERED TO. A MAXIMUM SLOPE OF 1:12 (8.3%), FOR A MAXIMUM RISE OF 2.5 FEET, MUST BE PROVIDED. THE RAMP MUST HAVE ADA HAND RAILS AND "LEVEL" LANDINGS ON EACH END THAT ARE CROSS SLOPED NO MORE THAN 1:50 IN ANY DIRECTION (1/4" PER FOOT OR NOMINALLY 2.0%) FOR POSITIVE DRAINAGE.

 DOORWAYS - MUST HAVE A "LEVEL" LANDING AREA ON THE EXTERIOR SIDE OF THE DOOR THAT IS SLOPED AWAY FROM THE DOOR NO MORE THAN 1:50 (1/4" PER FOOT OR. NOMINALLY 2.0%) FOR POSITIVE DRAINAGE. THIS LANDING AREA MUST BE NO LESS THAN 60 INCHES (5 FEET) LONG, EXCEPT WHERE OTHERWISE PERMITTED BY ADA STANDARDS FOR ALTERNATIVE DOORWAY OPENING CONDITIONS. (SEE ICC/ANSI A117.1-2003 AND OTHER REFERENCED INCORPORATED BY CODE.)

• WHEN THE PROPOSED CONSTRUCTION INVOLVES RECONSTRUCTION, MODIFICATION, REVISION OR EXTENSION OF OR TO ADA COMPONENTS FROM EXISTING DOORWAYS OR SURFACES CONTRACTOR MUST VERIEY EXISTING FLEVATIONS SHOWN ON THE PLAN. NOTE THAT TABLE 405.2 OF THE DEPARTMENT OF JUSTICE'S ADA STANDARDS FOR ACCESSIBLE DESIGN ALLOWS FOR STEEPER RAMP SLOPES. IN RARE CIRCUMSTANCES. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES AND/OR FIELD CONDITIONS THAT DIFFER IN ANY WAY OR ANY RESPECT FROM WHAT IS SHOWN ON THE PLANS. IN WRITING, BEFORE COMMENCEMENT OF WORK. CONSTRUCTED IMPROVEMENTS MUST FALL WITHIN THE MAXIMUM AND MINIMUM LIMITATIONS IMPOSED BY THE BARRIER FREE REGULATIONS AND THE ADA

• THE CONTRACTOR MUST VERIEY THE SLOPES OF CONTRACTOR'S FORMS PRIOR TO POLIRING CONCRETE. IF ANY NON-CONFORMANCE IS OBSERVED OR EXISTS. CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO POURING CONCRETE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS TO REMOVE, REPAIR AND

IT IS STRONGLY RECOMMENDED THAT THE CONTRACTOR REVIEW THE INTENDED CONSTRUCTION WITH THE LOCAL BUILDING CODE PRIOR TO COMMENCEMENT OF

# TYPICAL ABBREVIATIONS

KEY	DESCRIPTION	KEY	DESCRIPTION
ВС	BOTTOM CURB	PROP.	PROPOSED
TC	TOP CURB	TBR/R	TO BE REMOVED AND REPLACED
вос	BACK OF CURB	TBR	TO BE REMOVED
BW	BOTTOM OF WALL GRADE	TPF	TREE PROTECTION FENCE
TW	TOP OF WALL	BLDG.	BUILDING
EXIST.	EXISTING	SF	SQUARE FEET
BM.	BENCHMARK	SMH	SEWER MANHOLE
EOP	EDGE OF PAVEMENT	DMH	DRAIN MANHOLE
ę	CENTERLINE	STM.	STORM
FF	FINISHED FLOOR	SAN.	SANITARY
V.I.F.	VERIFY IN FIELD	CONC.	CONCRETE
GC	GENERAL CONTRACTOR	ARCH.	ARCHITECTURAL
HP	HIGH POINT	DEP.	DEPRESSED
LP	LOW POINT	R	RADIUS
TYP.	TYPICAL	MIN.	MINIMUM
INT.	INTERSECTION	MAX.	MAXIMUM
PC.	POINT OF CURVATURE	No. /#	NUMBER
PT.	POINT OF TANGENCY	W.	WIDE
PI.	POINT OF INTERSECTION	DEC.	DECORATIVE
PVI.	POINT OF VERTICAL INTERSECTION	ELEV.	ELEVATION
STA.	STATION	UNG.	UNDERGROUND
GRT	GRATE	R.O.W.	RIGHT OF WAY
INV.	INVERT	LF	LINEAR FOOT
DIP	DUCTILE IRON PIPE	LOD	LIMIT OF DISTURBANCE
PVC	POLYVINYL CHLORIDE PIPE	LOW	LIMIT OF WORK
HDPE	HIGH DENSITY POLYETHYLENE PIPE	L.S.A.	LANDSCAPED AREA
RCP	REINFORCED CONCRETE PIPE	±	PLUS OR MINUS
S	SLOPE	۰	DEGREE
ME	MEET EXISTING	Ø / DIA.	DIAMETER

# TYPICAL LEGEND

EXISTING		PROPOSED
11	PROPERTY LINE	
	SETBACK	
	EASEMENT	
	CURB =	
0	STORM MANHOLE	<b>©</b>
<b>(S)</b>	SEWER MANHOLE	<b>©</b>
	CATCH BASIN	
₩F#5	WETLAND FLAG	
	WETLAND LINE	
× 54.83	SPOT ELEVATION	53.52
× TC 54.58 G 53.78	TOP & BOTTOM OF CURB	TC=54.32 BC=53.82
53	CONTOUR	<del></del>
	FLOW ARROW	<b>√5</b> %_
	PAINTED ARROW	<b>—</b>
	RIDGE LINE	
	GAS LINE	
	TELEPHONE LINE	тттт
EE	ELECTRIC LINE	EE
WW	WATER LINE	
OHOH	OVERHEAD WIRE	
======	STORM PIPE	
=======	= SANITARY LINE	SS
10	PARKING COUNT	4
<del></del>	SIGN	<del></del>
<*>	LIGHT POLE	
	GUIDE RAIL -	T T
Ø	UTILITY POLE	ø

REFER TO SOIL EROSION CONTROL

**EROSION NOTES AND DETAILS** 

REFER TO LANDSCAPE NOTES & **DETAILS SHEET FOR TYPICAL** LANDSCAPE NOTES AND DETAILS

REFER TO LIGHTING PLAN FOR TYPICAL LIGHTING NOTES AND TABLES

### DRAWN BY: **CHECKED BY** CAD I.D. W211159-LND

PROJECT:

PROPOSED SITE

PHASE II IMPROVEMENTS **165 ARARAT STREET WORCESTER OF** 

352 TURNPIKE ROAD **SOUTHBOROUGH, MA 01772** 

www.BohlerEngineering.com

NOTES & DETAILS SHEET FOR TYPICAL SHEET TITLE:

**REVISIONS** REV DATE

COMMENT

Call before you dig

**ALWAYS CALL 811** 

It's fast. It's free. It's the law.

**ISSUED FOR** CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENC EVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUC DOCUMENT UNLESS INDICATED OTHERWISE. **PROJECT No.:** 

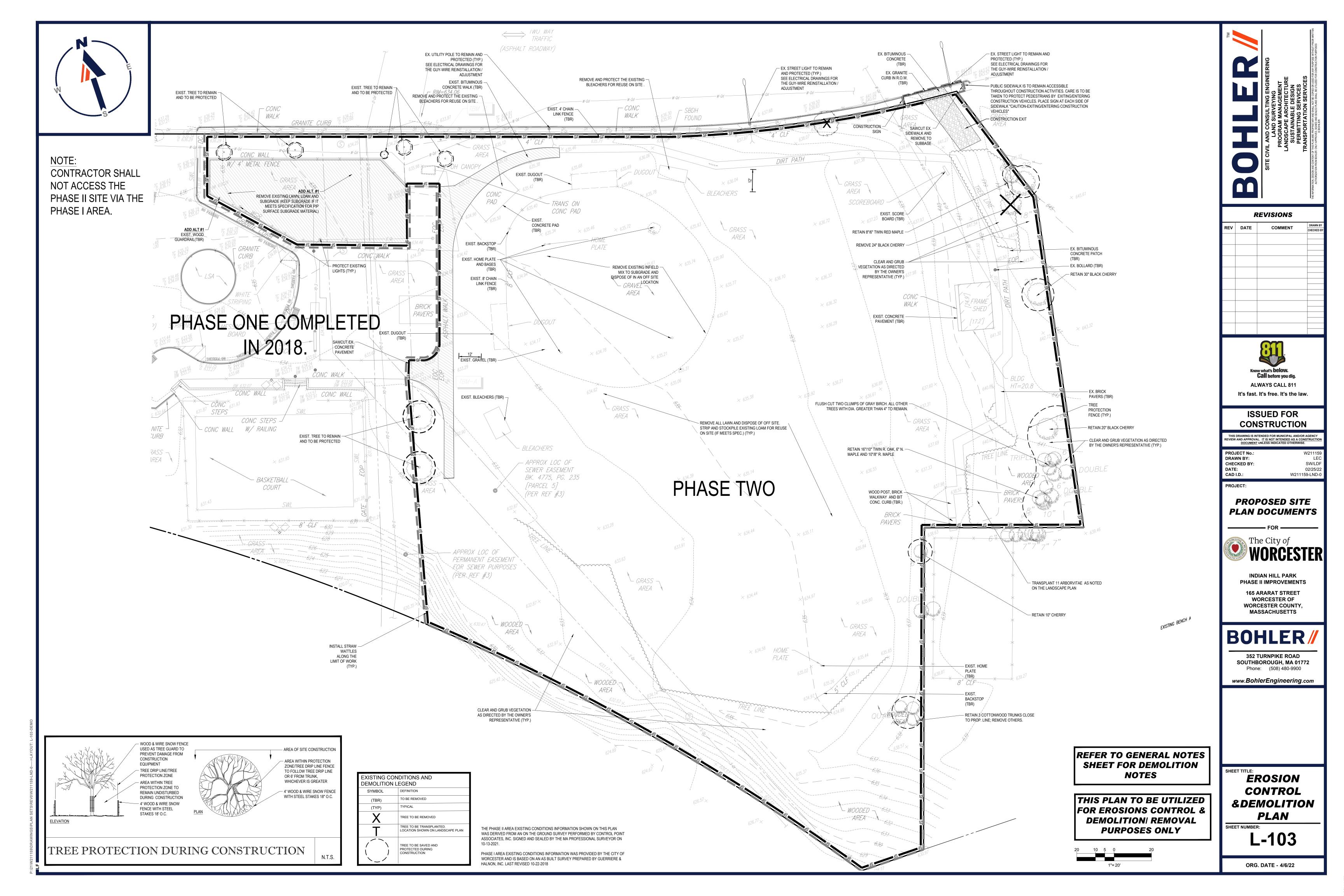
PLAN DOCUMENTS

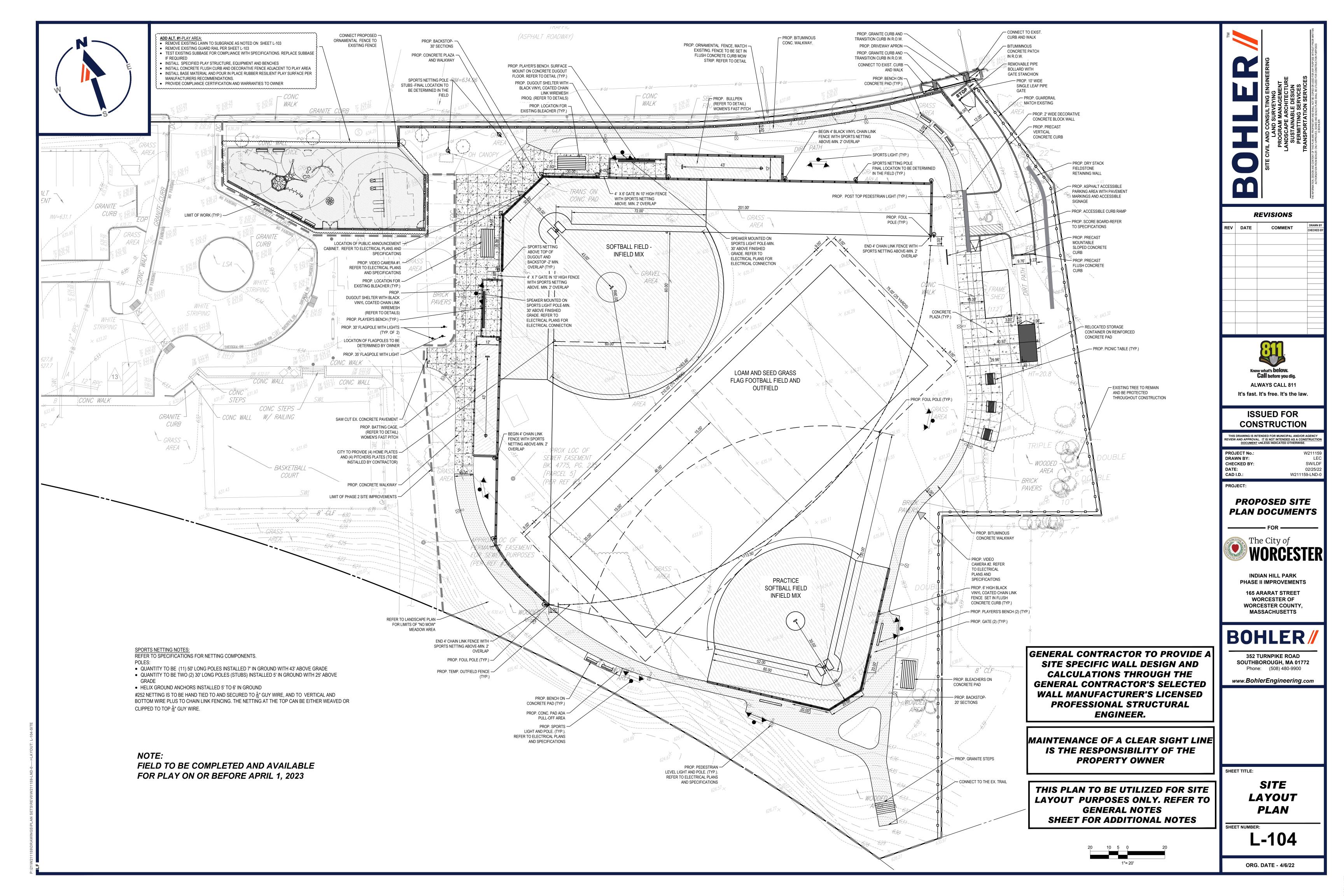
WORCESTER COUNTY,

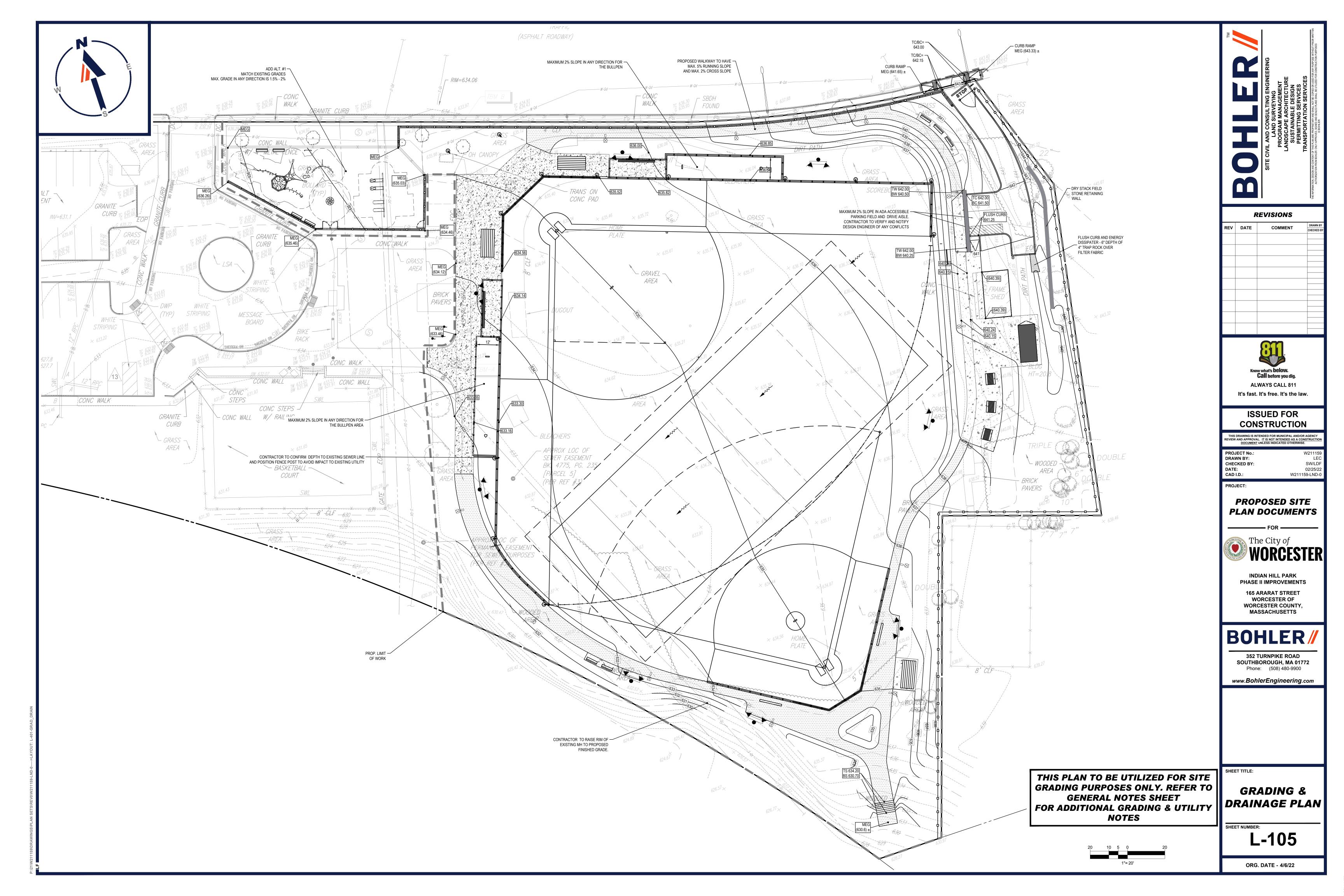
**MASSACHUSETTS** 

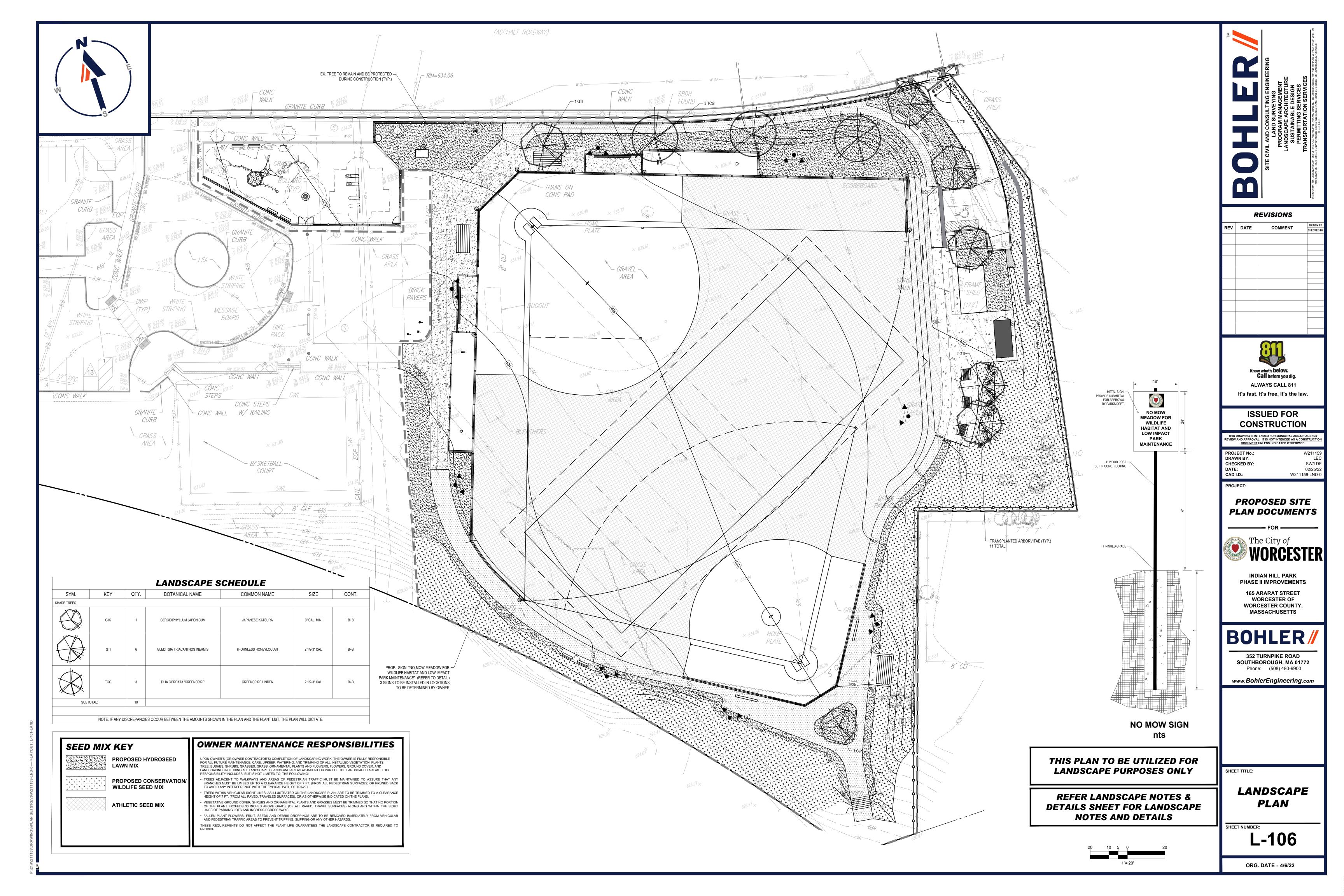
Phone: (508) 480-9900

**GENERAL** 









### LANDSCAPE SPECIFICATIONS

- SCOPE OF WORK: REFER TO PROJECT MANUAL-DIVISION 1 AND DIVISION 2-TECHNICAL SPECIFICATIONS, PLANS AND DETAILS. 1.1. THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION. PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT. UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR
- 2.1. GENERAL ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT
- 2.2. TOPSOIL NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY
- 2.3. LAWN ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM 6" THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED ON THE LANDSCAPE PLAN
- 2.3.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
- SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.
- MULCH ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN AND/OR LANDSCAPE PLAN NOTES /DETAILS.
- FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE
- FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY
- 2.6. PLANT MATERIAL
- ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION (FORMERLY THE AMERICAN, ASSOCIATION OF NURSERYMEN)
- IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL. 2.6.2. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT
- 2.6.3. OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 11/4", WHICH HAVE
- NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
- ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS,
- CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT
- SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH. 2.6.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.
- GENERAL WORK PROCEDURES
- 3.1. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY
- 3.2. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.
- 4.1. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN
- ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE BRANCH COLLAR. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE
- 4.3. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER.
- LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS
- SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY
- 5.4. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE
- SOIL MODIFICATIONS

FINISHED GRADING

- 6.1. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY
- 6.2. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS
- THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY
- TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS. THOROLIGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH
- TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE
- MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
- 7.1. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.
- 7.2. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE
- SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).
- ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT
- 7.4. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.
- CONTRACTOR SHALL PROVIDE A 6" THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.
- ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE

UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS

- AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE. ALL LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA - FOR BID PURPOSES ONLY [SEE SPECIFICATION 6.A.]):
- 8.4.1. 20 POUNDS 'GRO-POWER' OR APPROVED SOIL CONDITIONER/FERTILIZER
- 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP OR APPROVED NITROGEN FERTILIZER
- 8.5. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

- INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.
- PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

- 9.3. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.
- 9.4. ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING
- 9.5. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED
- 9.6. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS. VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
- PLANTS: MARCH 15 TO DECEMBER 15
- LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1
- PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL
- 9.7. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:
  - ACER RUBRUM PLATANUS X ACERIFOLIA BETULA VARIETIES POPULUS VARIETIES CARPINUS VARIETIES PRUNUS VARIETIES CRATAEGUS VARIETIES PYRUS VARIETIES KOELREUTERIA QUERCUS VARIETIES LIQUIDAMBAR STYRACIFLUA TILIA TOMENTOSA
- 9.8. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:

ZELKOVA VARIETIES

1 PART PEAT MOSS 9.8.2. 1 PART COMPOSTED COW MANURE BY VOLUME

LIRIODENDRON TULIPIFERA

- 3 PARTS TOPSOIL BY VOLUME
- 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS: 2 TABLETS PER 1 GALLON PLANT
- 3 TABLETS PER 5 GALLON PLANT
- 4 TABLETS PER 15 GALLON PLANT LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK
- 9.9. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER
- 9.10. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.
- 9.11. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE. 9.12. GROUND COVER AREAS SHALL RECEIVE A 1/4" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO
- PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER
- 9.13. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS
- 9.14. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.
- 9.15. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.
- 10. TRANSPLANTING (WHEN REQUIRED) 10.1. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.
- 10.2. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.
- 10.3. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.
- 10.4. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.
- 10.5. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN. 10.6. F TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

- 11.1. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALI MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.
- 11.2. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY
- 11.3. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE. IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL. BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

# 12. GUARANTEE

- 12.1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF 1 YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED
- 12.2. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE WITHOUT EXCEPTION
- 12.3. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE
- 12.4. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF FRODED OR BARE AREAS
- 13.1. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE. THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.
- 13.2. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR

1.) NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT. 2.) REMOVE ALL NON-BIODEGRADABLE MATERIAL AND ROPE FROM TRUNK & TOP OF ROOT BALL, FOLD BURLAP BACK 1/3 FROM ROOT BAL 3.) PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY 4.) THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS. 5.) THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE ROUGH TO AVOID MATTING OF SOIL LAYERS AS NEW SOIL IS ADDED. IT IS PREFERABLE TO TILL THE FIRST LIFT (2 TO 3 IN.) OF PLANTING SOIL INTO THE SUBSOIL 6.) REFER TO THE CHART "GENERAL RANGE OF SOIL MODIFICATIONS & VOLUMES FOR VARIOUS SOIL CONDITIONS" TO DETERMINE MINIMUM WIDTH OF PREPARED SOIL. AVOID PURCHASING TREES WITH TWO LEADERS 7.) SUBSTITUTE ARBORVITAE STAKING SYSTEM WHEN SPECIFIED. OR REMOVE ONE AT PLANTING: OTHERWISE, DO NOT PRUNE TREE AT PLANTING EXCEPT FOR SPECIFIC STRUCTURAL CORRECTIONS. REINFORCED RUBBER HOSE (1/2" DIA. BLACK) -SET ROOT BALL FLUSH TO GRADE OR SEVERA FOLD BURLAP AWAY FROM TOP OF ROOT INCHES HIGHER IN POORLY DRAINING SOILS. 12 GAUGE GALVANIZED WIRE GUYS TWISTED - 4" BUILT-UP EARTH SAUCER 2" DIA. HARDWOOD STAKES 2/3 TREE HT, 3 3" DOUBLE SHREDDED HARDWOOD BARK MULCH (UNLESS OTHERWISE SPECIFIED) (DO NOT PLACE MULCH IN CONTACT WITH TREE TWICE THE WIDTH OF ROOTBALL FOR PREPARED SOIL FOR TREES. LANDSCAPE FABRIC AS SPECIFIED PREPARED SOIL FOR TREE: 1 PART PEAT MOSS 1 PART COW MANURE 3 PARTS TOPSOIL -(RECOMMENDATION ONLY. SEE SOIL MOD. CHART) UNDISTURBED SUBGRADE - ALL PLANTING CONTAINERS. BASKETS AND NON-BIODEGRADABI E MATERIAI S SHALL DIG WIDE SHALLOW HOLE WITH -BE REMOVED FROM ROOT BALLS. TAMPED SIDES TAMP SOIL SOLIDLY AROUND BASE OF ROOT BALL SET ROOT BALL ON UNDISTURBED SOIL IN BOTTOM OF HOLE

TREE PLANTING DETAIL

SPECIFIED ARBORTIE GREEN (OR WHITE)

STAKING AND GUYING MATERIAL IS TO BE

FLAT WOVEN POLYPROPYLENE MATERIAL

3/4" WIDE, 900 LB. BREAK STRENGTH.

STAKES IN A MANNER WHICH PERMITS

GUYING

ARBORTIE

TREE MOVEMENT AND SUPPORTS THE

INSTALLATION

TIF A SIMPLE KNOT 18-24"

DIAMETER OF THE TREE)

(DEPENDING ON THE

FROM EITHER END OF THE

ARBORTIE SHALL BE FASTENED TO

STAKES TO EACH //

THIS END WRAPPED

KNOT IS TIGHTENEI

THIS END

TO STAKE

AROUND TREE AFTER

WRAP THIS FND AROUND

BELOW THE KNOT THAT

WAS TIED IN STEP 1.

TREE. BEGIN A NEW KNOT

ARBORTIE STAKING DETAIL

N.T.S.

. ANY TREE INSTALLED WITHIN 10 FT. OF NEW CONCRETE

2. TREES SHALL BE INSTALLED ACCORDING TO THE

CONC. SIDEWALK

BARRIER FABRIC AS SHOWN

APPROPRIATE PLANTING DETAIL

BIOBARRIER ROOT-

APPROVED EQUAL

BARRIER FABRIC OR

IOBARRIER ROOT BARRIER

FABRIC TO BE INSTALLED

BOTTOM OF STONE BASE

WHICHEVER IS GREATER

FOLLOW MOTION OF ARBORTIE

AS SHOWN FINISHING THE KNOT

BY PULLING TIGHTLY ON POINTS

A AND B AT THE SAME TIME.

TO STAKE

TO THE DEPTH OF THI

COURSE OR 10"

SIDEWALKS SHOULD BE INSTALLED WITH BIOBARRIER ROOT

CONSTRUCTION TREE PROTECTION FENCE SHALL BE INSTALLED TO FOLLOW TREE CANOPY DRIP I INF OR PROPOSED LIMITS OF DISTURBANCE. -4' HIGH WOOD & WIRE SNOW FENCE W/WOOD STAKES AT A MAXIMUM OF 8' ON CENTER. AS AN OPTION. ORANGE/FLOURESCENT HIGH-DENSITY "VISI-FENCE" OR APPROVED EQUAL CAN BE USED. -WOOD & WIRE SNOW FENCE USED AS TREE GUARD TO PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT. TREE DRIP LINE/TREE PROTECTION ZONE -AREA WITHIN TREE PROTECTION ZONE TO REMAIN UNDISTURBED DURING CONSTRUCTION. -6' WOOD OR STEEL FENCE POSTS AT 8' MAXIMUM CENTER TO CENTER (MINIMUM 2' BELOW GRADE). **ELEVATION** 

ROOT BARRIER DETAIL AT PLAY AREA

SLIDE KNOT JUST COMPLETED

UP TO THE KNOT TIED IN STEP 1

FASTEN FREE END TO STAKE OR

THIS END

TO STAKE

STEP 5:

THE ARRORKNOT PROVIDES

SECURE, GIRDLE FREE

ATTACHMENT OF THE

ARBORTIE TO TREE.

THIS END

TO STAKE

**ANCHOR** 

AREA OF SITE

REVISIONS REV DATE COMMENT

TREE PROTECTION DURING SITE CONSTRUCTION N.T.S. -SEE DECIDUOUS OR EVERGREEN TREE DETAIL FOR PLANTING PURPOSES

-UNDISTURBED SUBGRADE

(SEE PLANTING DETAIL)

-PREPARED SOIL FOR TREES

Call before you dig **ALWAYS CALL 811** It's fast. It's free. It's the law.

**ISSUED FOR** CONSTRUCTION THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENC

W211159-LND

EVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUC DOCUMENT UNLESS INDICATED OTHERWISE. PROJECT No.

CAD I.D.: PROJECT:

DRAWN BY:

**CHECKED BY** 

THIS END

TO STAKE

PROPOSED SITE **PLAN DOCUMENTS** 



INDIAN HILL PARK PHASE II IMPROVEMENTS

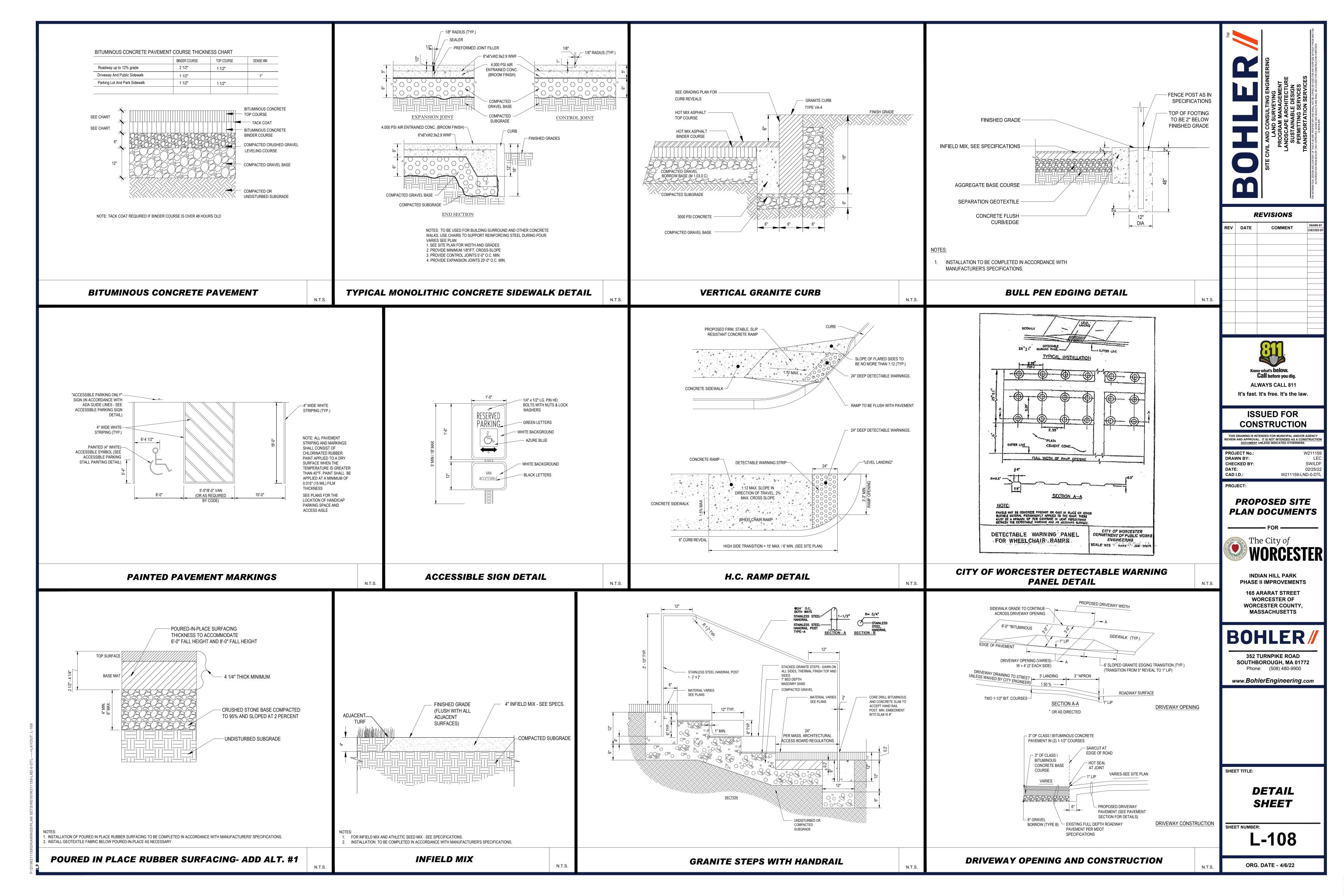
**165 ARARAT STREET** WORCESTER OF WORCESTER COUNTY, MASSACHUSETTS

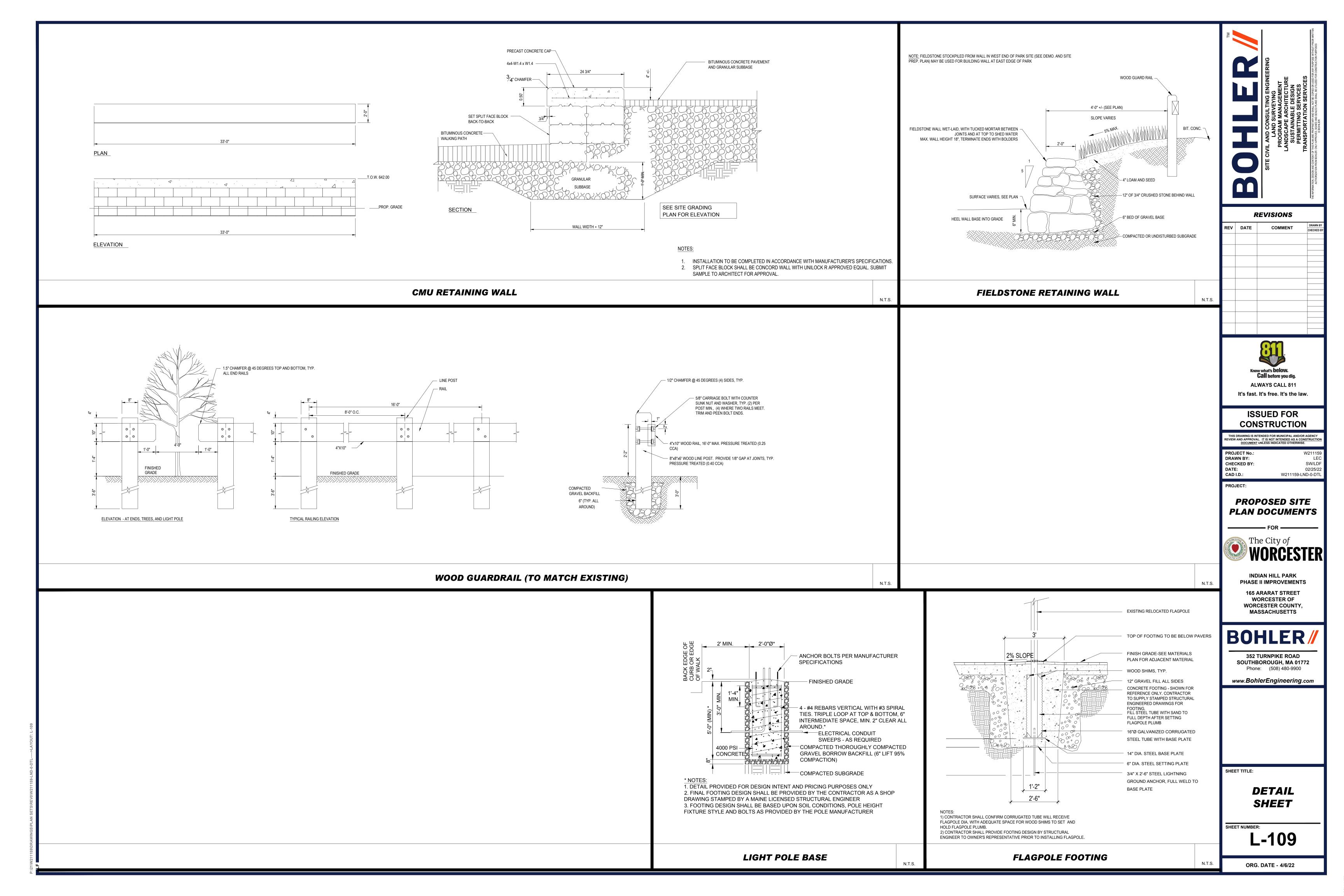
352 TURNPIKE ROAD **SOUTHBOROUGH, MA 01772** Phone: (508) 480-9900

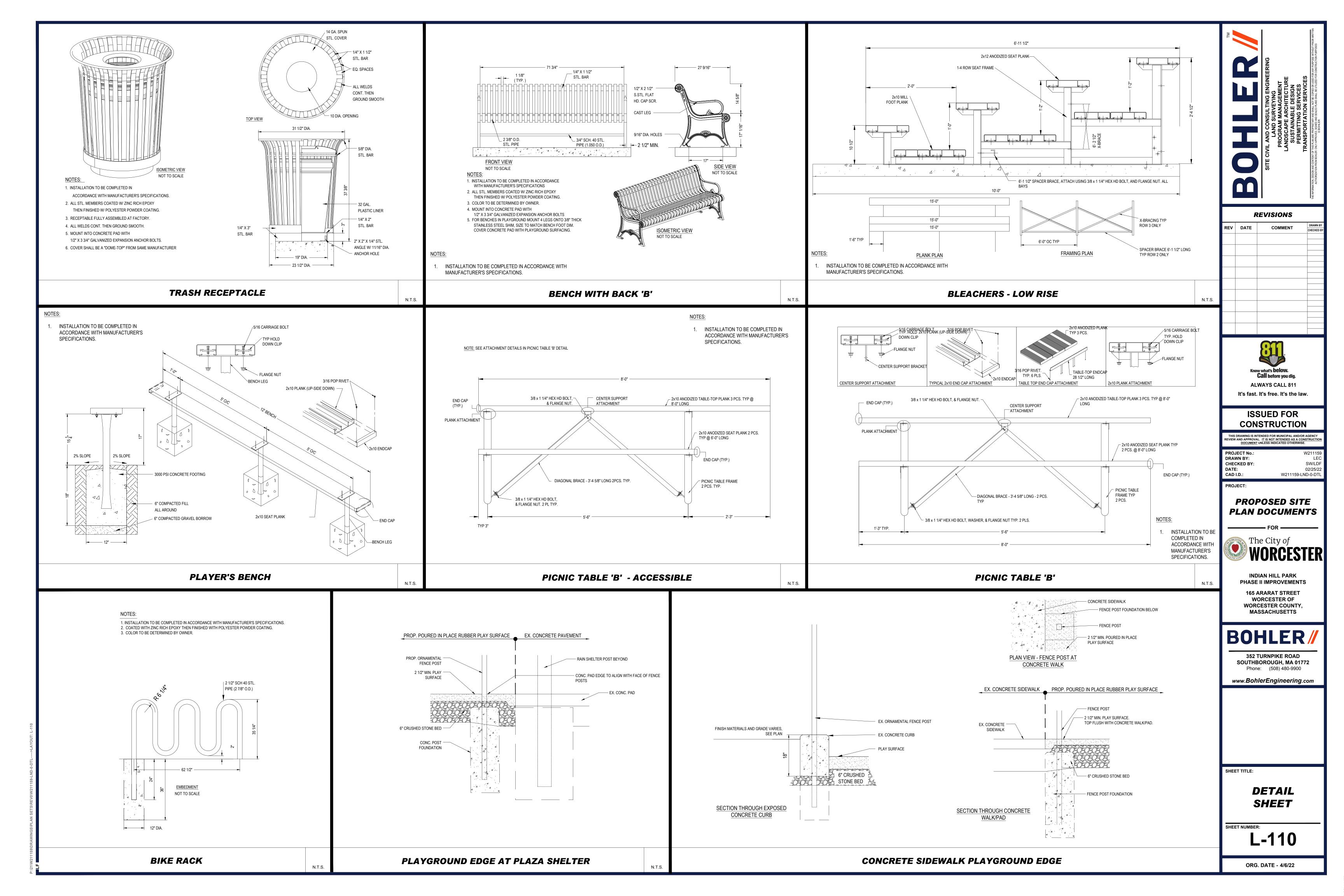
www.BohlerEngineering.com

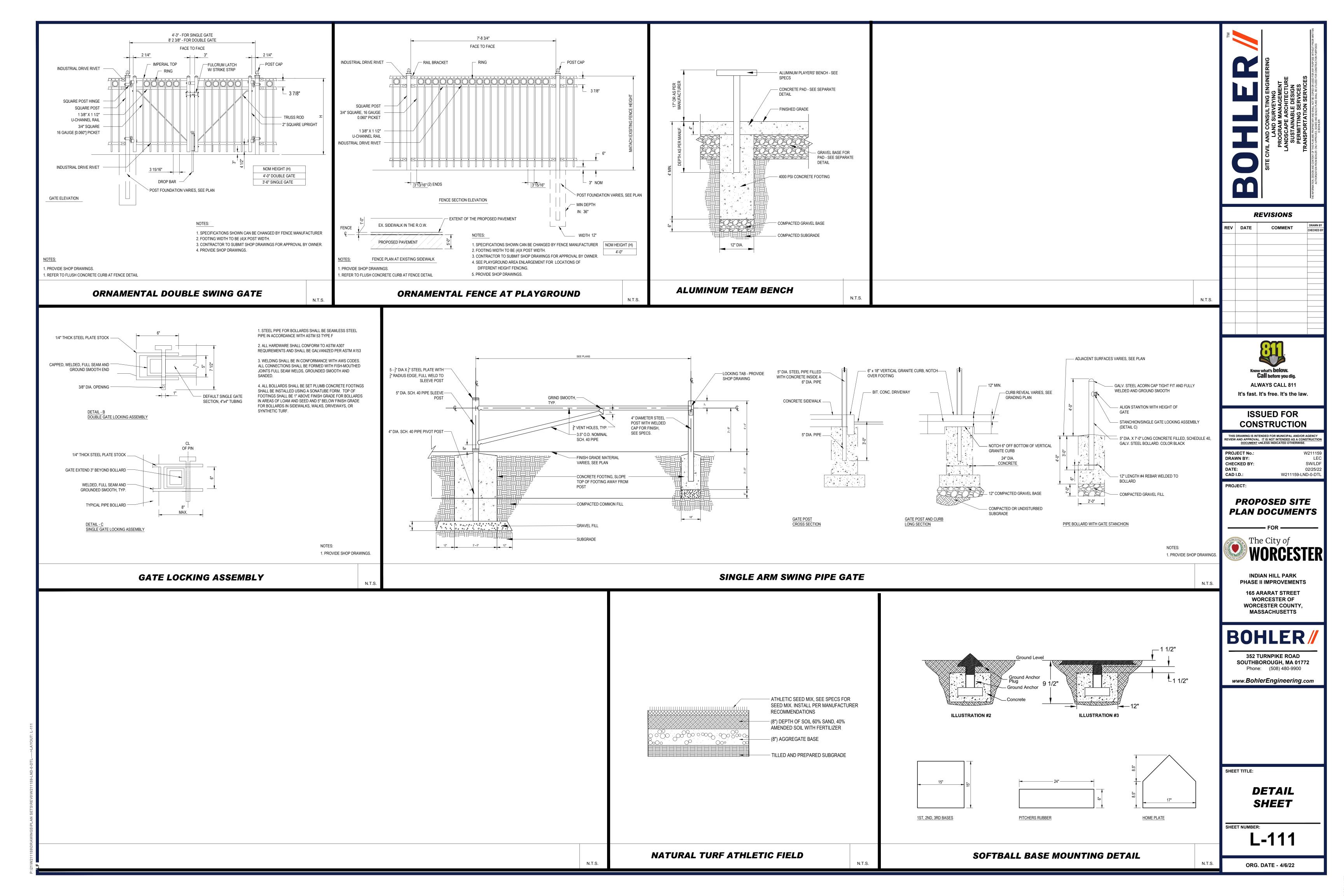
SHEET TITLE:

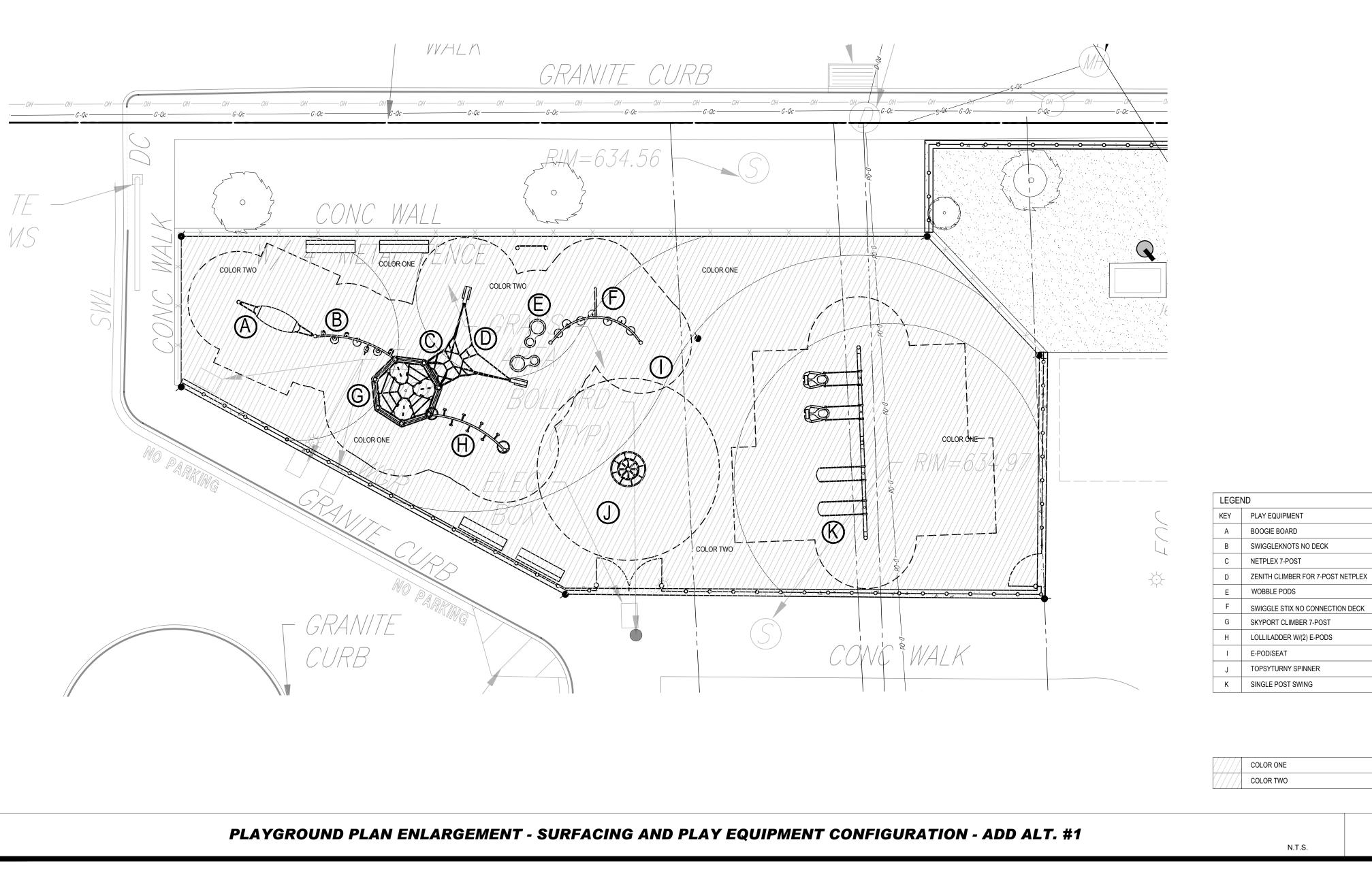
LANDSCAPE **NOTES** & **DETAILS** 















PLAY EQUIPMENT CONFIGURATION - 3D RENDERING

# Know what's below. Call before you dig. ALWAYS CALL 811 It's fast. It's free. It's the law. ISSUED FOR CONSTRUCTION

**REVISIONS** 

REV DATE

PROJECT No.: W211159

DRAWN BY: LEC

CHECKED BY: SW/LDF

DATE: 02/25/22

CAD I.D.: W211159-A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT:

PROPOSED SITE
PLAN DOCUMENTS

— FOR ——



INDIAN HILL PARK

PHASE II IMPROVEMENTS

165 ARARAT STREET
WORCESTER OF
WORCESTER COUNTY,
MASSACHUSETTS

BOHLER/

352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772 Phone: (508) 480-9900

www.BohlerEngineering.com

SHEET TITLE:

DETAIL SHEET

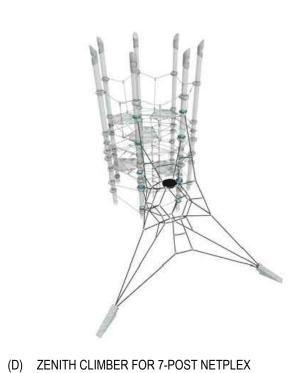
SHEET NUMBER:

L-112

ORG. DATE - 4/6/22



(C) NETPLEX 7-POST









(G) SKYPORT CLIMBER 7-POST

(F) SWIGGLE STIX NO CONNECTION DECK



(B) SWIGGLEKNOTS NO DECK

(I) E-POD/SEAT

(A) BOOGIE BOARD

(H) LOLLILADDER W/(2) E-PODS

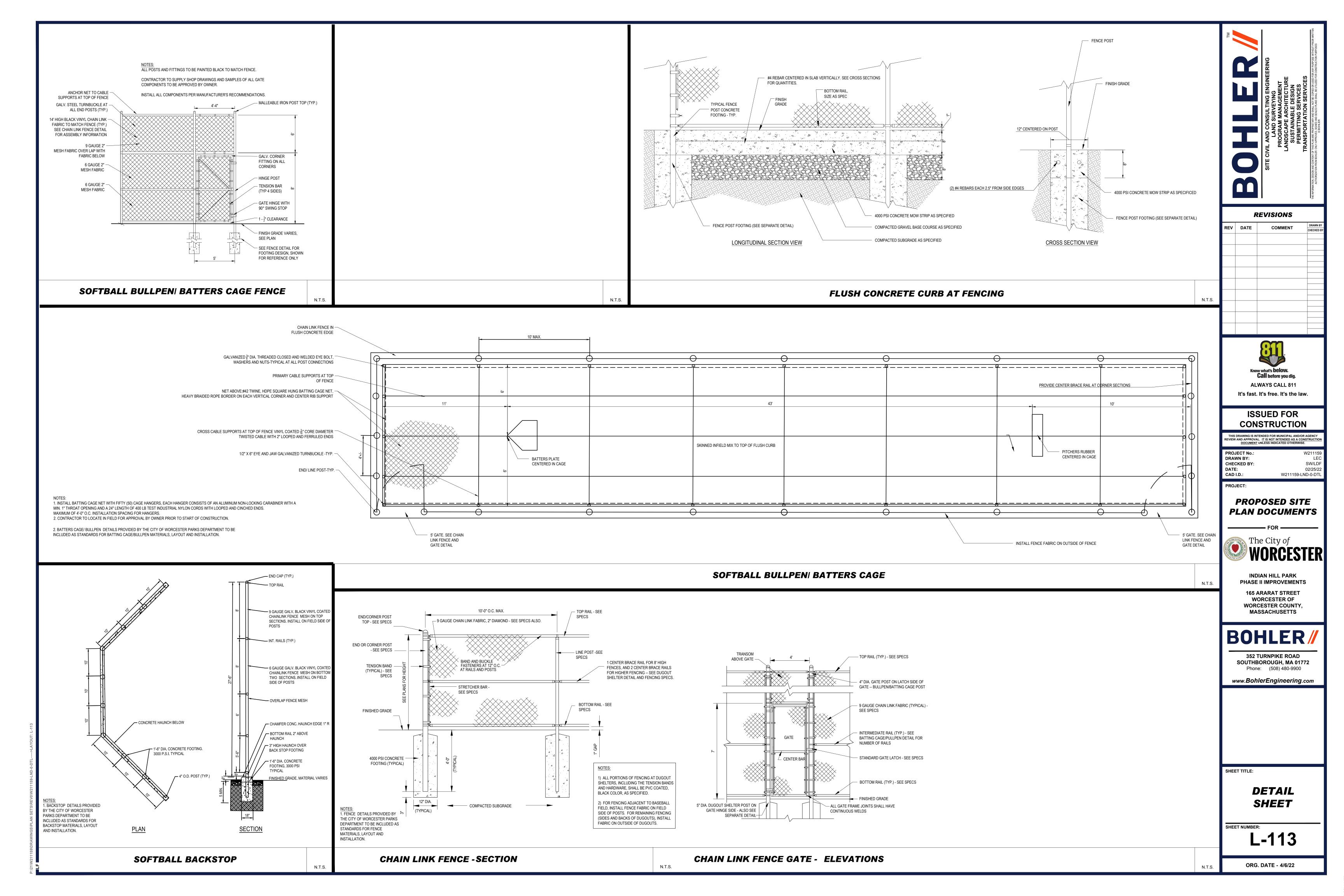


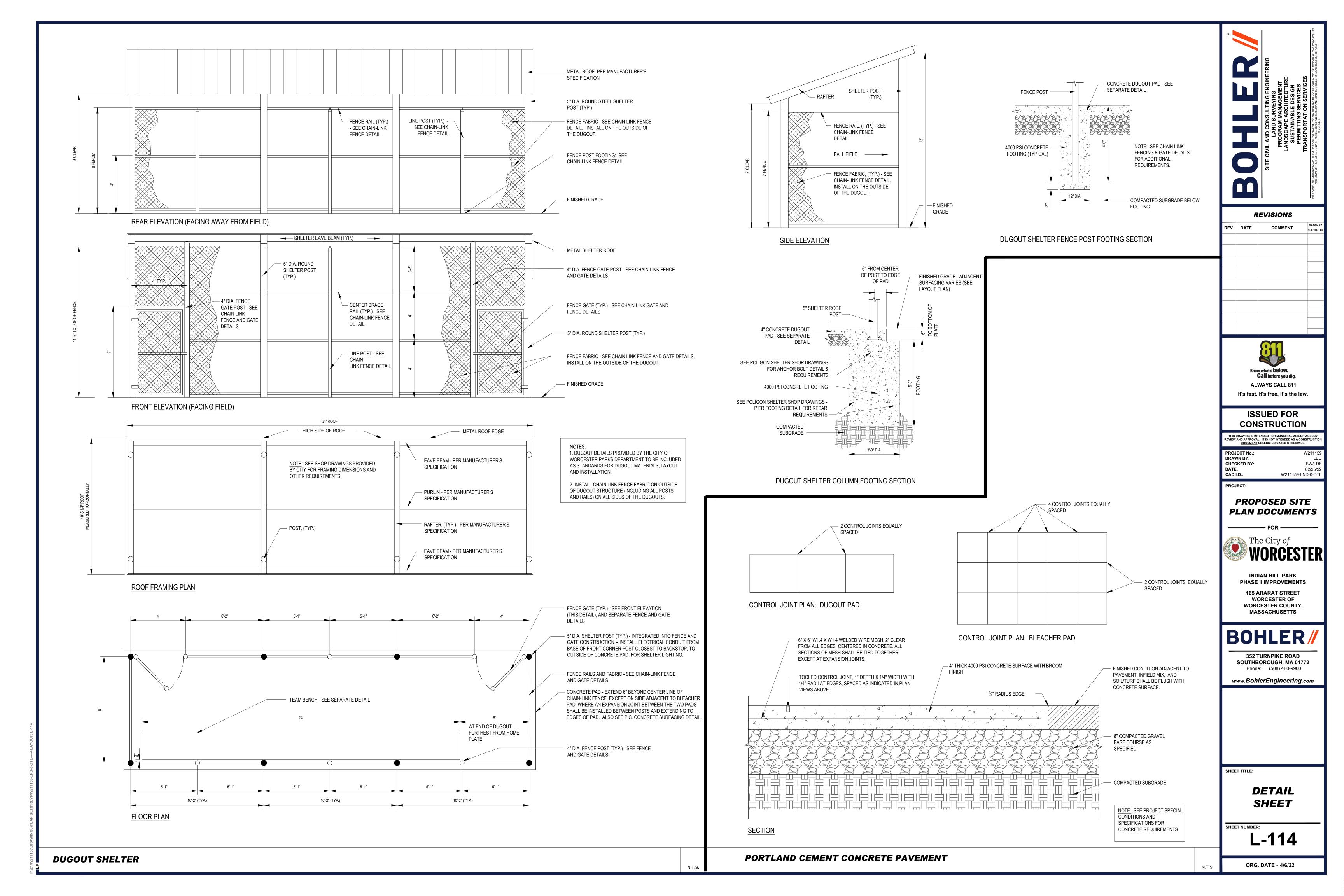
(J) TOPSYTURNY SPINNER

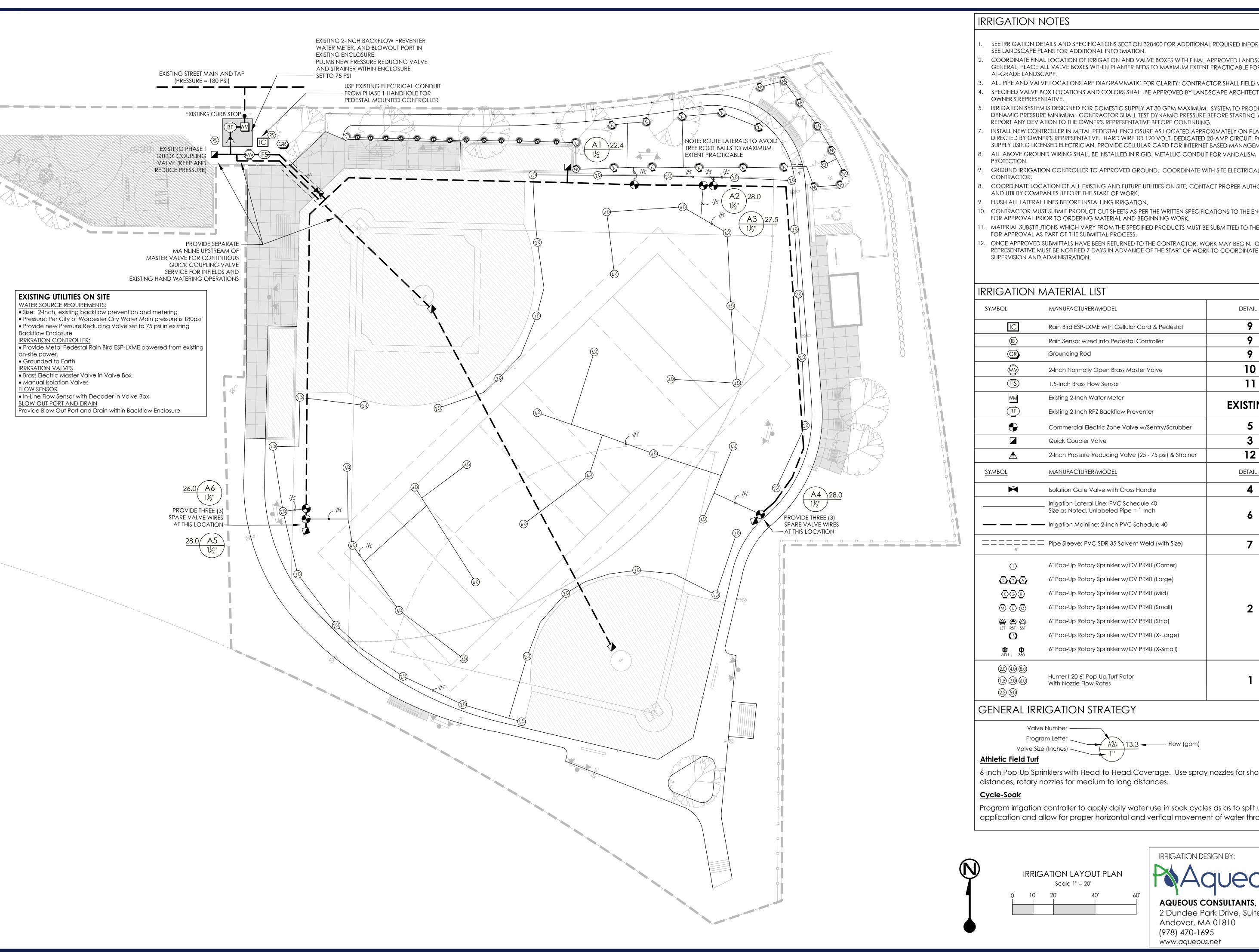


(E) WOBBLE PODS

PLAY EQUIPMENT REPRESENTATIVE IMAGES







- SEE IRRIGATION DETAILS AND SPECIFICATIONS SECTION 328400 FOR ADDITIONAL REQUIRED INFORMATION. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
- COORDINATE FINAL LOCATION OF IRRIGATION AND VALVE BOXES WITH FINAL APPROVED LANDSCAPE. IN GENERAL, PLACE ALL VALVE BOXES WITHIN PLANTER BEDS TO MAXIMUM EXTENT PRACTICABLE FOR
- ALL PIPE AND VALVE LOCATIONS ARE DIAGRAMMATIC FOR CLARITY: CONTRACTOR SHALL FIELD VERIFY. SPECIFIED VALVE BOX LOCATIONS AND COLORS SHALL BE APPROVED BY LANDSCAPE ARCHITECT AND/OR
- IRRIGATION SYSTEM IS DESIGNED FOR DOMESTIC SUPPLY AT 30 GPM MAXIMUM. SYSTEM TO PRODUCE 70-PSI DYNAMIC PRESSURE MINIMUM. CONTRACTOR SHALL TEST DYNAMIC PRESSURE BEFORE STARTING WORK AND REPORT ANY DEVIATION TO THE OWNER'S REPRESENTATIVE BEFORE CONTINUING.
- INSTALL NEW CONTROLLER IN METAL PEDESTAL ENCLOSURE AS LOCATED APPROXIMATELY ON PLANS, AS DIRECTED BY OWNER'S REPRESENTATIVE. HARD WIRE TO 120 VOLT, DEDICATED 20-AMP CIRCUIT, POWER SUPPLY USING LICENSED ELECTRICIAN. PROVIDE CELLULAR CARD FOR INTERNET BASED MANAGEMENT.
- GROUND IRRIGATION CONTROLLER TO APPROVED GROUND. COORDINATE WITH SITE ELECTRICAL
- COORDINATE LOCATION OF ALL EXISTING AND FUTURE UTILITIES ON SITE, CONTACT PROPER AUTHORITIES AND UTILITY COMPANIES BEFORE THE START OF WORK.
- P. FLUSH ALL LATERAL LINES BEFORE INSTALLING IRRIGATION.
- 10. CONTRACTOR MUST SUBMIT PRODUCT CUT SHEETS AS PER THE WRITTEN SPECIFICATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIAL AND BEGINNING WORK.
- 1. MATERIAL SUBSTITUTIONS WHICH VARY FROM THE SPECIFIED PRODUCTS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL AS PART OF THE SUBMITTAL PROCESS.
- 12. ONCE APPROVED SUBMITTALS HAVE BEEN RETURNED TO THE CONTRACTOR, WORK MAY BEGIN. OWNER'S REPRESENTATIVE MUST BE NOTIFIED 7 DAYS IN ADVANCE OF THE START OF WORK TO COORDINATE ON-SITE SUPERVISION AND ADMINISTRATION.

		<u>DETAIL #</u>
IC	Rain Bird ESP-LXME with Cellular Card & Pedestal	9
(RS)	Rain Sensor wired into Pedestal Controller	9
GR	Grounding Rod	9
	2-Inch Normally Open Brass Master Valve	10
FS	1.5-Inch Brass Flow Sensor	11
WM	Existing 2-Inch Water Meter	EVICTING
BF	Existing 2-Inch RPZ Backflow Preventer	EXISTING
•	Commercial Electric Zone Valve w/Sentry/Scrubber	5
	Quick Coupler Valve	3
$\triangle$	2-Inch Pressure Reducing Valve (25 - 75 psi) & Strainer	12
SYMBOL	MANUFACTURER/MODEL	DETAIL #
×	Isolation Gate Valve with Cross Handle	4
	Irrigation Lateral Line: PVC Schedule 40 Size as Noted, Unlabeled Pipe = 1-Inch	6
	Irrigation Mainline: 2-Inch PVC Schedule 40	J
	Pipe Sleeve: PVC SDR 35 Solvent Weld (with Size)	7
T	6" Pop-Up Rotary Sprinkler w/CV PR40 (Corner)	
(B) (Y) (A)	6" Pop-Up Rotary Sprinkler w/CV PR40 (Large)	
⟨K⟩⟨G⟩⟨R⟩	6" Pop-Up Rotary Sprinkler w/CV PR40 (Mid)	
$\overline{\mathbb{A}}$ $\overline{\mathbb{A}}$ $\overline{\mathbb{A}}$	6" Pop-Up Rotary Sprinkler w/CV PR40 (Small)	2
LST RST SST	6" Pop-Up Rotary Sprinkler w/CV PR40 (Strip)	
LST RST SST	6" Pop-Up Rotary Sprinkler w/CV PR40 (X-Large)	
<b>Ф Ф</b> ADJ. 360	6" Pop-Up Rotary Sprinkler w/CV PR40 (X-Small)	

# GENERAL IRRIGATION STRATEGY

Valve Number — Program Letter A26 \13.3 <del>→</del> Flow (gpm) Valve Size (Inches) —

6-Inch Pop-Up Sprinklers with Head-to-Head Coverage. Use spray nozzles for short distances, rotary nozzles for medium to long distances.

Program irrigation controller to apply daily water use in soak cycles as as to split up application and allow for proper horizontal and vertical movement of water through soils.



2 Dundee Park Drive, Suite B07 Andover, MA 01810 (978) 470-1695 www.aqueous.net

# **REVISIONS**

COMMENT

REV DATE

	-		
		l l	



It's fast. It's free. It's the law.

# FOR CONCEPT **PURPOSES ONLY**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE. PROJECT No.: DRAWN BY: **CHECKED BY:** 

INDIAN HILL CD

DATE: CAD I.D.: PROJECT:

# PROPOSED SITE **PLAN DOCUMENTS**



PROPOSED

**DEVELOPMENT 165 ARARAT STREET WORCESTER OF WORCESTER COUNTY,** 

**MASSACHUSETTS** 



**352 TURNPIKE ROAD** SOUTHBOROUGH, MA 01772

Phone: (508) 480-9900 www.BohlerEngineering.com

M.J. MRVA

REGISTERED LANDSCAPE ARCHITEC NEW YORK No. 002359 NEW HAMPSHIRE No. 109

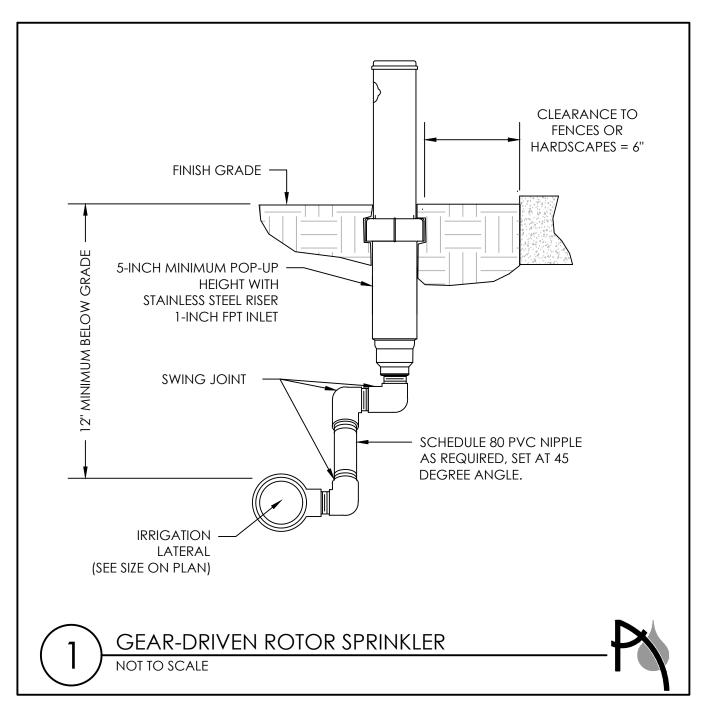
SHEET TITLE:

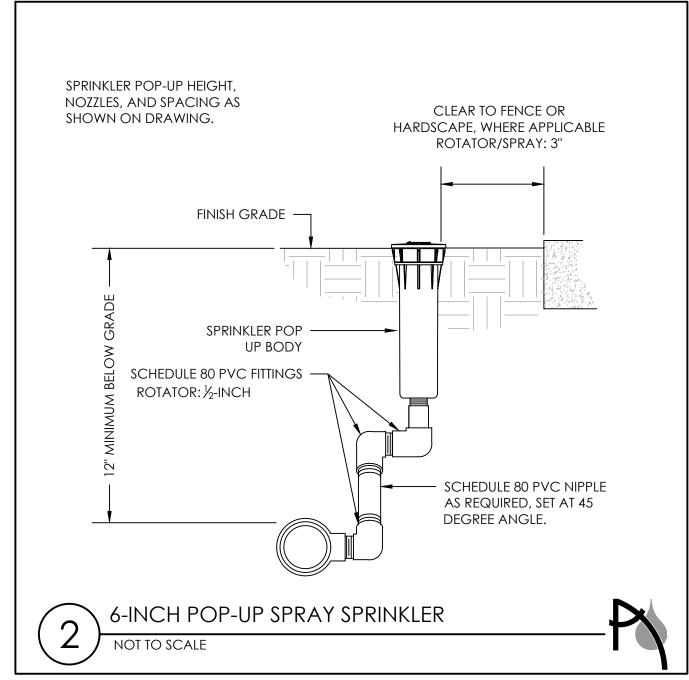
**IRRIGATION** 

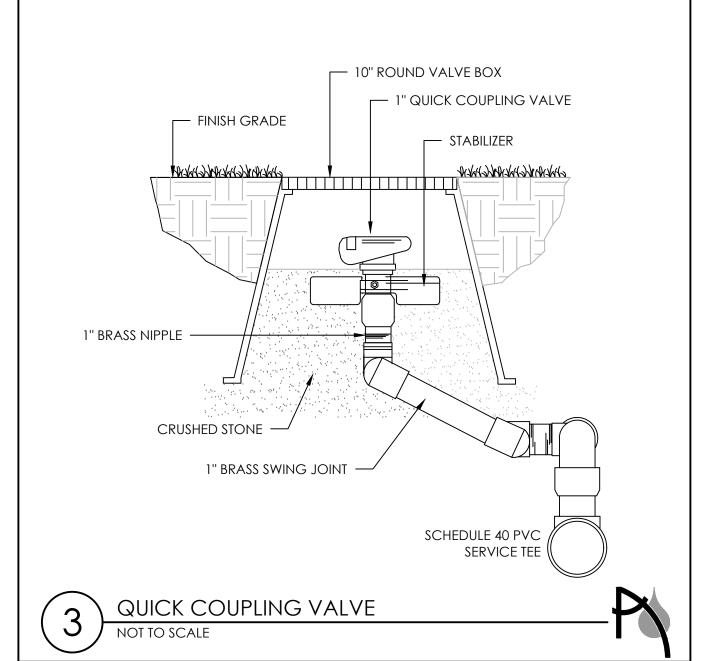
**DESIGN** 

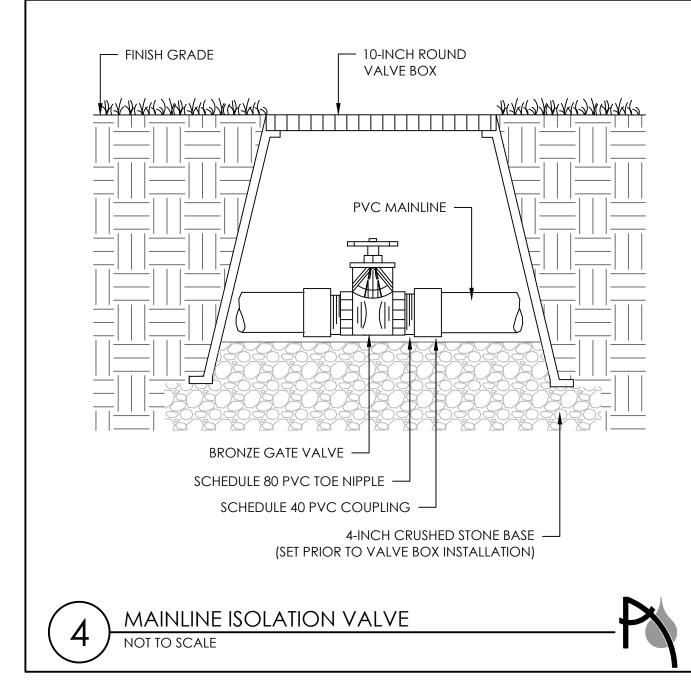
IR-1.0

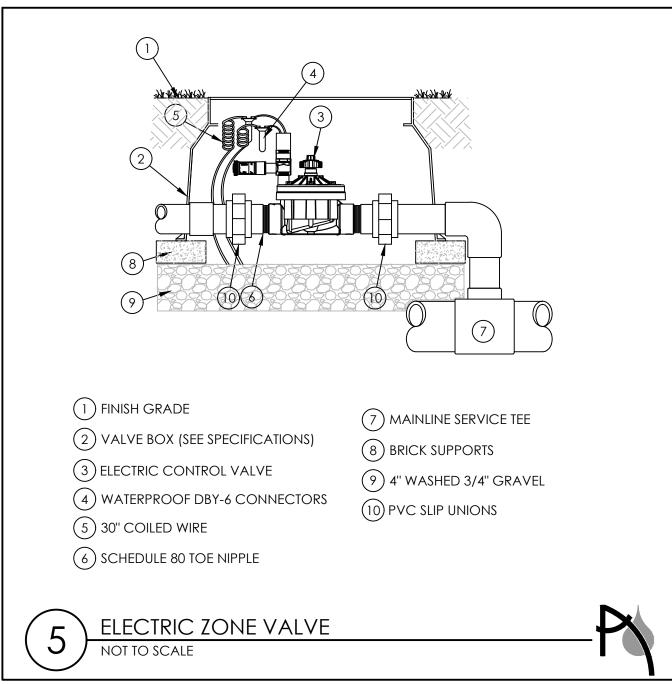
ORG. DATE - 09/23/2021

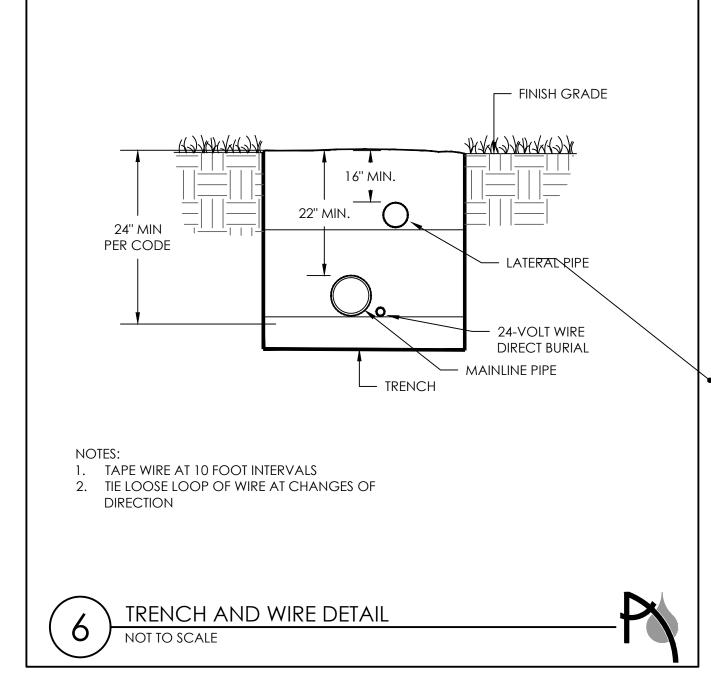


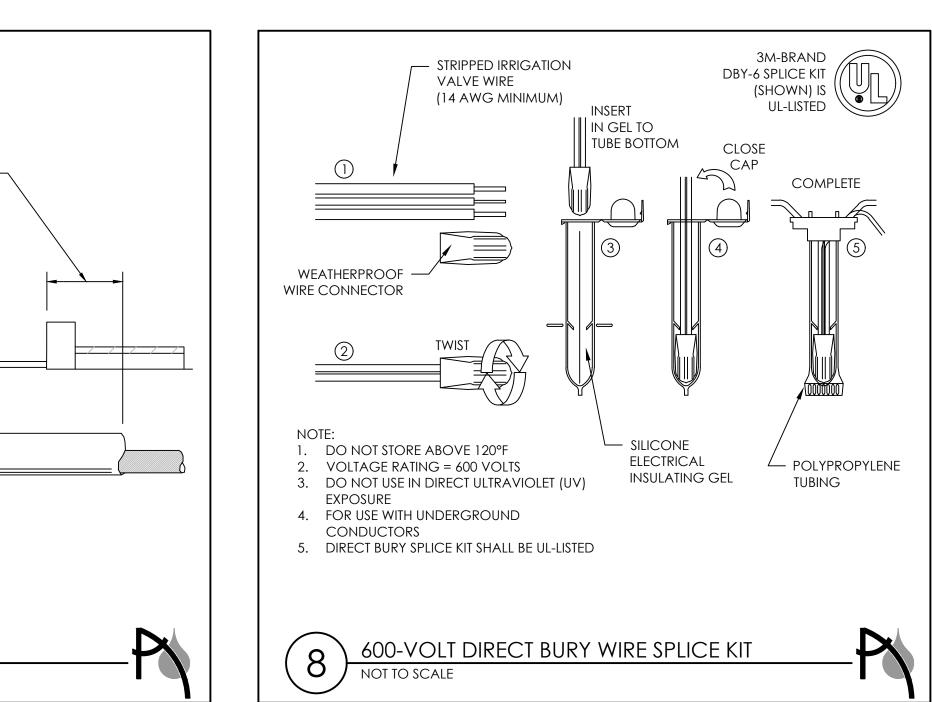


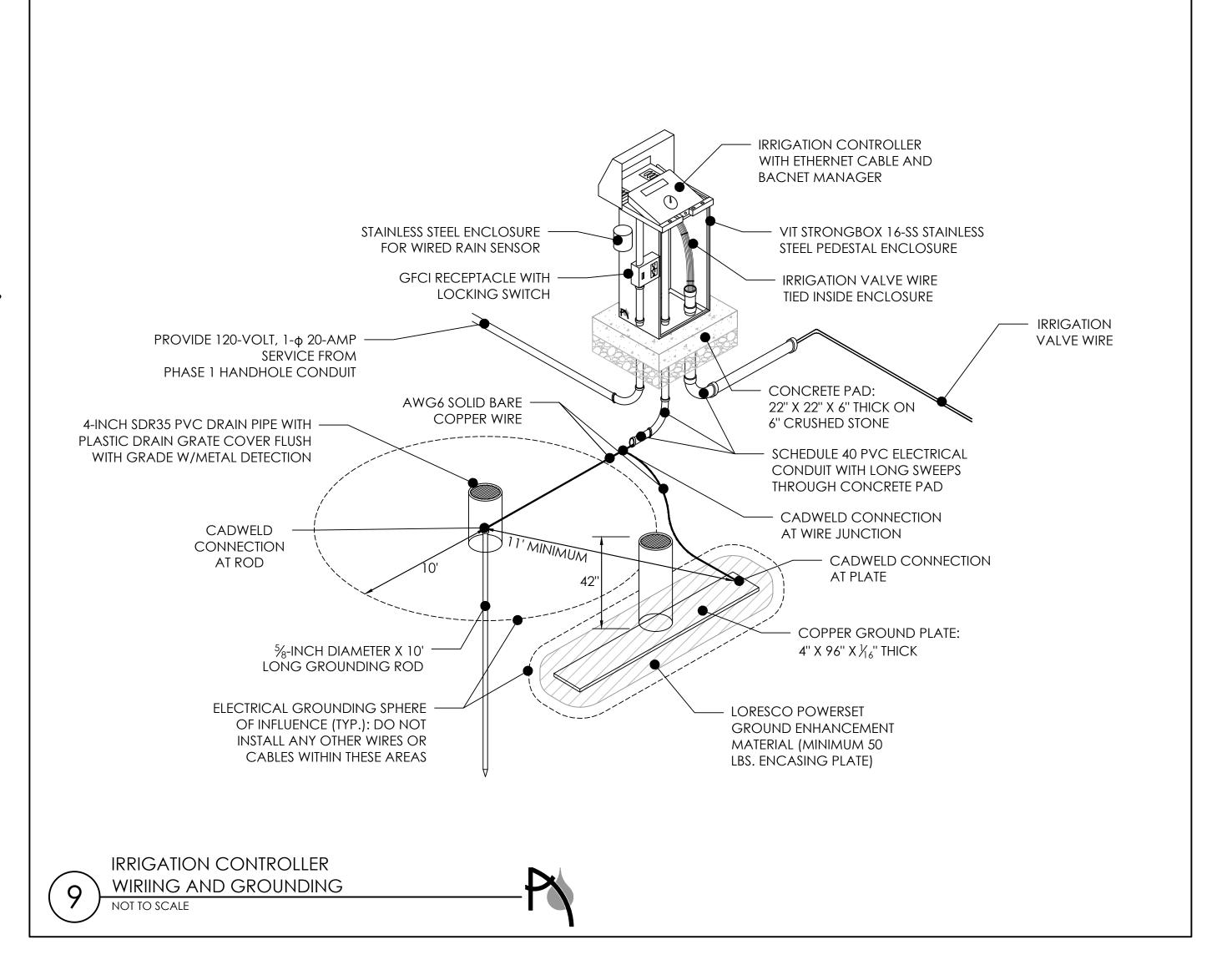




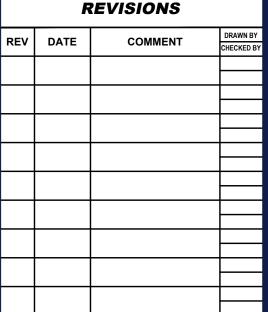














# **FOR CONCEPT PURPOSES ONLY**

REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCT <u>DOCUMENT</u> UNLESS INDICATED OTHERWISE. PROJECT No.: DRAWN BY: CHECKED BY: DATE: CAD I.D.: INDIAN HILL CD

PROJECT:

# PROPOSED SITE **PLAN DOCUMENTS**



**PROPOSED** DEVELOPMENT

**165 ARARAT STREET WORCESTER OF WORCESTER COUNTY, MASSACHUSETTS** 

# **BOHLER**

**352 TURNPIKE ROAD** SOUTHBOROUGH, MA 01772 Phone: (508) 480-9900

www.BohlerEngineering.com

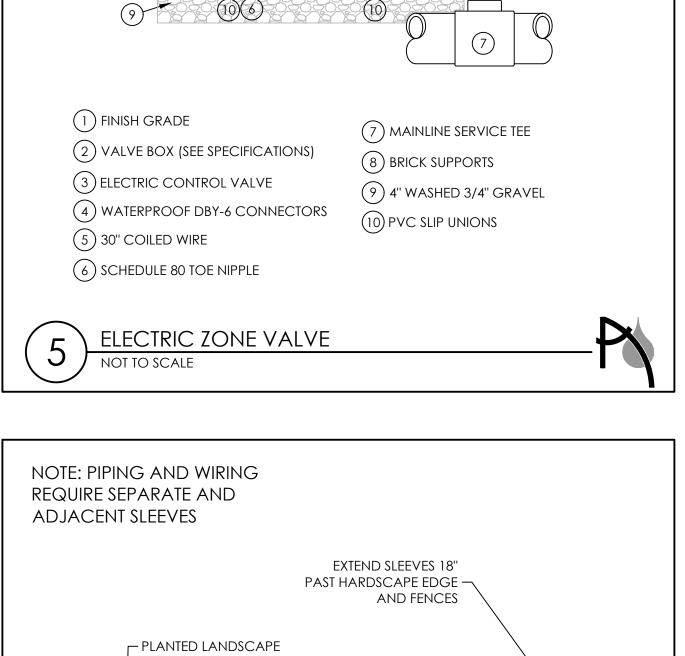


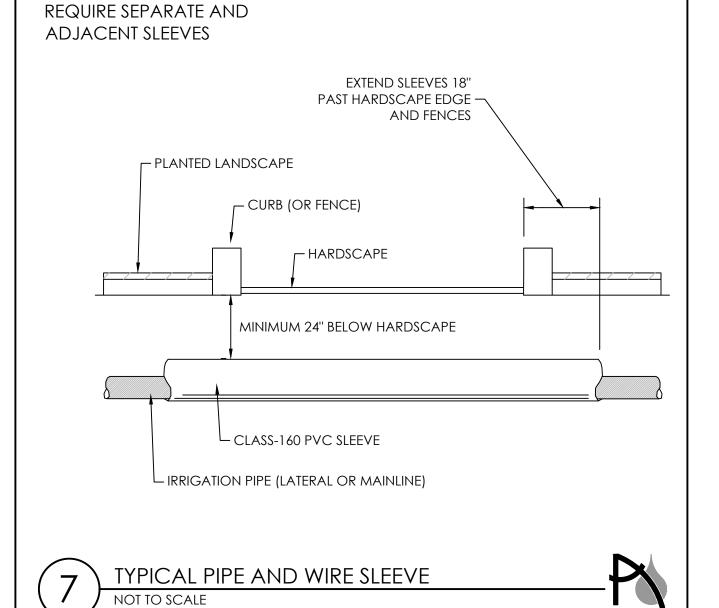
SHEET TITLE:

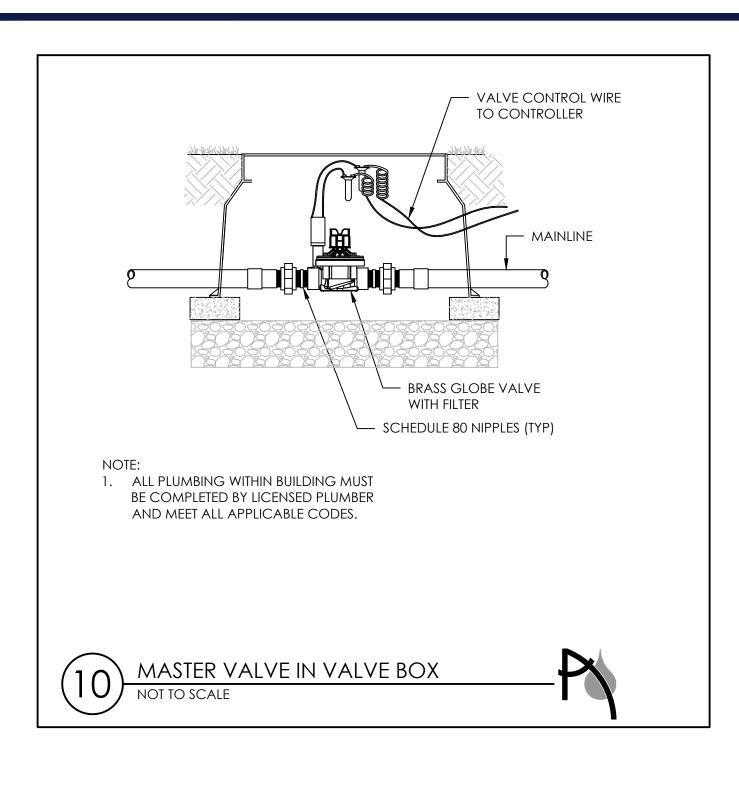
# **IRRIGATION DETAILS**

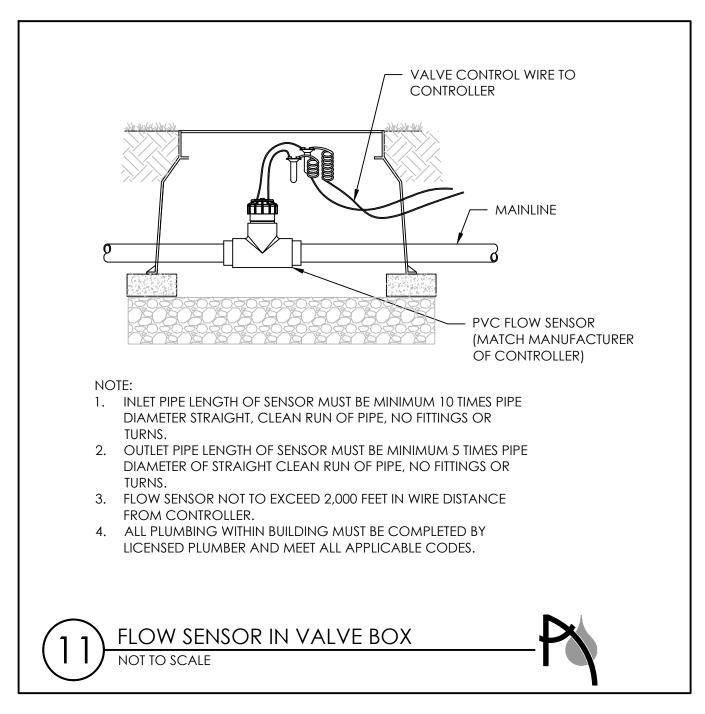
IR-2.0

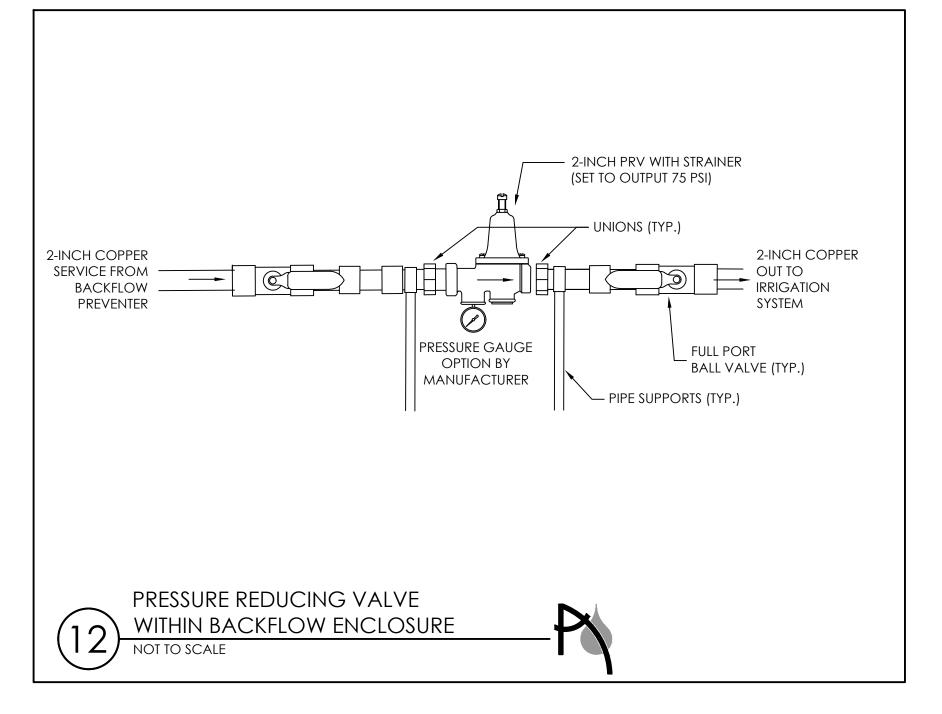
ORG. DATE - 09/23/2021



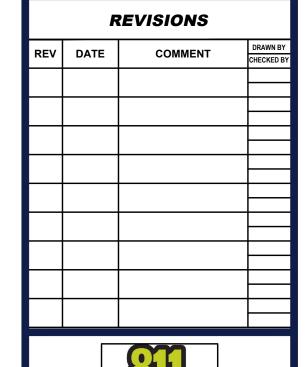














It's fast. It's free. It's the law.

# FOR CONCEPT **PURPOSES ONLY**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

02/16/22 INDIAN HILL CD

PROJECT No.:

DRAWN BY: CHECKED BY: DATE: CAD I.D.:

PROJECT:

# PROPOSED SITE **PLAN DOCUMENTS**



PROPOSED DEVELOPMENT

165 ARARAT STREET
WORCESTER OF
WORCESTER COUNTY,
MASSACHUSETTS

# **BOHLER**//

**352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772** Phone: (508) 480-9900

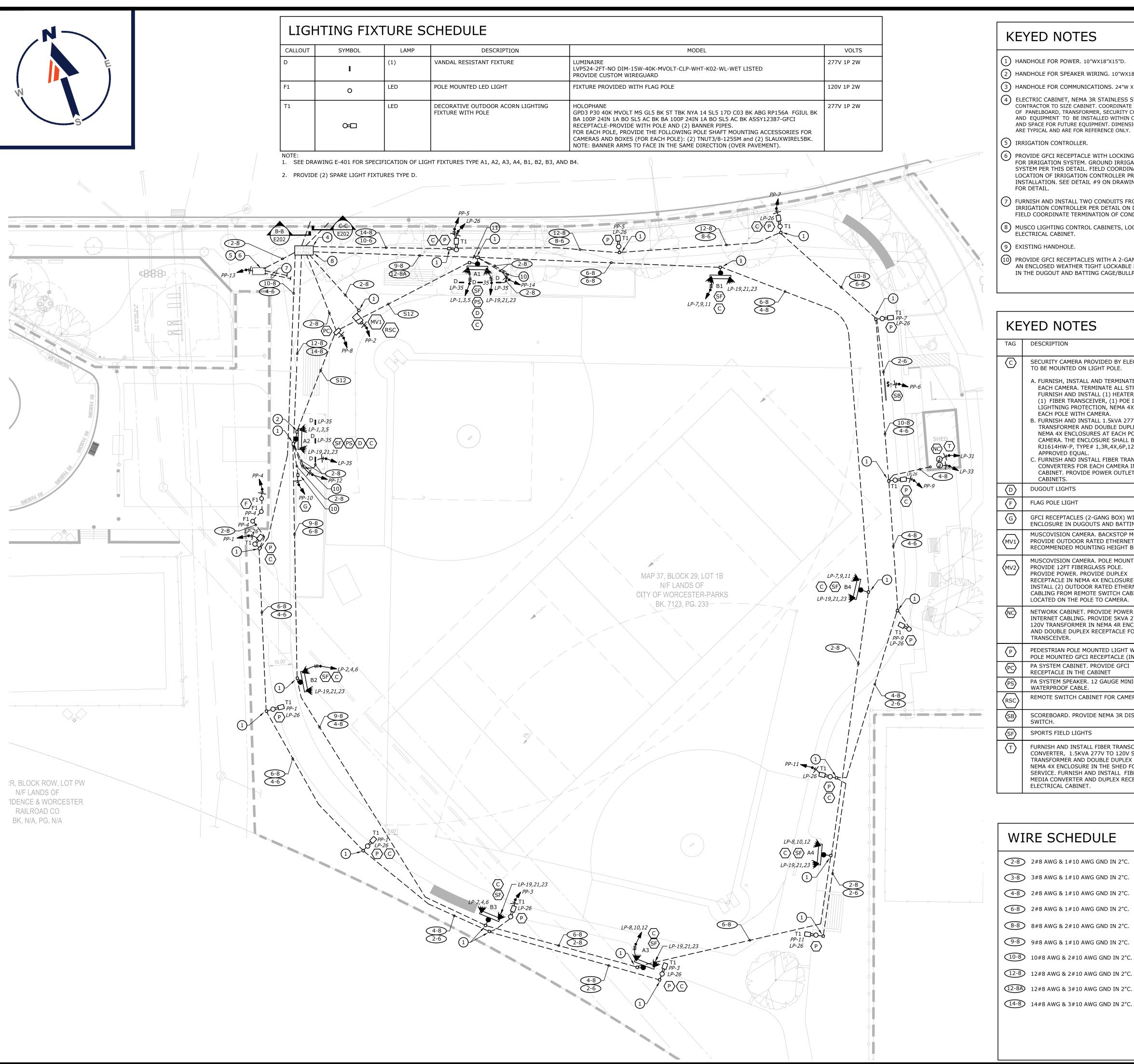
www.BohlerEngineering.com



# **IRRIGATION DETAILS**

IR-2.1

ORG. DATE - 09/23/2021



# **KEYED NOTES**

- (1) HANDHOLE FOR POWER. 10"WX18"X15"D.
- (2) HANDHOLE FOR SPEAKER WIRING. 10"WX18"X15"D.
- (3) HANDHOLE FOR COMMUNICATIONS. 24"W X 36"L X 22"D.
- (4) ELECTRIC CABINET, NEMA 3R STAINLESS STEEL, CONTRACTOR TO SIZE CABINET. COORDINATE WITH SIZES OF PANELBOARD, TRANSFORMER, SECURITY CONTROLS AND EQUIPMENT TO BE INSTALLED WITHIN CABINETS AND SPACE FOR FUTURE EQUIPMENT. DIMENSIONS SHOWN ARE TYPICAL AND ARE FOR REFERENCE ONLY.
- (5) IRRIGATION CONTROLLER.
- 6) PROVIDE GFCI RECEPTACLE WITH LOCKING SWITCH FOR IRRIGATION SYSTEM. GROUND IRRIGATION SYSTEM PER THIS DETAIL. FIELD COORDINATE EXACT LOCATION OF IRRIGATION CONTROLLER PRIOR TO INSTALLATION. SEE DETAIL #9 ON DRAWING IR-2.0
- 7) FURNISH AND INSTALL TWO CONDUITS FROM IRRIGATION CONTROLLER PER DETAIL ON DRAWING. FIELD COORDINATE TERMINATION OF CONDUITS.
- (8) MUSCO LIGHTING CONTROL CABINETS, LOCATED IN ELECTRICAL CABINET.
- 9 EXISTING HANDHOLE.
- PROVIDE GFCI RECEPTACLES WITH A 2-GANG BOX IN AN ENCLOSED WEATHER TIGHT LOCKABLE ENCLOSURE IN THE DUGOUT AND BATTING CAGE/BULLPEN.

# **GENERAL NOTES**

CABLING FOR CAMERAS.

- CARRY IN BID 175' OF CONDUIT, FEEDER AND TRENCHING FOR ELECTRICAL SECONDARY SERVICE FROM THE ELECTRICAL CABINET TO THE UTILITY POLE.
- CARRY IN BID 175' OF CONDUIT, CABLING AND TRENCHING FOR COMMUNICATIONS (INTERNET SERVICE) FROM THE ELECTRICAL
- CABINET TO THE UTILITY POLE. ELECTRICAL SUBCONTRACTOR TO INSTALL AND TERMINATE FIBER
- . FURNISH AND INSTALL ALL CAMERAS AND ASSOCIATED ACCESSORIES (FIBER TRANSCEIVERS, MEDIA CONVERTERS, THERMOSTATS, NEMA 3R ENCLOSURE) AND POWER OUTLET, TRANSFORMERS AND NEMA 4X ENCLOSURE. SEE DETAIL.
- ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL FIBER TRANSCEIVER AND MEDIA CONVERTERS IN THE ELECTRICAL CABINET AND THE SHED (FOR NETWORK CABINET).
- 5. ALL LIGHT FIXTURES ARE TO BE WIRED VIA RELAYS IN THE LIGHTING CONTROL SYSTEM CABINET.
- RECEPTACLES IN THE DUGOUT, BATTING CAGE, AND POWER FOR MUSCOVISION CAMERA AND NETWORK CABINET TO BE WIRED VIA RELAYS IN THE MUSCO PANEL.
- B. MUSCO TO PROVIDE (2) BANNER ARMS PER SPORTS FIELD LIGHTING POLES.
- . LIGHT FIXTURE TYPE D TO BE SURFACE MOUNTED TOGETHER WITH THE ASSOCIATED CONDUIT. CONDUIT SHALL ENTER AND EXIT FROM THE SIDE OF THE FIXTURE HOUSING.
- 10. SEE DRAWING E-102 FOR CAMERA POWER CIRCUITS.

TAG	DESCRIPTION	FED FROM	VOLTAGE	FEEDER / CABLE
<u>C</u>	SECURITY CAMERA PROVIDED BY ELECTRICAL CONTRACTOR, TO BE MOUNTED ON LIGHT POLE.	ELECTRICAL PANEL TRANSFORMER 277 TO 120V	277V TO 120V	2#8 AWG & 1#10 AWG GND
	<ul> <li>A. FURNISH, INSTALL AND TERMINATE FIBER CABLING FOR EACH CAMERA. TERMINATE ALL STRANDS AT BOTH ENDS. FURNISH AND INSTALL (1) HEATER AND THERMOSTAT, (1) FIBER TRANSCEIVER, (1) POE INJECTOR, (1) LIGHTNING PROTECTION, NEMA 4X ENCLOSURE AT EACH POLE WITH CAMERA.</li> <li>B. FURNISH AND INSTALL 1.5kVA 277V TO 120V STEPDOWN TRANSFORMER AND DOUBLE DUPLEX RECEPTACLE IN NEMA 4X ENCLOSURES AT EACH POLE WITH CAMERA CAMERA. THE ENCLOSURE SHALL BE BY STAHLIN PART# RJ1614HW-P, TYPE# 1,3R,4X,6P,12 PAINTED BLACK, OR APPROVED EQUAL.</li> <li>C. FURNISH AND INSTALL FIBER TRANSCEIVERS, AND MEDIA CONVERTERS FOR EACH CAMERA IN THE ELECTRICAL CABINET. PROVIDE POWER OUTLETS IN THE ELECTRICAL CABINETS.</li> </ul>	ELECTRICAL CABINET TO EACH CAMERA		FIBER CABLING TO EACH CAMERA SHALL BE 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER
D	DUGOUT LIGHTS	MUSCO PANEL	277V	2#8 AWG & 1#10 AWG GND
F	FLAG POLE LIGHT	MUSCO PANEL	120V	2#8 AWG & 1#10 AWG GND
G	GFCI RECEPTACLES (2-GANG BOX) WITH LOCKABLE ENCLOSURE IN DUGOUTS AND BATTING CAGE	MUSCO PANEL	120V	2#8 AWG & 1#10 AWG GND
MV1	MUSCOVISION CAMERA. BACKSTOP MOUNTED. PROVIDE OUTDOOR RATED ETHERNET CABLING. RECOMMENDED MOUNTING HEIGHT BETWEEN 12'-15'	NETWORK CABINET		OUTDOOR RATED ETHERNET CABLING
MV2	MUSCOVISION CAMERA. POLE MOUNTED. PROVIDE 12FT FIBERGLASS POLE. PROVIDE POWER. PROVIDE DUPLEX RECEPTACLE IN NEMA 4X ENCLOSURE. INSTALL (2) OUTDOOR RATED ETHERNET CABLING FROM REMOTE SWITCH CABINET LOCATED ON THE POLE TO CAMERA.	MUSCO PANEL AND REMOTE SWITCH CABINET ON POLE	120V	2#8 AWG & 1#10 AWG GND (2) OUTDOOR RATED ETHERNET CABLING
(NC)	NETWORK CABINET. PROVIDE POWER AND INTERNET CABLING. PROVIDE 5KVA 277V TO 120V TRANSFORMER IN NEMA 4R ENCLOSURE AND DOUBLE DUPLEX RECEPTACLE FOR FIBER TRANSCEIVER.	MUSCO PANEL TRANSFORMER 277 TO 120V	277V TO 120V	2#8 AWG & 1#10 AWG GND
P	PEDESTRIAN POLE MOUNTED LIGHT WITH POLE MOUNTED GFCI RECEPTACLE (INTEGRAL)	MUSCO PANEL ELECTRICAL PANEL	277V 120V	2#8 AWG & 1#10 AWG GND 2#6 AWG & 1#8 AWG GND
(PC)	PA SYSTEM CABINET. PROVIDE GFCI RECEPTACLE IN THE CABINET	ELECTRICAL CABINET	120V	2#8 AWG & 1#10 AWG GND
PS	PA SYSTEM SPEAKER. 12 GAUGE MINIMUM WATERPROOF CABLE.	PA SYSTEM CABINET		MINIMUM #12
RSC	REMOTE SWITCH CABINET FOR CAMERA.	ELECTRICAL CABINET	120V	2#8 AWG & 1#10 AWG GND
(SB)	SCOREBOARD. PROVIDE NEMA 3R DISCONNECT SWITCH.	ELECTRICAL CABINET	120V	2#6 AWG & 1#8 AWG GND
(SF)	SPORTS FIELD LIGHTS	MUSCO PANEL	480V	3#8 AWG & 1#10 AWG GND
T	FURNISH AND INSTALL FIBER TRANSCEIVER, MEDIA CONVERTER, 1.5KVA 277V TO 120V STEPDOWN TRANSFORMER AND DOUBLE DUPLEX RECEPTACLE IN NEMA 4X ENCLOSURE IN THE SHED FOR INTERNET SERVICE. FURNISH AND INSTALL FIBER TRANSCEIVER, MEDIA CONVERTER AND DUPLEX RECEPTACLE IN THE ELECTRICAL CABINET.	ELECTRICAL PANEL TRANSFORMER	277V TO 120V	2#8 AWG & 1#10 AWG GND (1) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER IN 2"C

# WIRE SCHEDULE

- 2-8 2#8 AWG & 1#10 AWG GND IN 2"C. 2-6 2#6 AWG & 1#8 AWG GND IN 2"C. 3-8 3#8 AWG & 1#10 AWG GND IN 2"C. 4-6 4#6 AWG & 1#8 AWG GND IN 2"C
- 6-8 2#8 AWG & 1#10 AWG GND IN 2"C. 8-6 8#6 AWG & 2#8 AWG GND IN 2"C.
- 10-6 10#6 AWG & 2#8 AWG GND IN 2"C.
- 8-8 8#8 AWG & 2#10 AWG GND IN 2"C.
- 9-8 9#8 AWG & 1#10 AWG GND IN 2"C.
- 10-8 10#8 AWG & 2#10 AWG GND IN 2"C. | S12 MINIMUM 2#12G WATERPROOF CABLE
- 12-8A) 12#8 AWG & 3#10 AWG GND IN 2"C.
- 14-8 14#8 AWG & 3#10 AWG GND IN 2"C.
- 2" HDPE CONDUIT FOR CAMERA CABLING. (1) 12-STRAND SINGLE

RECOMMENDATIONS

- MODE OUTDOOR PLANT FIBER 2" HDPE CONDUIT FOR CAMERA CABLING. (2) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER

2" HDPE CONDUIT FOR CAMERA CABLING. (3) 12-STRAND SINGLE

MODE OUTDOOR PLANT FIBER

6-6 6#6 AWG & 1#8 AWG GND IN 2"C.

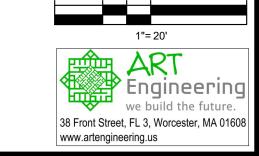
12-6 12#6 AWG & 2#8 AWG GND IN 2"C.

FOR PA SPEAKER IN 1"C. INSTALL

CABLING PER MANUFACTURER

- 2" HDPE CONDUIT FOR CAMERA CABLING. (4) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER
- 5A 2" HDPE CONDUIT FOR CAMERA CABLING. (5) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER 6A 2" HDPE CONDUIT FOR CAMERA CABLING. (6) 12-STRAND SINGLE
- MODE OUTDOOR PLANT FIBER 7A 2" HDPE CONDUIT FOR CAMERA CABLING. (7) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER
- 1B 2" HDPE CONDUIT TO EXISTING HANDHOLE.







	R	REVISIONS
REV	DATE	COMMENT



# FOR CONCEPT **PURPOSES ONLY**

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: DRAWN BY: 03/15/2022 CAD I.D.: W211159-X-TT

PROJECT:

# PROPOSED SITE **PLAN DOCUMENTS**



PROPOSED

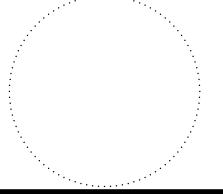
DEVELOPMENT **165 ARARAT STREET WORCESTER OF** WORCESTER COUNTY,

**MASSACHUSETTS** 

# **BOHLER**

**352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772** 

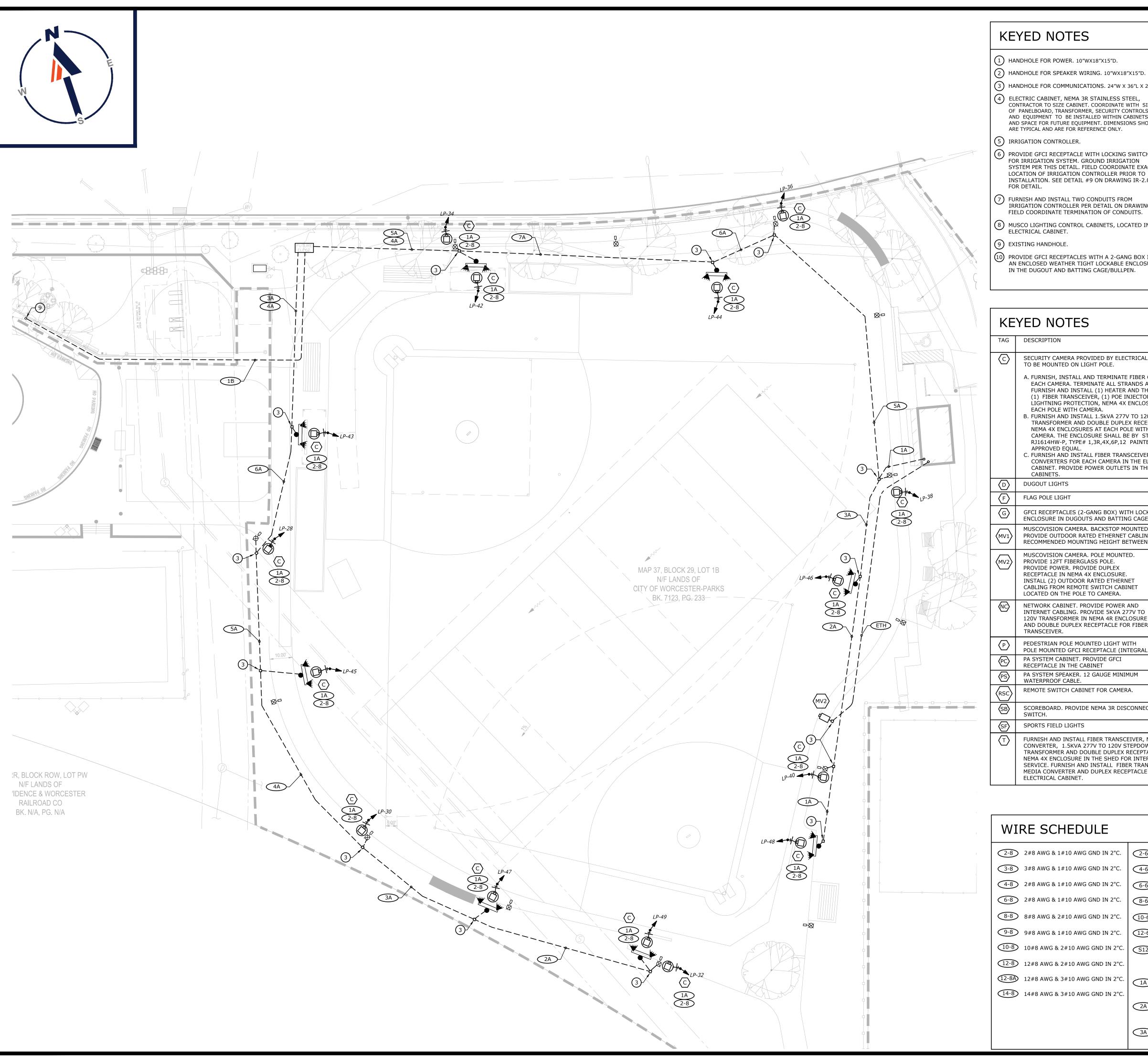
Phone: (508) 480-9900 www.BohlerEngineering.com



SHEET TITLE:

**ELECTRICAL** SITE PLAN

E-101



# **KEYED NOTES**

- (1) HANDHOLE FOR POWER. 10"WX18"X15"D.
- (3) HANDHOLE FOR COMMUNICATIONS. 24"W X 36"L X 22"D. (4) ELECTRIC CABINET, NEMA 3R STAINLESS STEEL,
- CONTRACTOR TO SIZE CABINET. COORDINATE WITH SIZES OF PANELBOARD, TRANSFORMER, SECURITY CONTROLS AND EQUIPMENT TO BE INSTALLED WITHIN CABINETS AND SPACE FOR FUTURE EQUIPMENT. DIMENSIONS SHOWN ARE TYPICAL AND ARE FOR REFERENCE ONLY.
- (5) IRRIGATION CONTROLLER.
- 6) PROVIDE GFCI RECEPTACLE WITH LOCKING SWITCH FOR IRRIGATION SYSTEM. GROUND IRRIGATION SYSTEM PER THIS DETAIL. FIELD COORDINATE EXACT LOCATION OF IRRIGATION CONTROLLER PRIOR TO INSTALLATION. SEE DETAIL #9 ON DRAWING IR-2.0
- 7) FURNISH AND INSTALL TWO CONDUITS FROM IRRIGATION CONTROLLER PER DETAIL ON DRAWING. FIELD COORDINATE TERMINATION OF CONDUITS.
- (8) MUSCO LIGHTING CONTROL CABINETS, LOCATED IN ELECTRICAL CABINET.
- 9 EXISTING HANDHOLE.
- PROVIDE GFCI RECEPTACLES WITH A 2-GANG BOX IN AN ENCLOSED WEATHER TIGHT LOCKABLE ENCLOSURE IN THE DUGOUT AND BATTING CAGE/BULLPEN.

# **GENERAL NOTES**

- CARRY IN BID 175' OF CONDUIT, FEEDER AND TRENCHING FOR ELECTRICAL SECONDARY SERVICE FROM THE ELECTRICAL CABINET TO THE UTILITY POLE.
- CARRY IN BID 175' OF CONDUIT, CABLING AND TRENCHING FOR COMMUNICATIONS (INTERNET SERVICE) FROM THE ELECTRICAL CABINET TO THE UTILITY POLE.
- . ELECTRICAL SUBCONTRACTOR TO INSTALL AND TERMINATE FIBER CABLING FOR CAMERAS.
- . FURNISH AND INSTALL ALL CAMERAS AND ASSOCIATED ACCESSORIES (FIBER TRANSCEIVERS, MEDIA CONVERTERS, THERMOSTATS, NEMA 3R ENCLOSURE) AND POWER OUTLET, TRANSFORMERS AND NEMA 4X ENCLOSURE. SEE DETAIL.
- ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL FIBER TRANSCEIVER AND MEDIA CONVERTERS IN THE ELECTRICAL CABINET AND THE SHED (FOR NETWORK CABINET).
- 6. ALL LIGHT FIXTURES ARE TO BE WIRED VIA RELAYS IN THE LIGHTING CONTROL SYSTEM CABINET.
- RECEPTACLES IN THE DUGOUT, BATTING CAGE, AND POWER FOR MUSCOVISION CAMERA AND NETWORK CABINET TO BE WIRED VIA RELAYS IN THE MUSCO PANEL.
- 8. MUSCO TO PROVIDE (2) BANNER ARMS PER SPORTS FIELD LIGHTING POLES.
- 9. LIGHT FIXTURE TYPE D TO BE SURFACE MOUNTED TOGETHER WITH THE ASSOCIATED CONDUIT. CONDUIT SHALL ENTER AND EXIT FROM THE SIDE OF THE FIXTURE HOUSING.
- 10. SEE DRAWING E-102 FOR CAMERA POWER CIRCUITS.

TAG	DESCRIPTION	FED FROM	VOLTAGE	FEEDER / CABLE
C	SECURITY CAMERA PROVIDED BY ELECTRICAL CONTRACTOR, TO BE MOUNTED ON LIGHT POLE.	ELECTRICAL PANEL TRANSFORMER 277 TO 120V	277V TO 120V	2#8 AWG & 1#10 AWG GND
	A. FURNISH, INSTALL AND TERMINATE FIBER CABLING FOR EACH CAMERA. TERMINATE ALL STRANDS AT BOTH ENDS. FURNISH AND INSTALL (1) HEATER AND THERMOSTAT, (1) FIBER TRANSCEIVER, (1) POE INJECTOR, (1) LIGHTNING PROTECTION, NEMA 4X ENCLOSURE AT EACH POLE WITH CAMERA.	ELECTRICAL CABINET TO EACH CAMERA		FIBER CABLING TO EACH CAMERA SHALL BE 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER
	<ul> <li>B. FURNISH AND INSTALL 1.5kVA 277V TO 120V STEPDOWN TRANSFORMER AND DOUBLE DUPLEX RECEPTACLE IN NEMA 4X ENCLOSURES AT EACH POLE WITH CAMERA CAMERA. THE ENCLOSURE SHALL BE BY STAHLIN PART# RJ1614HW-P, TYPE# 1,3R,4X,6P,12 PAINTED BLACK, OR APPROVED EQUAL.</li> <li>C. FURNISH AND INSTALL FIBER TRANSCEIVERS, AND MEDIA CONVERTERS FOR EACH CAMERA IN THE ELECTRICAL CABINET. PROVIDE POWER OUTLETS IN THE ELECTRICAL CABINETS.</li> </ul>			
D	DUGOUT LIGHTS	MUSCO PANEL	277V	2#8 AWG & 1#10 AWG GND
F	FLAG POLE LIGHT	MUSCO PANEL	120V	2#8 AWG & 1#10 AWG GND
G	GFCI RECEPTACLES (2-GANG BOX) WITH LOCKABLE ENCLOSURE IN DUGOUTS AND BATTING CAGE	MUSCO PANEL	120V	2#8 AWG & 1#10 AWG GND
MV1	MUSCOVISION CAMERA. BACKSTOP MOUNTED. PROVIDE OUTDOOR RATED ETHERNET CABLING. RECOMMENDED MOUNTING HEIGHT BETWEEN 12'-15'	NETWORK CABINET		OUTDOOR RATED ETHERNET CABLING
MV2	MUSCOVISION CAMERA. POLE MOUNTED. PROVIDE 12FT FIBERGLASS POLE. PROVIDE POWER. PROVIDE DUPLEX RECEPTACLE IN NEMA 4X ENCLOSURE. INSTALL (2) OUTDOOR RATED ETHERNET CABLING FROM REMOTE SWITCH CABINET LOCATED ON THE POLE TO CAMERA.	MUSCO PANEL AND REMOTE SWITCH CABINET ON POLE	120V	2#8 AWG & 1#10 AWG GND (2) OUTDOOR RATED ETHERNET CABLING
(NC)	NETWORK CABINET. PROVIDE POWER AND INTERNET CABLING. PROVIDE 5KVA 277V TO 120V TRANSFORMER IN NEMA 4R ENCLOSURE AND DOUBLE DUPLEX RECEPTACLE FOR FIBER TRANSCEIVER.	MUSCO PANEL TRANSFORMER 277 TO 120V	277V TO 120V	2#8 AWG & 1#10 AWG GND
P	PEDESTRIAN POLE MOUNTED LIGHT WITH POLE MOUNTED GFCI RECEPTACLE (INTEGRAL)	MUSCO PANEL ELECTRICAL PANEL	277V 120V	2#8 AWG & 1#10 AWG GND 2#6 AWG & 1#8 AWG GND
PC	PA SYSTEM CABINET. PROVIDE GFCI RECEPTACLE IN THE CABINET	ELECTRICAL CABINET	120V	2#8 AWG & 1#10 AWG GND
(PS)	PA SYSTEM SPEAKER. 12 GAUGE MINIMUM WATERPROOF CABLE.	PA SYSTEM CABINET		MINIMUM #12
RSC	REMOTE SWITCH CABINET FOR CAMERA.	ELECTRICAL CABINET	120V	2#8 AWG & 1#10 AWG GND
(SB)	SCOREBOARD. PROVIDE NEMA 3R DISCONNECT SWITCH.	ELECTRICAL CABINET	120V	2#6 AWG & 1#8 AWG GND
(SF)	SPORTS FIELD LIGHTS	MUSCO PANEL	480V	3#8 AWG & 1#10 AWG GND
T	FURNISH AND INSTALL FIBER TRANSCEIVER, MEDIA CONVERTER, 1.5KVA 277V TO 120V STEPDOWN TRANSFORMER AND DOUBLE DUPLEX RECEPTACLE IN NEMA 4X ENCLOSURE IN THE SHED FOR INTERNET SERVICE. FURNISH AND INSTALL FIBER TRANSCEIVER, MEDIA CONVERTER AND DUPLEX RECEPTACLE IN THE FLECTRICAL CABINET	ELECTRICAL PANEL TRANSFORMER	277V TO 120V	2#8 AWG & 1#10 AWG GND (1) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER IN 2"C

# WIRE SCHEDULE

- 2-8 2#8 AWG & 1#10 AWG GND IN 2"C. 2-6) 2#6 AWG & 1#8 AWG GND IN 2"C. 4-6 4#6 AWG & 1#8 AWG GND IN 2"C 3-8 3#8 AWG & 1#10 AWG GND IN 2"C.
- 4-8 2#8 AWG & 1#10 AWG GND IN 2"C.
- 6-8 2#8 AWG & 1#10 AWG GND IN 2"C.
- 8-8 8#8 AWG & 2#10 AWG GND IN 2"C. 10-6 10#6 AWG & 2#8 AWG GND IN 2"C.
- 9-8 9#8 AWG & 1#10 AWG GND IN 2"C.
- 10-8 10#8 AWG & 2#10 AWG GND IN 2"C. | S12 MINIMUM 2#12G WATERPROOF CABLE
- 12-8 12#8 AWG & 2#10 AWG GND IN 2"C.
- 12-8A 12#8 AWG & 3#10 AWG GND IN 2"C.
- 14-8 14#8 AWG & 3#10 AWG GND IN 2"C.
- 2" HDPE CONDUIT FOR CAMERA CABLING. (1) 12-STRAND SINGLE
  - 2" HDPE CONDUIT FOR CAMERA CABLING. (3) 12-STRAND SINGLE
- MODE OUTDOOR PLANT FIBER

6-6 6#6 AWG & 1#8 AWG GND IN 2"C.

8-6 8#6 AWG & 2#8 AWG GND IN 2"C.

12-6 12#6 AWG & 2#8 AWG GND IN 2"C.

FOR PA SPEAKER IN 1"C. INSTALL

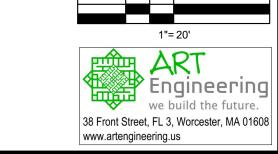
CABLING PER MANUFACTURER

RECOMMENDATIONS

2" HDPE CONDUIT FOR CAMERA CABLING. (2) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER

MODE OUTDOOR PLANT FIBER

- 2" HDPE CONDUIT FOR CAMERA CABLING. (4) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER
- 2" HDPE CONDUIT FOR CAMERA CABLING. (5) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER
- 6A 2" HDPE CONDUIT FOR CAMERA CABLING. (6) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER 7A 2" HDPE CONDUIT FOR CAMERA
- CABLING. (7) 12-STRAND SINGLE MODE OUTDOOR PLANT FIBER 1B 2" HDPE CONDUIT TO EXISTING
- HANDHOLE. ETH OUTDOOR RATED ETHERNET CABLE





**REVISIONS** 

V	DATE	COMMENT	DRAWN BY
. v	DATE	COMMENT	CHECKED B



It's fast. It's free. It's the law. FOR CONCEPT

**PURPOSES ONLY** 

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE. PROJECT No.: DRAWN BY:

W211159-X-TTE

CAD I.D.: PROJECT:

CHECKED BY:

PROPOSED SITE **PLAN DOCUMENTS** 



PROPOSED

DEVELOPMENT **165 ARARAT STREET WORCESTER OF** WORCESTER COUNTY,

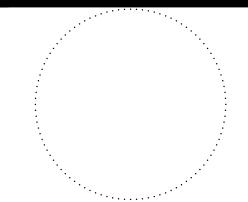
**MASSACHUSETTS** 

**BOHLER** 

**352 TURNPIKE ROAD** SOUTHBOROUGH, MA 01772

Phone: (508) 480-9900

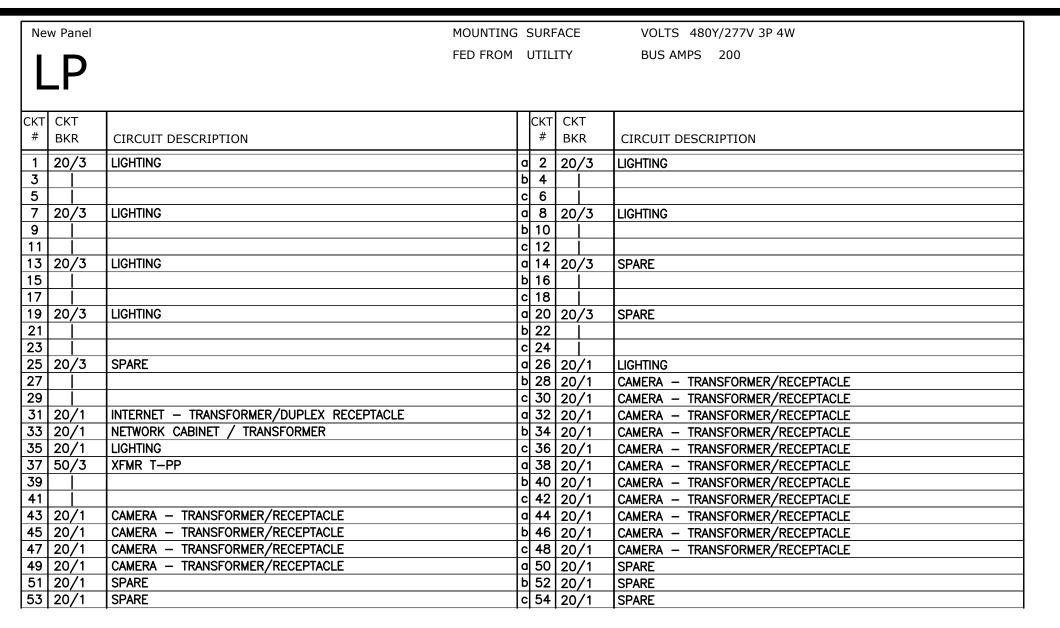
www.BohlerEngineering.com



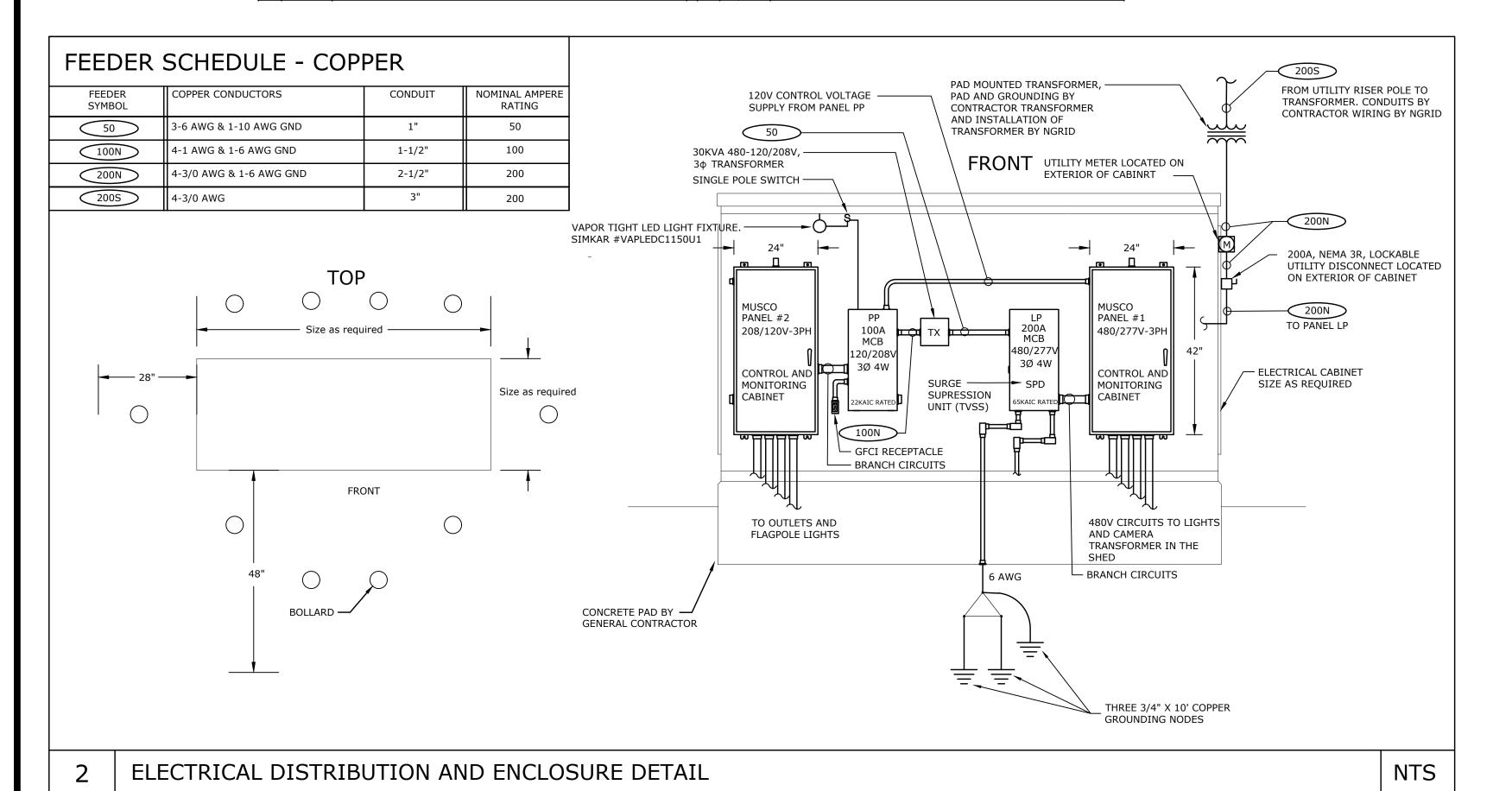
SHEET TITLE:

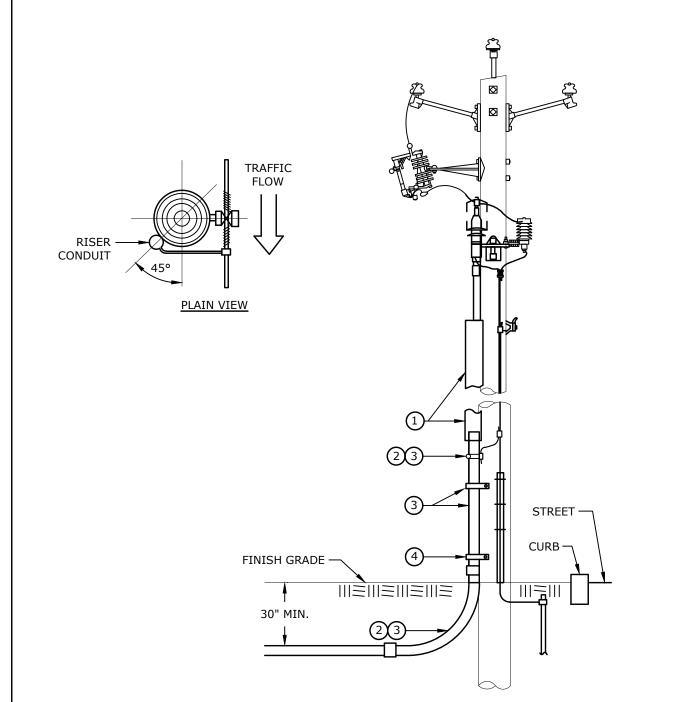
**ELECTRICAL** SITE PLAN

E-102

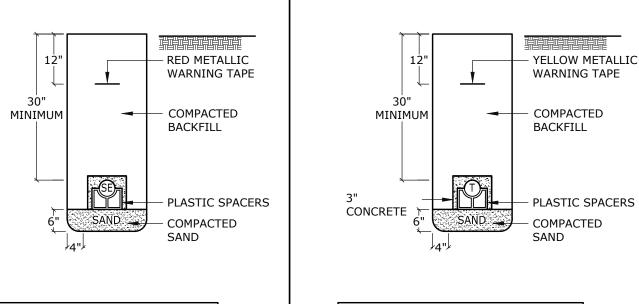


New P	anel	MOUN	TING S	SURI	FACE	VOLTS 208Y/120V 3P 4W
P	P	FED F	ROM <sup>-</sup>	T-PP		BUS AMPS 100
CKT CK # BK		CIRCUIT DESCRIPTION		CKT #	CKT BKR	CIRCUIT DESCRIPTION
1 20	)/1	RECEPTACLE AT LIGHT POLE	a	2	20/1	REMOTE CAMERA CABINET
	)/1	RECEPTACLE AT LIGHT POLE	b	<b>—</b>	20/1	FLAG POLE LIGHTING
	<u>)</u> /1	RECEPTACLE AT LIGHT POLE	С	6	20/1	SCOREBOARD
7 20	0/1	RECEPTACLE AT LIGHT POLE	a	8	20/1	PA SPEAKER CABINET — GFCI RECEPTACLE
9 20	0/1	RECEPTACLE AT LIGHT POLE	b	10		RECEPTACLE AT BATTING CAGE
11 20	)/1	RECEPTACLE AT LIGHT POLE	С	12		RECEPTACLE IN THE DUGOUT
13   20	)/1	GFCI RECEPTACLE WITH LOCKING SWITCH	а	14	20/1	RECEPTACLE IN THE DUGOUT
15   20	)/1	SPARE	b	16	20/1	SPARE
17   20	)/1	SPARE		18		SPARE
19   20	0/1	SPARE	а	20	20/1	SPARE
	)/1	SPARE	b	22	20/1	SPARE
23   20		SPARE		24		SPARE
	)/1	SPARE	a	26	20/1	SPARE
27   20	0/1	SPARE			20/1	SPARE
	0/1	SPARE		30		SPARE
31 20	•	SPARE			20/1	SPARE
33   20	-	SPARE		34	<del></del>	SPARE
35   20		SPARE		36		SPARE
37   20		SPARE	a	38	20/1	SPARE
39   20		SPARE	b	40	20/1	SPARE
41   20	0/1	SPARE	c	42	20/1	SPARE





# TYPICAL POLE RISER DETAIL



RISER POLE NOTES:

KEYED NOTES

1 U GUARD

THE UTILITY COMPANY SHALL DESIGNATE CONDUIT

RISER LOCATION ON THE POLE. ALL PRIMARY RISERS

SHALL BE GALVANIZED STEEL, THIS INCLUDES THE 90

DEGREE SWEEP. PER NEC ALL STEEL RISERS MUST BE

BONDED 6" DOWN FROM TOP OF RISER AND THE BOND

THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR

PROVIDING AND INSTALLING THE BOND CLAMPS AND

THE TAP. THE UTILITY COMPANY WILL MAKE THE BOND

CONNECTION FROM THAT RISER BOND TAP TO THE GROUND SYSTEM ON THE POLE. SPARE RISER SWEEP

SHALL BE BONDED ALSO. RISER SWEEP IN DIRECT

BURIED APPLICATIONS SHALL BE CONCRETE ENCASED.

(2) GALVANIZED STEEL CONDUIT AND BEND ARE TO BE

USED, THEY SHALL BE GROUNDED BY BONDING TO AN

APPROVED U-BOLT TYPE GROUND CLAMP 6"(150mm)

FROM TO OF THE CONDUIT. A 24" (600mm)

CONDUCTOR SHALL BE PROVIDED TO EXTEND TO THE

UTILITY COMPANY'S GROUNDING CONDUCTOR. THE

CONDUCTOR SHALL BE SIZED AS REQUIRED BY THE

NATIONAL ELECTRICAL CODE. ARTICLE 250, BUT IN NO

CASE SHALL IT BE SMALLER THAN #4 AWG COPPER.

USE CORROSION RESISTANT BENDS IN LOCATIONS

SWEEP, ATTACHMENT CLAMPS, GROUNDING CLAMP AND

24" GROUNDING CONDUCTOR SHALL BE FURNISHED

AND INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.

NORMALLY, THE CONDUIT SHALL RISE ON THE SIDE OF

THE POLE AWAY FROM TRAFFIC UP TO 8 FT. (2.5m) TO

11 FT. (3.4m), CONSULT UTILITY COMPANY FOR PROPER

(4) PIPE STRAPS, INSTALL AT NOT MORE THAN 30"

(5) THE CONDUIT BURIAL DEPTH SHALL BE 30" (750mm)

NTS

SCALE: N.T.S.

(3) GALVANIZED STEEL CONDUIT, GALVANIZED STEEL

SUBJECT TO HIGHWAY SALTING.

LOCATION ON POLE.

(750mm) INTERVALS.

MINIMUM.

MUST BE AT LEAST 8' HIGH FROM FINISHED GRADE.

SCALE: N.T.S.

TRENCH DETAIL A-A

SE - 2-1/2" SECONDARY ELECTRICAL

TRENCH DETAIL B-B

LEGEND:

LEGEND:

- THE ELECTRICAL SUBCONTRACTOR SHALL VERIFY THE CONDUIT LAYOUT WITH THE UTILITY COMPANIES PRIOR TO INSTALLATION.
- . THE PRIMARY ELECTRICAL CONDUITS SHALL BE ENCASED IN MIN. 3" OF 3000 PSI CONCRETE, COMPLY WITH UTILITY COMPANY REQUIREMENTS FOR REBAR AND STIRRUP REQUIREMENTS.
- 3. ALL OTHER CONDUITS SHALL BE ENCASED IN 3" OF 3000 PSI CONCRETE WHEN CROSSING ROADWAYS. DRIVEWAYS AND OTHER VEHICULAR TRAFFIC AREAS.
- 4. EXCAVATION, CONCRETE AND BACKFILLING SHALL BE BY THE GENERAL CONTRACTOR. CONDUIT AND WIRING SHALL BE BY THE ELECTRICAL SUBCONTRACTOR.
- 5. HANDHOLES SHALL BE AASHTO 20 RATED WITH BOLTED HEAVY DUTY COVERS. COVERS SHALL READ "ELECTRIC" "TELEPHONE" OR "CATV" DEPENDING ON THE APPLICATION.
- 6. CONDUITS SHALL BE SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE. 7. ALL SWEEPS AT FOUNDATIONS AND RISERS SHALL HAVE
- A MINIMUM RADIUS OF 36". THE RISER SWEEP SHALL BE GALVANIZED STEEL.

# **ELECTRICAL CABINET**

PROVIDE OUTDOOR NE MA 3R STAINLESS STEEL, TO CONTAIN 120/240V PANELBOARDS, RECEPTACLES, ETC. FOR POWER, WITH SPACE FOR FUTURE EQUIPMENT.

CONTRACTOR TO SIZE CABINET TO COORDINATE WITH SIZES OF PANELBOARD AND FOUIPMENT TO BE INSTALLED WITHIN CABINETS. DIMENSIONS SHOWN ARE TYPICAL AND ARE FOR REFERENCE ONLY. CABINET TO BE SIMILAR TO CABINETS INSTALLED AT THE RECENTLY RENOVATED PARKS (LIST PROVIDED UPON REQUEST). CABINET TO INCLUDE ALL EQUIPMENT SHOWN OR IMPLIED AND ALL EQUIPMENT SHALL BE INSTALLED INSIDE OF CABINET WITHOUT PHYSICAL CONFLICTS AND PER NEC. CABINET TO BE SIZED FOR ALL NECESSARY CONDUITS, WHETHER ACTIVE, SPARE OR FUTURE AS LISTED ON PANELBOARD SCHEDULES.

CABINETS TO BE MAN UFACTURED FROM 11 GAUGE MINIMUM STAINLESS STEEL WITH 12 GAUGE STEEL PANEL MOUNTED INSIDE CABINETS TO HAVE INTEGRAL KEYED LOCKING MECHANISM, KEYED ALIKE, WITH PROVISION FOR PAD-LOCK CABINETS SHALL BE VENTILATED TYPE AND FACTORY PAINTED BLACK POWDER-COAT. CABINETS TO HAVE DOOR HOLD-OPEN

# PA SYSTEM

### SPEAKER SYSTEM: THE CONTRACTOR SHALL PROVIDE OUTDOOR, WEATHER-RESISTANT AUDIO SPEAKERS (ONE PER POLE), ON 2 NEW SPORTS LIGHTING POLES (A1 AND A2 ON THE DRAWINGS), 1 PER POLE. SPEAKERS SHALL BE 120W, 2-WAY HORN LOADED SHALL BE MULTI-TAP FOR 70V AND 100V INPUTS.

- 4" TELECOMMUNICATION

- CO-AXIAL, WEATHER-RESISTANT LOUDSPEAKERS, AND SPEAKER SIZE SHALL BE 16" X 16" X 16", AND MANUFACTURED BY COMMUNITY PROF. LOUDSPEAKER (MODEL R.5-94TX), AUDIOVOX, BOSE, OR APPROVED EQUAL. AUDIO CABLING SHALL BE 14 GAUGE MINIMUM, WATERPROOF CABLE.
- INSTALLATION OF SPEAKER SYSTEM: SPEAKERS SHALL BE MOUNTED A MINIMUM OF 25 FEET ABOVE FINISHED GRADE, WITH STAINLESS STEEL HARDWARE, EACH SPEAKER SHALL HAVE A HOME RUN BACK TO THE PA CABINET BEHIND THE BACKSTOP.
- PROVIDE PAD MOUNTED PA CABINET WITH GFCI RECEPTACLE AND TERMINAL STRIP. SEE DETAIL.

# SECURITY CAMERA

INCLUDE IN BASE BID, TO FURNISH, INSTALL AND TEST ALL FIBER OPTIC CABLE SPECIFIED (12 STRAND SINGLE MODE OUTDOOR PLANT FIBER)

COMMUNICATIONS CONDUITS SHALL BE 2-INCH TYPE HDPE CONTINUOUS ROLL, SMOOTH WALL SDR 09 BETWEEN HANDHOLES, COMMUNICATION CONDUITS RUN INTO LIGHT POLES CAN BE SCHEDULE 40 PVC. ELECTRICAL AND HDPE CONDUITS SHALL BE IN SEPARATE HANDHOLE/PULLBOX.

INCLUDE IN BASE BID. TO COORDINATE, FURNISH AND

INSTALL AT PEDESTRIAN LIGHT POLE WITH CAMERAS, WITH

COMMUNICATION HANDHOLE, ONE POLE MOUNTED NEMA 4X RATED UTILITY CABINET, WITH STAINLESS STEEL BACK PANEL, INCLUDE LABOR AND MATERIALS TO ENERGIZED DUPLEX OUTLET FOR SECURITY CAMERAS, SECURITY CAMERA APPURTENANCES, CAMERAS AND APPURTENANCES INSIDE POLE MOUNTED UTILITY CABINET ARE NOT INCLUDED IN BASE BID (SEE ITEM 'A" OF ARTICLE 40). FURNISH AND INSTALL MANUFACTURER'S STANDARD AUXILIARY WIRE EXITS (2). MOUNT UTILITY CABINETS WITH POLE MANUFACTURER'S STANDARD AND PROVIDED "TRAC NUT" HARDWARE, INCLUDE FARRICATION OF CUSTOM H-BRACKET FOR THE LITTLITY CABINET. UTILITY CABINET STANDARD SHALL BE STAHLIN PART# RJ1614HW-P, TYPE# 1,3R,4X,6P,12 PAINTED BLACK, OR APPROVED EQUAL.

# **GENERAL NOTES**

- ALL RACEWAY SHALL BE CONCEALED UNLESS OTHERWISE NOTED. PROVIDE PULL STRINGS FOR ALL RACEWAYS. COORDINATE ROUTING OF ALL EXPOSED CONDUITS WITH THE ARCHITECT.
- THE SIZES OF ELECTRICAL RACEWAY SHALL BE AS INDICATED ON THE CONTRACT DRAWINGS AND SHALL MEET THE REQUIREMENTS OF THE

LOCAL ELECTRIC CODE, 1" MINIMUM, OR AS SHOWN ELSEWHERE.

OR THEIR SUB-CONTRACTORS, UNLESS NOTED OTHERWISE.

- 3. CONDUIT FOR WIRING CONCEALED IN FLOOR SLABS, OR BELOW GRADE SHALL BE
- 4. ALL WORK INCLUDING DEVICES, OUTLETS, FIXTURES, WIRING, CONDUIT, RACEWAY, EQUIPMENT, ETC SHOWN ON THE ELECTRICAL PLANS IS NEW WORK AND SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL SUBCONTRACTOR
- ALL NEW OUTLETS, DEVICES, FIXTURES, WIRING, CONDUIT, RACEWAY, EQUIPMENT, ETC SHOWN ON THE ELECTRICAL PLANS SHALL BE PROVIDED WITH ALL PARTS AND ACCESSORIES FOR A COMPLETE INSTALLATION.
- 6. ALL WIRE AND CABLE FOR POWER, LIGHTING, CONTROL INDICATION, ALARM, SIGNAL AND COMMUNICATION SYSTEM, UNLESS OTHERWISE NOTED, SHALL HAVE TYPE THHN INSULATION AND SHALL BE RATED FOR 600V MINIMUM.
- MINIMUM WIRE SHALL BE #12. ALL WIRING SHALL BE NEW, UNLESS NOTED OTHERWISE. WIRING IN EXCESS OF 70 FEET FOR 120/208V AND 165 FEET FOR 277/480V MUST BE SIZED FOR VOLTAGE DROP. UPGRADE FEEDER SIZES IN ACCORDANCE WITH THE NEC. LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO 2% DROP.
- 8. ALL WIRING INSTALLATION SHALL BE COLOR CODED AS PER THE ELECTRICAL CODE, ALL CONDUCTORS SHALL BE STRANDED TYPE.
- 9. CIRCUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND FIXTURES.
- 10. ALL WIRING, INCLUDING BUT NOT LIMITED TO VIDEO SURVEILLANCE SYSTEM, SOUND SYSTEM, ACCESS CONTROL, FIRE ALARM, LIGHTING CONTROL, LOW VOLTAGE SYSTEMS, DATA, VOICE, BRANCH CIRCUITS AND FEEDERS SHALL BE INSTALLED IN RIGID METAL CONDUIT WHERE EXPOSED. EMT IS ALLOWED IF NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
- .. WIRING (NOT SHOWN) FOR THE VIDEO SURVEILLANCE SYSTEM, SOUND SYSTEM. ACCESS CONTROL, LIGHTING CONTROL, LOW VOLTAGE SYSTEMS, SHALL BE FURNISHED AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS, SEE FLECTRICAL SPECIFICATIONS FOR ADDITIONAL SCOPE OF WORK, EXPOSED WIRING SHALL BE INSTALLED IN RIGID METAL CONDUIT. EMT IS ALLOWED IF NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
- 12. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
- 13. CONDUIT AND WIRING (NOT SHOWN) FOR THE HVAC CONTROL EQUIPMENT AND MISCELLANEOUS DEVICES, OUTLET, SWITCHES, JUNCTION, PULL AND TERMINAL BOXES SHALL BE PROVIDED WITH NEMA ENCLOSURE SUITABLE TO THE ENVIRONMENT.
- 14. ALL WIRING DEVICES, PANEL BOARDS, DISTRIBUTION BOARDS, MOTORS, ETC., SHALL BE GROUNDED AS PER ELECTRIC CODE.
- 15. ALL WORK SHALL BE INSTALLED IN FULL ACCORDANCE WITH LOCAL, STATE & FEDERAL CODES, STATE AND LOCAL AUTHORITIES. FILE ALL PLANS, OBTAIN ALL PERMITS, PAY ALL FEES, SCHEDULE ALL INSPECTIONS, MAKE ALL TESTS AND OBTAIN ALL APPROVALS REQUIRED. THE ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF NATIONAL ELECTRIC CODE AND LOCAL AUTHORITIES HAVING JURISDICTION. ALL COMPONENTS SHALL BE UL LISTED.
- 16. WHERE CONFLICTS ARE FOUND BETWEEN DRAWINGS, SPECIFICATIONS, LAWS & ORDINANCES, THE MOST STRINGENT SHALL APPLY.
- 17. SUBMIT FOR APPROVAL, COMPLETE SHOP DRAWINGS, LIST OF MATERIALS AND DETAILED DATA OF EQUIPMENT GIVING THE MANUFACTURERS NAME, CATALOG NUMBER, SIZE, CAPACITY AND DIMENSIONS, SUBMIT SHOP DRAWINGS FOR APPROVAL ONLY AFTER VERIFYING ALL DIMENSIONS, CONFIRM THAT THE EQUIPMENT, DEVICES, FIXTURES, ETC. CAN BE INSTALLED WITHOUT MODIFICATIONS. NO EQUIPMENT SHALL BE INSTALLED OR FABRICATED WITHOUT OBTAINING APPROVAL. ANY MODIFICATIONS REQUIRED, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER
- 18. SUBMIT FOR APPROVAL PRODUCTS THAT ARE APPROVED EQUAL ONLY. IT SHALL BE THE RESPONSIBILITY OF THE FLECTRICAL SUBCONTRACTOR TO VERIEY THAT THE SUBSTITUTED SYSTEMS ARE APPROVED EQUAL. IN THE EVENT THAT UNAPPROVED SYSTEMS ARE SUBMITTED FOR APPROVAL, THE ELECTRICAL SUBCONTRACTOR SHALL RETURN THESE SYSTEMS TO THE VENDOR AND FURNISH AND INSTALL APPROVED SYSTEMS AT NO ADDITIONAL COST TO THE OWNER.
- 19. ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL MOTOR STARTERS FOR ALL MOTORS, UNLESS CLEARLY INDICATED OTHERWISE ON THE CONTRACT DOCUMENTS. PROVIDE WITH NEMA ENCLOSURE SUITABLE TO THE ENVIRONMENT. THREE PHASE MOTORS SHALL BE PROVIDED WITH A COMBINATION MAGNETIC MOTOR STARTER WITH AMBIENT COMPENSATED OVERLOAD HEATERS IN EACH UNGROUNDED LEG. SHORT CIRCUIT AND GROUND FAULT PROTECTION SHALL BE BY FUSED DISCONNECT SWITCH AS SHOWN OR SPECIFIED. PROVIDE (1) SET OF NO AND (1) SET OF NC AUXILIARY CONTACTS.
- 20. MANUALLY CONTROLLED SINGLE PHASE MOTORS SHALL HAVE FULLY RATED MANUAL MOTOR STARTER SWITCHES WITH O.L. HEATERS IN EACH UNGROUNDED
- 21. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED.
- 22. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'-6".

23. ALL NON-LOCKING RECEPTACLES IN DAMP AND WET LOCATIONS SHALL BE GFC

- AND LISTED AS WEATHER RESISTANT TYPE PER NEC.
- 24. SWITCHGEAR & PANEL DESIGNATIONS ARE INTENDED TO BE INTERPRETED AS INDICATED BELOW: BLANK: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE
- SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS WITHIN SIZE RANGE
- SPARE: CONTAINS A COMPLETE BREAKER OR STARTER INSTALLED, SIZE AS INDICATED AVAILABLE FOR FUTURE USE.
- 25. THE ELECTRICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF EXISTING ELECTRICAL SERVICES AND CONNECTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICTS OR DISCREPANCIES FOUND PRIOR TO BID.

# VIDEO SURVEILLANCE

- CAMERA. FURNISH AND INSTALL FEEDER AND CONDUIT FOR POWER AND CABLING AND CONDUIT FOR COMMUNICATIONS.





**REVISIONS** 

REV	REV DATE COMMENT	COMMENT	DRAWN BY
KEV	DATE	COMMENT	CHECKED E



**ALWAYS CALL 811** It's fast. It's free. It's the law.

**FOR CONCEPT PURPOSES ONLY** 

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENC

REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCT DOCUMENT UNLESS INDICATED OTHERWISE. PROJECT No.:

DRAWN BY: **CHECKED BY:** ~ AR/RB

W211159-X-TT

PROJECT:

PROPOSED SITE





**PROPOSED** 

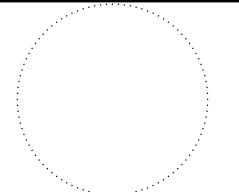
**DEVELOPMENT 165 ARARAT STREET WORCESTER OF** WORCESTER COUNTY,

**MASSACHUSETTS** 

352 TURNPIKE ROAD

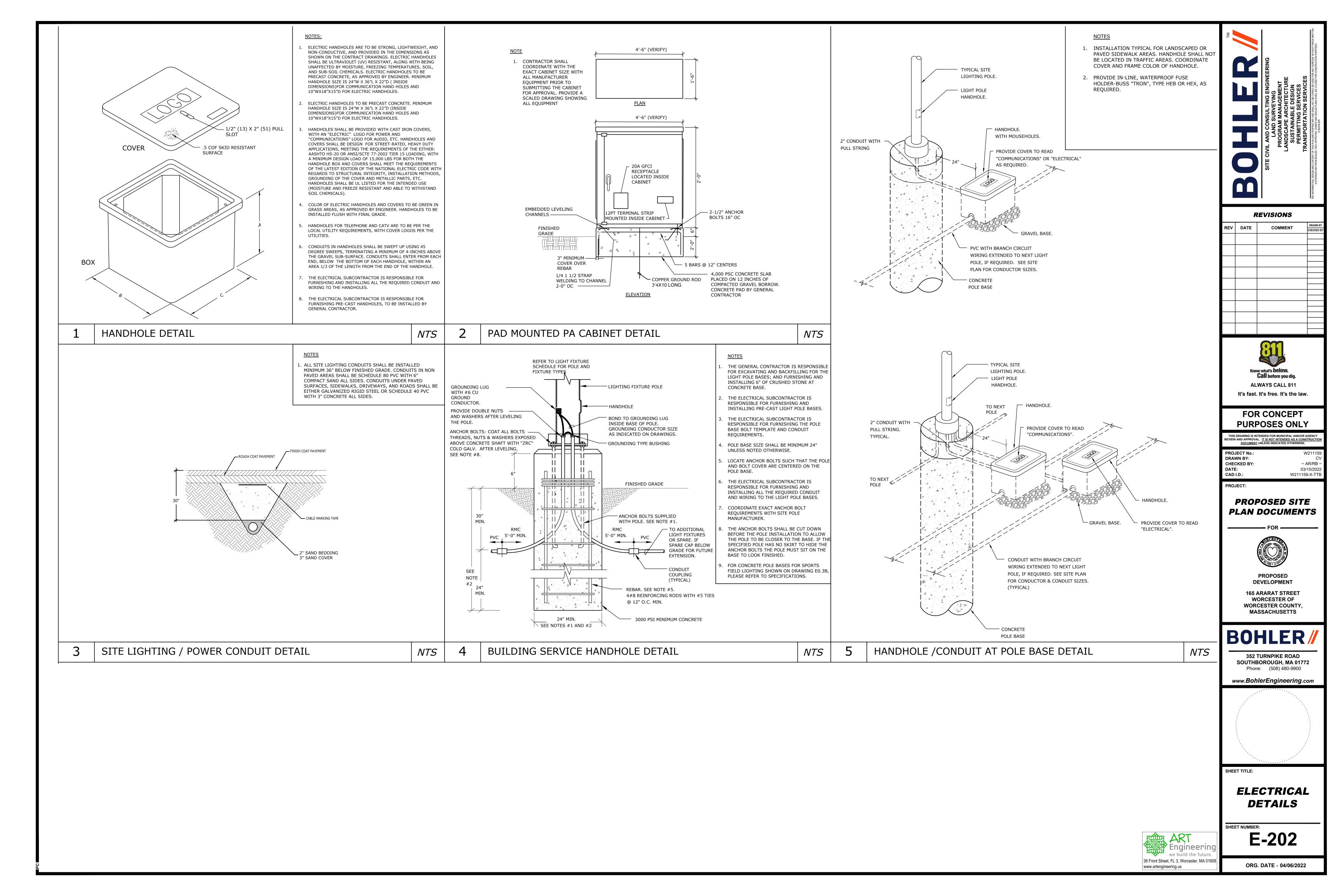
**SOUTHBOROUGH, MA 01772** 

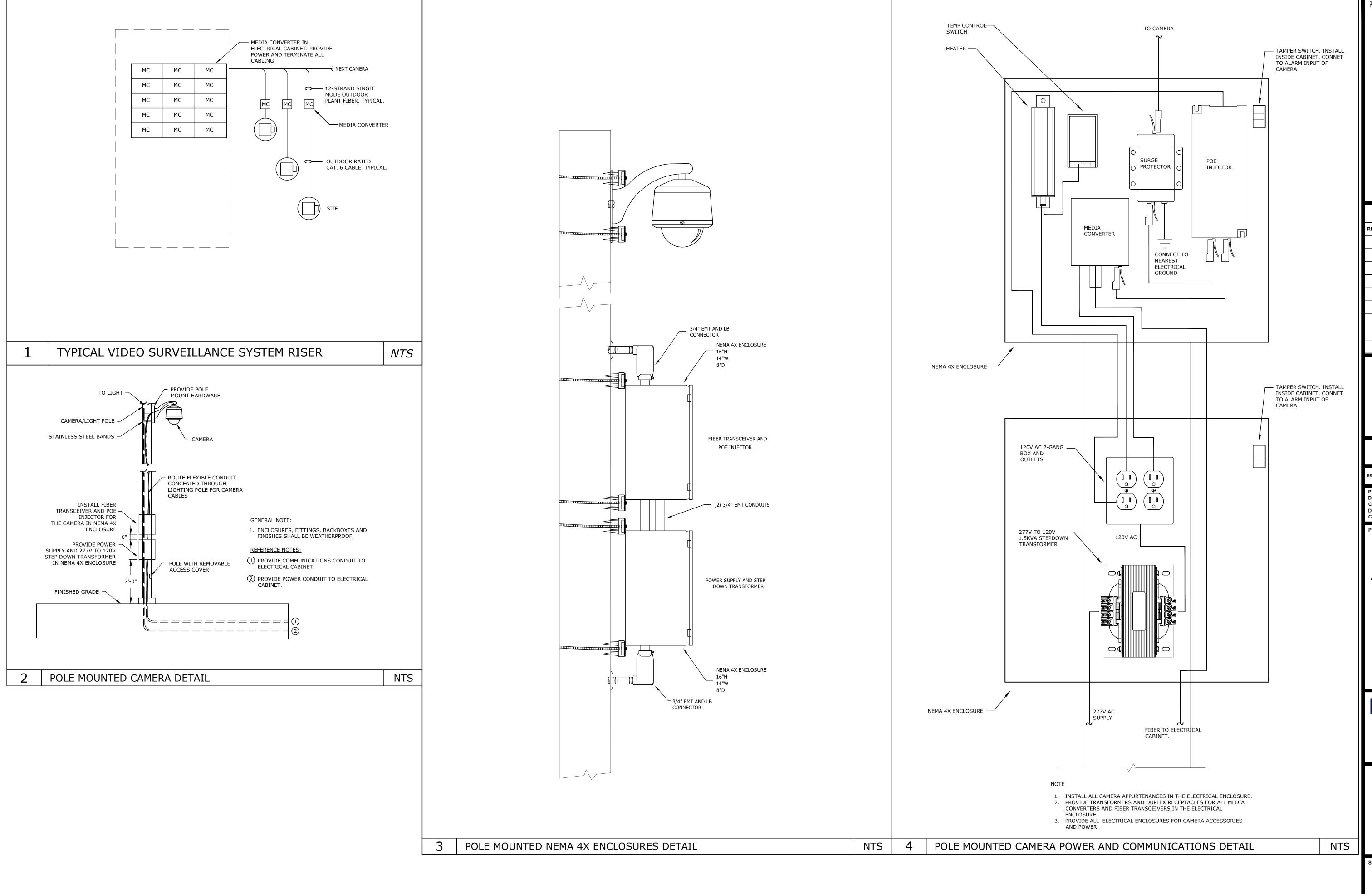
Phone: (508) 480-9900 www.BohlerEngineering.com



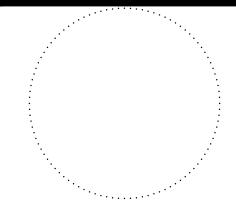
**ELECTRICAL NOTES** & **DETAILS** 

E-201





**REVISIONS** REV DATE COMMENT Know what's **below. Call** before you dig. **ALWAYS CALL 811** It's fast. It's free. It's the law. **FOR CONCEPT PURPOSES ONLY** PROJECT No.: DRAWN BY: DATE: CAD I.D.: 03/15/2022 W211159-X-TTE PROJECT: PROPOSED SITE **PLAN DOCUMENTS PROPOSED** DEVELOPMENT **165 ARARAT STREET WORCESTER OF** WORCESTER COUNTY, **MASSACHUSETTS BOHLER 352 TURNPIKE ROAD** SOUTHBOROUGH, MA 01772 Phone: (508) 480-9900 www.BohlerEngineering.com



SHEET TITLE:

ELECTRICAL DETAILS

SHEET NUMBER

ART Engineering

38 Front Street, FL 3, Worcester, MA 01608

www.artengineering.us

E-203

# System Requirements: **MuscoVision™ Video System Summary**

Indian Hill Park LED Worcester, MA

# **Project Information**

### **Special Notes** Site Requirements

10 Mbps Internet service bandwidth, upload Equipment power, voltage\frequency\phase 120Vac\60Hz\1PH (see Power Consumption chart for details)

### **Power Consumption**

Cabinet / Camera Location	Amperes (maximum)	VA-Sealed	
Cabinet Location	1.5	124	
MV1 Remote Enclosure	0.5	75	

### **Equipment Listing**

Description	Quantity
Network Cabinet	1
Automation Cabinet	1
Camera, Narrow View	1
Camera, Medium View	1

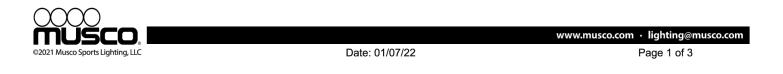
Project# 215451

Internet Service ID: POP1

### **Important Notes**

- 1. Dedicated circuit required to each network cabinet. Land power conductors on terminal blocks provided, 10 AWG maximum, copper only. Each network cabinet contains 15A GFCI circuit breaker and transient surge filter for power to equipment.
- 2. Camera locations may share dedicated circuit. Land power conductors on terminal blocks provided, 12 AWG maximum, copper only.
- 3. Size conductors per code based on amperes and voltage drop.
- 4. Size conduit diameters per code. Power wiring must be in separate conduit from network cables.
- 5. Provide breaker lock-on device for dedicated power circuits to prevent unauthorized use.
- 6. Cat5e cable to be four twisted pair, Belden 7937A or equal. Maximum cable run is 300 ft (100 m). Terminate cable ends with RJ45 connectors. Use shielded connector at start of network segment; do not use shielded connector at camera.

7. Fiber optic cable (if present) to be 6-strand, singlemode, outdoor rated, Belden FDSD006P9 or equal. Terminate ends with LC singlemode



# System Requirements: **MuscoVision™ Video System Summary**

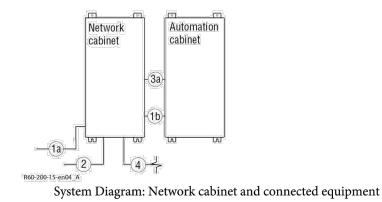
Indian Hill Park LED Project# 215451

# System Configuration

**Primary Cabinet Location** 

**Cabinet location name Cabinet Location** 

Worcester, MA



### **Connection Details**

### **ID** Description

- 1a Power to network cabinet one per network cabinet
- 1b Filtered power to associated cabinets (Maximum 10.5 amperes for circuits)
- 2 Ethernet connection from Internet Service POP to network cabinet with gateway (One per primary cabinet location)
- 3a Ethernet connection from network cabinet to video production modules (One per module in automation cabinet(s))
- 4 Ethernet connection to additional network cabinets or camera locations (See diagrams for connections)

# MUSCO. I Date: 01/07/22

# System Requirements: MuscoVision™ Video System Summary

Indian Hill Park LED Project# 215451 Worcester, MA

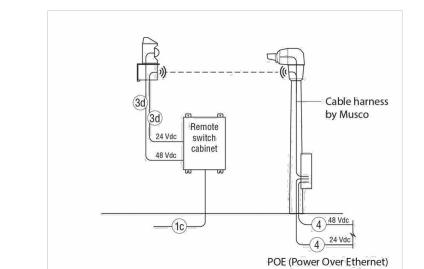
# **System Configuration**

**Camera Locations** 

Internet Service ID: POP1

### Field/Camera ID **Network Cabinet** Cabinet Location Softball 1 MV1 Softball 1 MV2

Cabinet Location



Internet Service ID: POP1

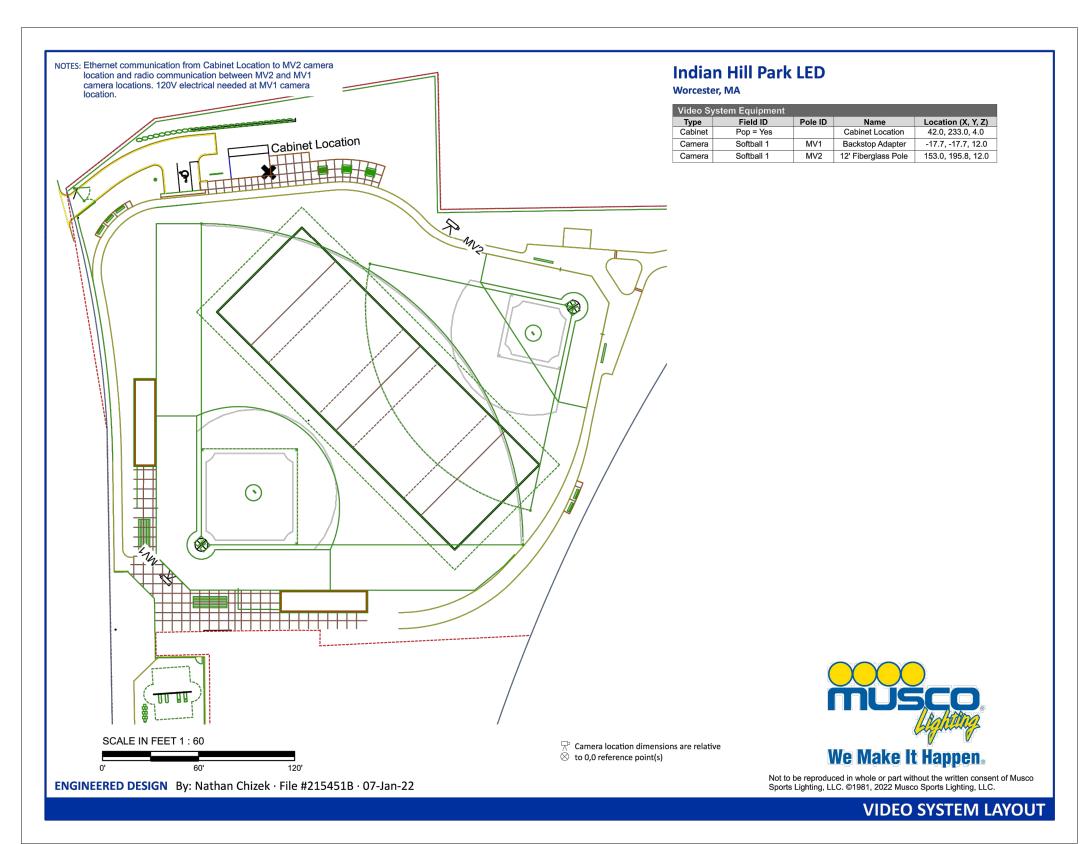
System Diagram: Camera Equipment

# **Connection Details**

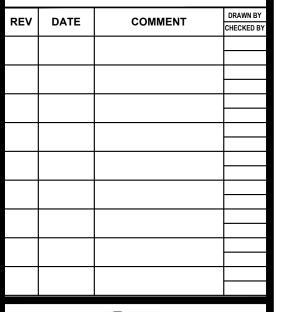
### ID Description

- 1c Power to remote cabinet at camera location (One per camera location)
- 3d Ethernet connection from remote cabinet to camera (Quantities vary by camera, see diagrams)
- 4 Ethernet connection from network cabinet to camera locations (Quantities vary by camera, see diagrams)











FOR CONCEPT

**PURPOSES ONLY** THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTIC DOCUMENT UNLESS INDICATED OTHERWISE.

03/15/2022

W211159-X-TTE

PROJECT No.: DRAWN BY:

PROJECT:

DATE: CAD I.D.:

# PROPOSED SITE **PLAN DOCUMENTS**

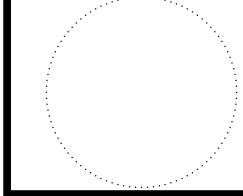


PROPOSED DEVELOPMENT

**165 ARARAT STREET WORCESTER OF** WORCESTER COUNTY, MASSACHUSETTS

**352 TURNPIKE ROAD** SOUTHBOROUGH, MA 01772

Phone: (508) 480-9900 www.BohlerEngineering.com



SHEET TITLE:

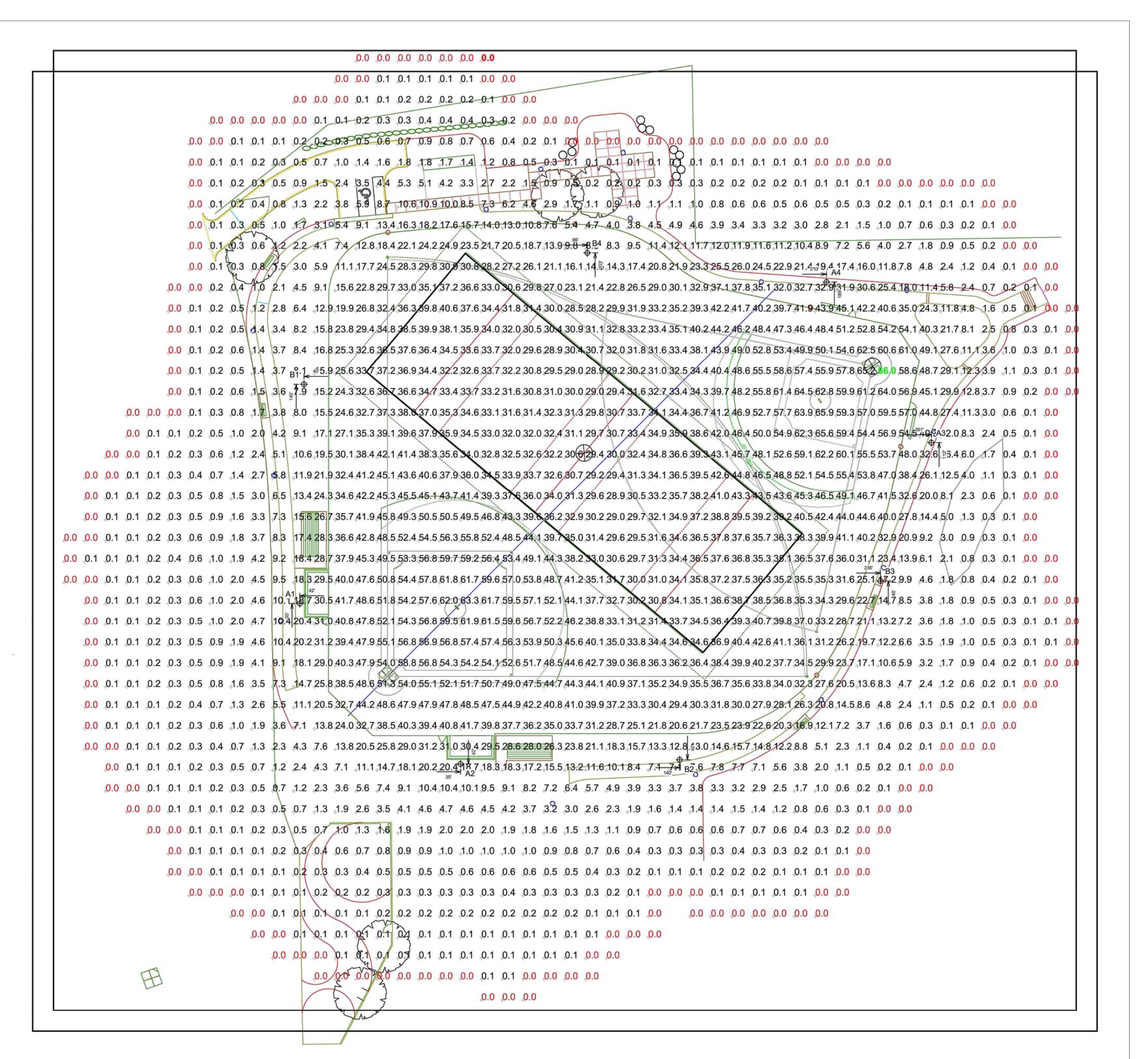
**VIDEO** SYSTEM DETAIL

ART Engineering

www.artengineering.us

38 Front Street, FL 3, Worcester, MA 01608

E-301



	e Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty		minaire Type	Load	Circuit
A1-A2	70'	70'	1	TL	C-LED-1200	1.17 kW	A
		70'	2	TL	.C-LED-900	1.78 kW	Α
		16'	1	TI	LC-BT-575	0.58 kW	Α
		30'	1	C	REE OSQ	0.10 kW	D
A3-A4	60'	60'	1	TL	.C-LED-600	0.58 kW	С
		60'	2	TL	.C-LED-900	1.78 kW	С
		16'	1	TI	LC-BT-575	0.58 kW	С
		30'	1	С	REE OSQ	0.10 kW	D
B1-B2	70'	70'	1	TL	C-LED-1200	1.17 kW	В
		70'	3	TL	C-LED-900	2.67 kW	В
		16'	1	TI	LC-BT-575	0.58 kW	В
		30'	1	С	REE OSQ	0.10 kW	D
В3	70'	70'	5	TLC-LED-600		2.90 kW	В
		16'	2	TI	LC-BT-575	1.15 kW	В
		30'	1	С	REE OSQ	0.10 kW	D
B4	70'	70'	7	TL	.C-LED-600	4.06 kW	В
		16'	2	TI	LC-BT-575	1.15 kW	В
		30'	1	С	REE OSQ	0.10 kW	D
8			50			31.84 kW	
cuit Sumi	2007						
Circuit	iiai y	Description		Load	Fixture Qty		
A		Softball 1		7.05 kW	8		
В		SB1/MP/SB2		18.09 kW	26		
С		Softball 2		5.87 kW	8		
D		Security		0.83 kW	8		

Fixture Type Summary								
Туре	Source	Wattage	Lumens	L90	L80	L70	Quantity	
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	14	
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	4	
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	10	
TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>120,000	>120,000	>120,000	14	
CREE OSQ	LED 5700K - 70 CRI	104W	15,939		-		8	

<b>Light Level</b>	Summary	
Calculation	Grid Summar	į
		а

Grid Name	Calculation Metric			Illumination			Circuits	Fixture Qty
Grid Name	Calculation Metric	Ave	Min	Max	Max/Min	Ave/Min	Circuits	Fixture Qty
Multipurpose	Horizontal Illuminance	31.9	25	40	1.62	1.28	В	26
Security	Horizontal Illuminance	0.75	0	4	168.08		D	8
Softball 1 (Infield)	Horizontal Illuminance	52.4	40	63	1.56	1.31	A,B	34
Softball 1 (Outfield)	Horizontal Illuminance	34.4	29	44	1.54	1.19	A,B	34
Softball 2 (Infield)	Horizontal Illuminance	51.9	41	65	1.60	1.27	B,C	34
Softball 2 (Outfield)	Horizontal Illuminance	34.5	27	39	1.45	1.28	B,C	34
Zero Grid	Horizontal Illuminance	16.5	0	66	102256.70		A,B,C	42



	REV	DATE	COMMENT	CHECKED BY
1				
ı				
ı				
ı				
ı				
ı				
1				
1				
ı				
1				
ı				
ı				
ı				



It's fast. It's free. It's the law.

FOR CONCEPT **PURPOSES ONLY** 

W211159-X-TT

DRAWN BY: DATE: CAD I.D.:

PROJECT:

PROPOSED SITE **PLAN DOCUMENTS** 



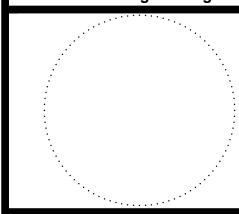
**PROPOSED DEVELOPMENT** 

**165 ARARAT STREET WORCESTER OF WORCESTER COUNTY, MASSACHUSETTS** 

**BOHLER** 

352 TURNPIKE ROAD **SOUTHBOROUGH, MA 01772** Phone: (508) 480-9900

www.BohlerEngineering.com



**SPORTS** FIELD LIGHTING DETAIL

ART

38 Front Street, FL 3, Worcester, MA 01608

www.artengineering.us

Engineering

E-401



# Control System Summary #2

# **Project Information**

**Project Specific Notes:** Indian Hill Park LED

Total Contactors

Total Off/On/Auto Switches:

Sales Representative: Mike Berry Control System Type: Control-Link™ Control and Monitoring System

Distribution Panel Location or ID: Service 2 Total # of Distribution Panel Locations for Project: Design Voltage/Hertz/Phase: 208-120/60/3

Equipment Listing

DESCRIPTION 24 X 72

# **Materials Checklist**

**Contractor/Customer Supplied:** ☐ A dedicated control circuit must be supplied per distribution panel location If the control voltage is NOT available, a control transformer is required

☐ Electrical distribution panel to provide overcurrent protection for circuits HID rated or D-curve circuit breaker sized per full load amps on Circuit Summary by Zone Chart

Wiring See chart on page 2 for wiring requirements Equipment grounding conductor and splices must be insulated (per circuit) Lightning ground protection (per pole), if not Musco supplied

☐ Electrical conduit wireway system Entrance hubs rated NEMA 4, must be die-cast zinc, PVC, or copper-free die-cast aluminum ■ Mounting hardware for cabinets

☐ Breaker lock-on device to prevent unauthorized power interruption to control power and powerline connection (if present) ☐ Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central<sup>™</sup> operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.

Note: Activation may take up to 1 1/2 hours.

Communication Type:

Control Voltage:

1.Control and Monitoring Cabinet

QTY SIZE (AMPS) 30 AMP

# **IMPORTANT NOTES**

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays.

Contact your Musco sales representative to confirm this item. 2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3

phases across the entire facility. 3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are 100% rated for the

published continuous load. All contactors are 3 pole. 4. If the lighting system will be fed from more than one distribution location,

By Zone chart- Minimum power factor is 0.9.

additional equipment may be required. Contact your Musco sales representative. 5. A single control circuit must be supplied per control system. 6. Size overcurrent devices using the full load amps column of the Circuit Summary

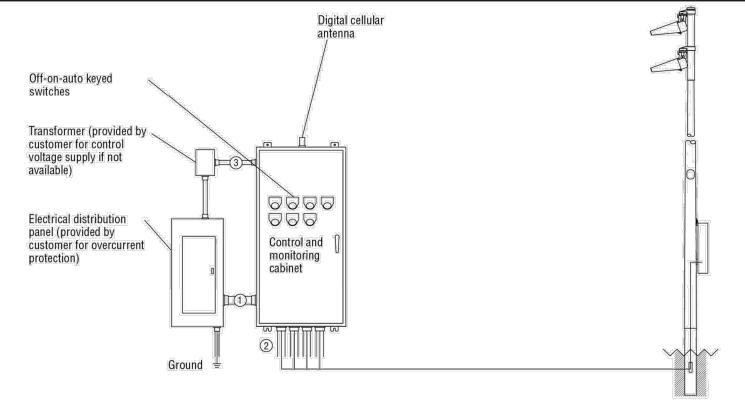
NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.



# **Control System Summary**

Indian Hill Park LED / 215451 - 215451 (A) Service 1 - Page 2 of 4

Control Link。 Control and Monitoring System



C	onduit ID Description	# of Wires	Wire (AWG)	Conduit (in)	Max. Wire Length (ft)	MUSCO Supplied	Notes
1	Line power to contactors, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
2	Load power to lighting circuits, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
3	Control power (dedicated, 20A)	3	12	*C	N/A	No	C,E

A. See voltage and phasing per the notes on cover page.

All conduit diameters should be per code unless otherwise specified to allow for connector size.

D. Equipment grounding conductor and any splices must be insulated. E. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.

IMPORTANT: Control wires (3) must be in separate conduit from line and load power wires (1, 2).

T:\215\215451P1V1-1220154839.pdf



# **Control System Summary**

# **Project Information**

**Project Specific Notes:** 

Indian Hill Park LED

Sales Representative: Mike Berry Control System Type: Control-Link<sup>™</sup> Control and Monitoring System Communication Type:

Distribution Panel Location or ID: Service 1 Total # of Distribution Panel Locations for Project: Design Voltage/Hertz/Phase: Control Voltage:

480-277/60/3

**Equipment Listing** 

DESCRIPTION 1.Control and Monitoring Cabinet 24 X 72

QTY SIZE (AMPS) Total Contactors Total Off/On/Auto Switches

□ A dedicated control circuit must be supplied

 See chart on page 2 for wiring requirements Equipment grounding conductor and splices must be insulated (per circuit)

 Lightning ground protection (per pole), if not Musco supplied ☐ Electrical conduit wireway system Entrance hubs rated NEMA 4, must be die-cast zinc, PVC, or copper-free

**Materials Checklist** 

— If the control voltage is NOT available,

HID rated or D-curve circuit breaker sized

per full load amps on Circuit Summary by

a control transformer is required ☐ Electrical distribution panel to provide

overcurrent protection for circuits

Zone Chart

wire, if necessary

Wiring

**Contractor/Customer Supplied:** 

per distribution panel location

die-cast aluminum Mounting hardware for cabinets ☐ Breaker lock-on device to prevent unauthorized power interruption to control power and powerline connection (if present)

☐ Anti-corrosion compound to apply to ends of

Call Control-Link Central<sup>™</sup> operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.

Note: Activation may take up to 1 1/2 hours.

**IMPORTANT NOTES** 

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.

2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.

3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are 100% rated for the published continuous load. All contactors are 3 pole. 4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.

5. A single control circuit must be supplied per control system. 6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on

equipment information and the installation requirements.

©1999,2021 Musco Sports Lighting,LLC



# Control System Summary #2

	PANEL SUMMARY #2							
CABINET #	CONTROL MODULE LOCATION	CONTACTOR	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)		
2	1	C1	Receptacle - Batting cage / Bullpen	5.00				
2	1	C2	Receptacle - Dugout	5.00				
2	1	C3	Receptacle - Dugout	5.00				
2	1	C4	Muscovision Camera "MV2"	5.00				
2	1	C5	Flag Pole Lights	5.00				
2	1	C6	Spare	0.00				

ZONE SCHEDULE #2						
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION CONTACTOR ID			
Zone 1	1	Receptacle - Batting cage / Bullpen	C1			
Zone 2	2	Receptacle - Dugout	C2 C3			
Zone 3	3	Muscovision Camera "MV2"	C4			
Zone 4	4	Flag Pole Lights				

# **SWITCHING SCHEDULE #2**

<u>ownorm o oc</u>	JIILDULL WE
Zone Description	<u>Zones</u>
Receptacle - Batting cage	1
Receptacle - Dugout	2,3
Muscovision Camera "MV2"	4
Flag Pole Lights	5



# **Control System Summary**

Indian Hill Park LED / 215451 - 215451 (A) Service 1 - Page 4 of 4

R60-100-00\_B

PANEL SUMMARY								
CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)		
1	1	C1	Pole A1	5.86				
1	1	C1	Pole A2	5.86				
1	1	C2	Pole B1	7.85				
1	1	C3	Pole B2	7.85				
1	1	C3	Pole B3	7.64				
1	1	C2	Pole B4	7.66				
1	1	C4	Pole A3	5.22				
1	1	C4	Pole A4	5.25				
1	1	C5	Pole A1,A2,A3,A4,B1,B2,B3,B4	1.14				
1	1	C6	Pole T1	0.00				
1	1	C7	Dugout D	0.00				
1	1	C8	Transformer for MuscoVision Network Cabinet	0.00				

ZONE SCHEDULE							
CIRCUIT DESCRIPTION							
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	POLE ID	CONTACTOR ID			
Zone 1	1	Softball 1	A1 A2	C1 C1			
Zone 2	2	SB1/MP/SB2	B1	C2			
	1 1		B2	C3			
	1 1		B3	C3			
	1 1		B4	C2			
Zone 3	3	Softball 2	A3	C4			
			A4	C4			
Zone 4	4	Security	A1	C5			
			A2	C5			
			A3	C5			
			A4	C5			
			B1	C5			
			B2	C5			
			В3	C5			
	1 1		B4	C5			
Zone 5	5	Pathway Lighting (Third Party)	T1	C6			
Zone 6	6	Dugout Lighting (Third Party)	D	C7			
Zone 7	7	Muscovision Network Cabinet	NC	C8			



# **Control System Summary**

Indian Hill Park LED / 215451 - 215451 (A) Service 1 - Page 3 of 4

SWITCHING SCHEDULE					
d/Zone Description	Zones				
tball 1	1,2				
oftball 1	1				
B1/MP/SB2	2				
tball 2	2,3				
B1/MP/SB2	2				
oftball 2	3				
tinurnose	2				

Pathway Lighting [Third Party] 5 Transformer for power for MuscoVision 7 Camera cabinet "NC".

CONTROL POWER CONSUMPTION 120V Single Phase INRUSH: 3023.0 of Musco Supplied SEALED: 335.8 Equipment

CIRCUIT SUMMARY BY ZONE								
POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE	
A1	Softball 1	4	4	5.9	30	C1	1	
A2	Softball 1	4	4	5.9	30	C1	1	
B1	SB1/MP/SB2	5	5	7.9	30	C2	2	
B2	SB1/MP/SB2	5	5	7.9	30	C3	2	
B3	SB1/MP/SB2	7	4	7.6	30	C3	2	
B4	SB1/MP/SB2	9	5	7.7	30	C2	2	
A3	Softball 2	4	4	5.2	30	C4	3	
A4	Softball 2	4	4	5.3	30	C4	3	
A1,A2,A3,A4,B1	Security	8	8	1.1	30	C5	4	
B2,B3,B4	-							
T1	Pathway Lighting (Third Party)	0	0	0.0	30	C6	5	
D	Dugout Lighting (Third Party)	0	0	0.0	30	C7	6	
NC	Transformer for Network Cabinet for Muscovision Camera	0	0	0.0	30	C8	7	

\*Full Load Amps based on amps per driver.



**REVISIONS** REV DATE COMMENT



It's fast. It's free. It's the law.

**PURPOSES ONLY** 

FOR CONCEPT

EVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCT DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: DRAWN BY: ~ AR/RB ~ **CHECKED BY:** DATE: CAD I.D.:

W211159-X-TT

PROJECT:

PROPOSED SITE **PLAN DOCUMENTS** 



PROPOSED

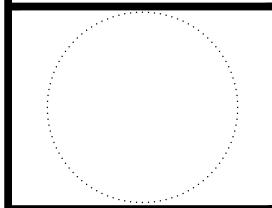
DEVELOPMENT **165 ARARAT STREET WORCESTER OF WORCESTER COUNTY,** 

**MASSACHUSETTS** 

**BOHLER** 

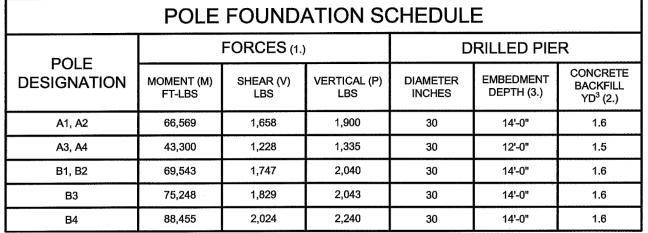
**352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772** 

Phone: (508) 480-9900 www.BohlerEngineering.com



**SPORTS FIELD** LIGHTING DETAIL

E-402



ASD LOAD COMBINATION D + 0.6W.

- SOIL BACKFILL, SEE NOTE BELOW

- LIGHT STRUCTURE

PRECAST BASE BY MUSCO LIGHTING

(SEE POLE ID)

- CONCRETE BACKFILL

CUNDISTURBED,

THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH

SOIL, WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR

BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98%

FOR A COHESIONLESS SOIL BASED UPON STANDARD

POLE FOUNDATION ELEV.

PROCTOR TESTING (ASTM D698).

SCALE: NOT TO SCALE

SOIL BACKFILL NOTE:

IN-SITU SOIL ~

DRILLED PIER DIAMETER (SEE POLE FNDTN. SCH.)

LIGHT STRUCTURE \
STEEL POLE BY

MUSCO LIGHTING

(SEE POLE ID)

- VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT). 2. MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.
- 3. POTENTIAL FOR ENCOUNTERING ROCK BEFORE REACHING EMBEDMENT DEPTH.
- ROCK AUGERING EQUIPMENT MAY BE REQUIRED.

USE OR REPRODUCTION OF THIS INFORMATION OTHER THAN ITS INTENDED PURPOSE FOR THIS PROJECT IS PROHIBITED WITHOUT WRITTEN CONSENT FROM MUSCO SPORTS LIGHTING, LI

PRECAST BASE IDENTIFICATION						
PRECAST BASE TYPE	PRECAST BASE WEIGHT	PRECAST BASE LENGTH	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT	OUTSIDE DIAMETER	
3B	2,470 LBS	20'-0"	8'-0"	12'-0"	13.38"	
4B	3,490 LBS	22'-0"	8'-0"	14'-0"	15.75"	

POLE IDENTIFICATION							
POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT <sup>2</sup> )			
A1, A2	LSS70C	4B	5 (3)	10.7			
A3, A4	LSS60B	3B	5 (3)	10.4			
B1, B2	LSS70C	4B	7 (4)	13.3			
В3	LSS70C	4B	8 (5)	15.5			

- EACH POLE HAS (1) CREE OSQ FIXTURE AT 30'-0" AGL, INCLUDED ABOVE. - POLES A1 - A4 HAVE (1) LED FIXTURE AT 15'-6" AGL, INCLUDED ABOVE. - POLES B1 - B4 HAVE (2) LED FIXTURES AT 15'-6" AGL, INCLUDED ABOVE.

LSS70C 4B

# **DESIGN NOTES**

 $\frac{\text{DESIGN PARAMETERS:}}{\text{WIND: } V_{\text{ult}} = 130 \text{ MPH, } V_{\text{asd}} = 101 \text{ MPH (EXPOSURE C, RISK CATEGORY II) PER}$ MASSACHUSETTS STATE BUILDING CODE - 780 CMR, 9TH EDITION (IBC 2015 / ASCE 7-10).

GEOTECHNICAL PARAMETERS: ALLOWABLE END BEARING SOIL PRESSURE: 1,500 PSF LATERAL RESISTANCE SOIL PARAMETERS: UNIT WEIGHT: 120 PCF; FRICTION ANGLE: 30°

IN ACCORDANCE WITH MASSACHUSETTS STATE BUILDING CODE - 780 CMR, 9TH EDITION, DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS

GM2118403.000, PREPARED BY WHITESTONE; SOUTHBOROUGH, MA. A GEOTECHNICAL ENGINEER OR REPRESENTATIVE OF IS RECOMMENDED (NOT REQUIRED) TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY

MUST BE VERIFIED ON SITE. REFERENCE SOILS AND FOUNDATION REPORT, NO.

PROBLEMS ARISE IN FOUNDATION INSTALLATION. ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES, FOUNDATIONS WILL THEN BE REVISED ACCORDINGLY. REVISIONS

WILL BE ANALYZED PER RECOMMENDATIONS DIRECTED BY A REGISTERED ENGINEER. ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT. TEMPORARY CASINGS OR DRILLERS SLURRY MAY BE USED TO STABILIZE THE EXCAVATION DURING INSTALLATION. CASINGS MUST BE REMOVED DURING CONCRETE BACKFILL PLACEMENT. CONCRETE BACKFILL MUST BE PLACED WITH A TREMIE WHEN SLURRY OR WATER IS PRESENT WITHIN THE EXCAVATION OR WHEN THE FREE DROP EXCEEDS 6'-0".

CONTRACTOR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS, AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR BRACING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.

CONCRETE:
CONCRETE SHALL BE AIR-ENTRAINED AND HAVE A MINIMUM COMPRESSIVE DESIGN STRENGTH AT 28 DAYS OF 3,000 PSI. 3,000 PSI CONCRETE SPECIFIED FOR EARLY POLE ERECTION, ACTUAL REQUIRED MINIMUM ALLOWABLE CONCRETE STRENGTH IS 1,000 PSI. ALL PIERS AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM

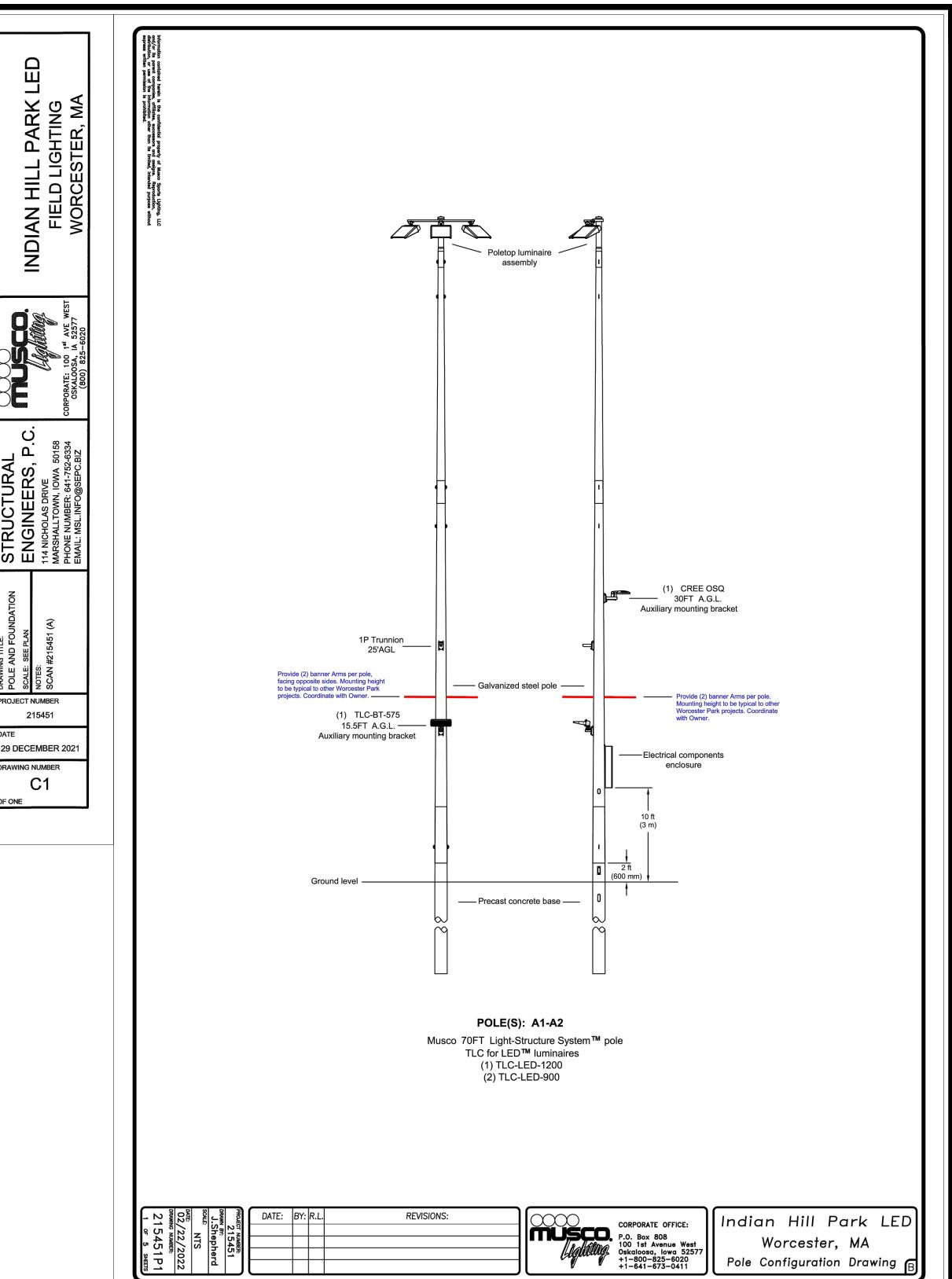
GENERAL NOTES: FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H: 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO





ROJECT NUMBER

215451





**REVISIONS** 

REV DATE COMMENT



It's fast. It's free. It's the law.

FOR CONCEPT **PURPOSES ONLY** 

REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCT DOCUMENT UNLESS INDICATED OTHERWISE.

W211159-X-TT

PROJECT No.: DRAWN BY: CHECKED BY: DATE: CAD I.D.:

PROJECT:

PROPOSED SITE **PLAN DOCUMENTS** 

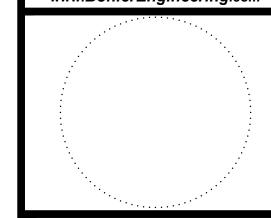


PROPOSED

DEVELOPMENT **165 ARARAT STREET WORCESTER OF WORCESTER COUNTY, MASSACHUSETTS** 

**352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772** Phone: (508) 480-9900

www.BohlerEngineering.com



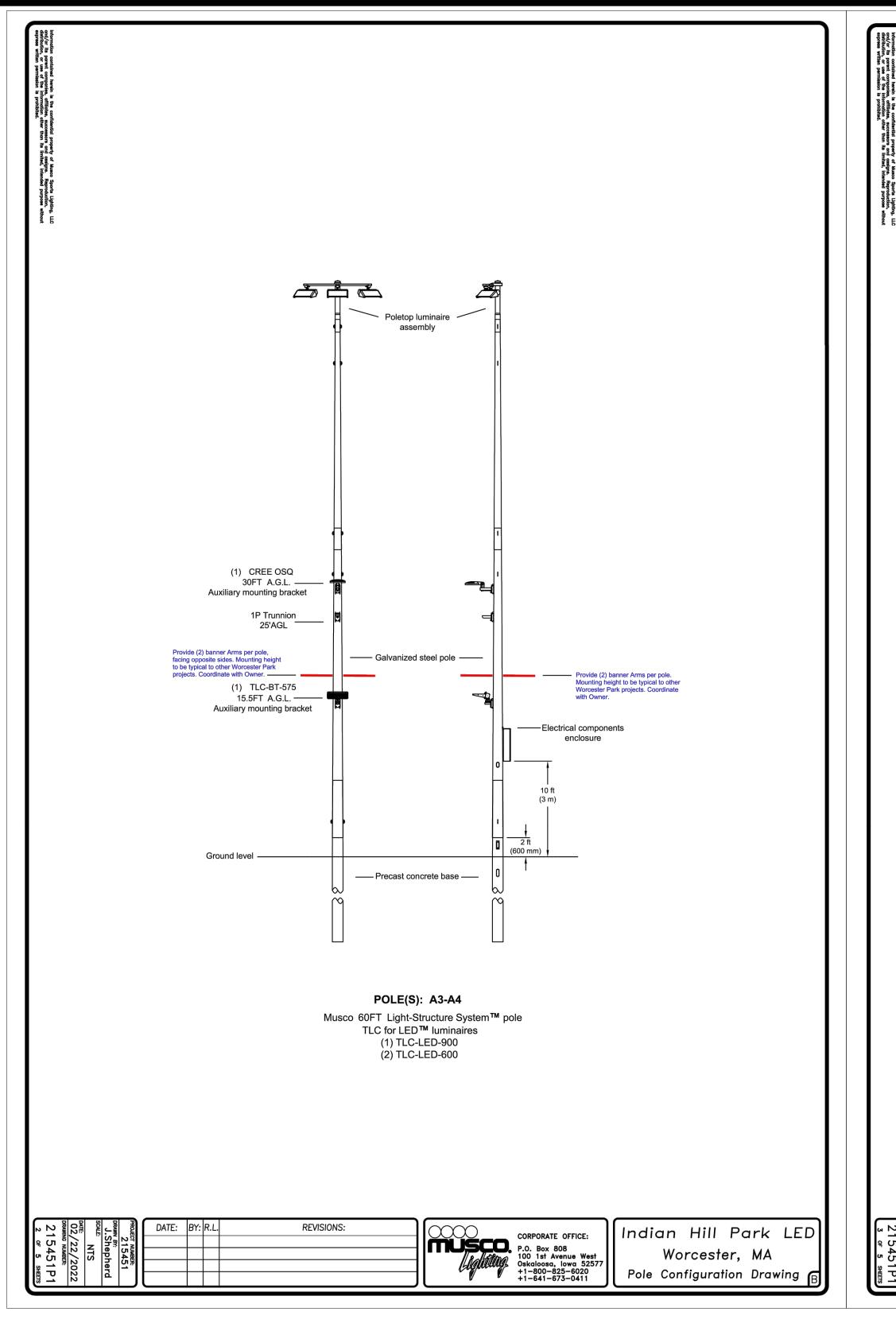
**SPORTS FIELD** LIGHTING **DETAIL** 

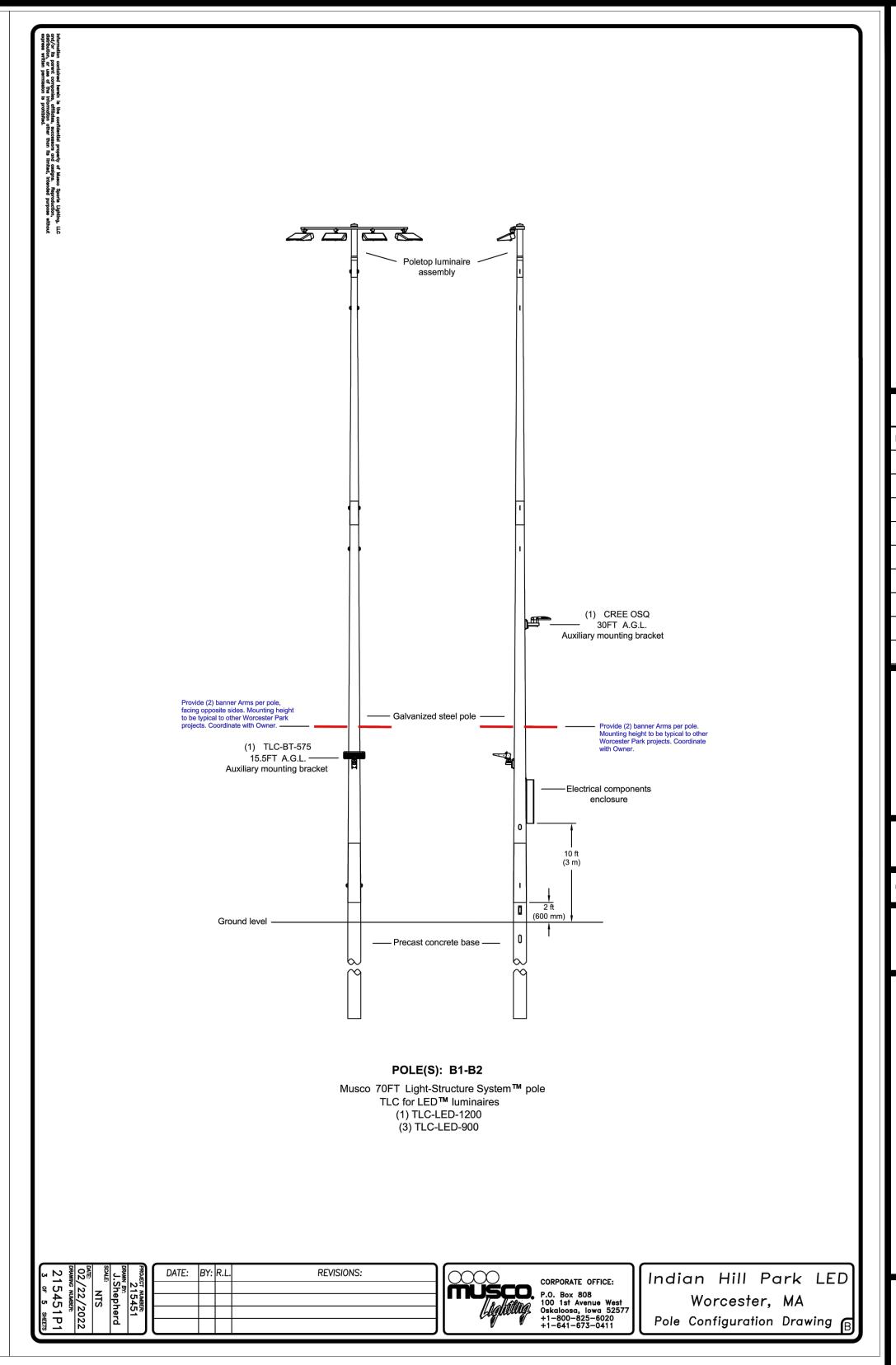
E-403

ART Engineering

38 Front Street, FL 3, Worcester, MA 01608

www.artengineering.us







# REVISIONS

REV DATE		DATE	COMMENT	DRAW
	IXL V	DAIL	COMMENT	CHECK



It's fast. It's free. It's the law.

# FOR CONCEPT PURPOSES ONLY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

 PROJECT No.:
 W211159

 DRAWN BY:
 CV

 CHECKED BY:
 ~ AR/RB ~

 DATE:
 03/15/2022

 CAD I.D.:
 W211159-X-TTB

PROJECT:

# PROPOSED SITE

PLAN DOCUMENTS



PROPOSED

DEVELOPMENT

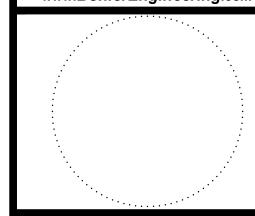
165 ARARAT STREET
WORCESTER OF
WORCESTER COUNTY,

**MASSACHUSETTS** 

# BOHLER/

352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772 Phone: (508) 480-9900

www.BohlerEngineering.com



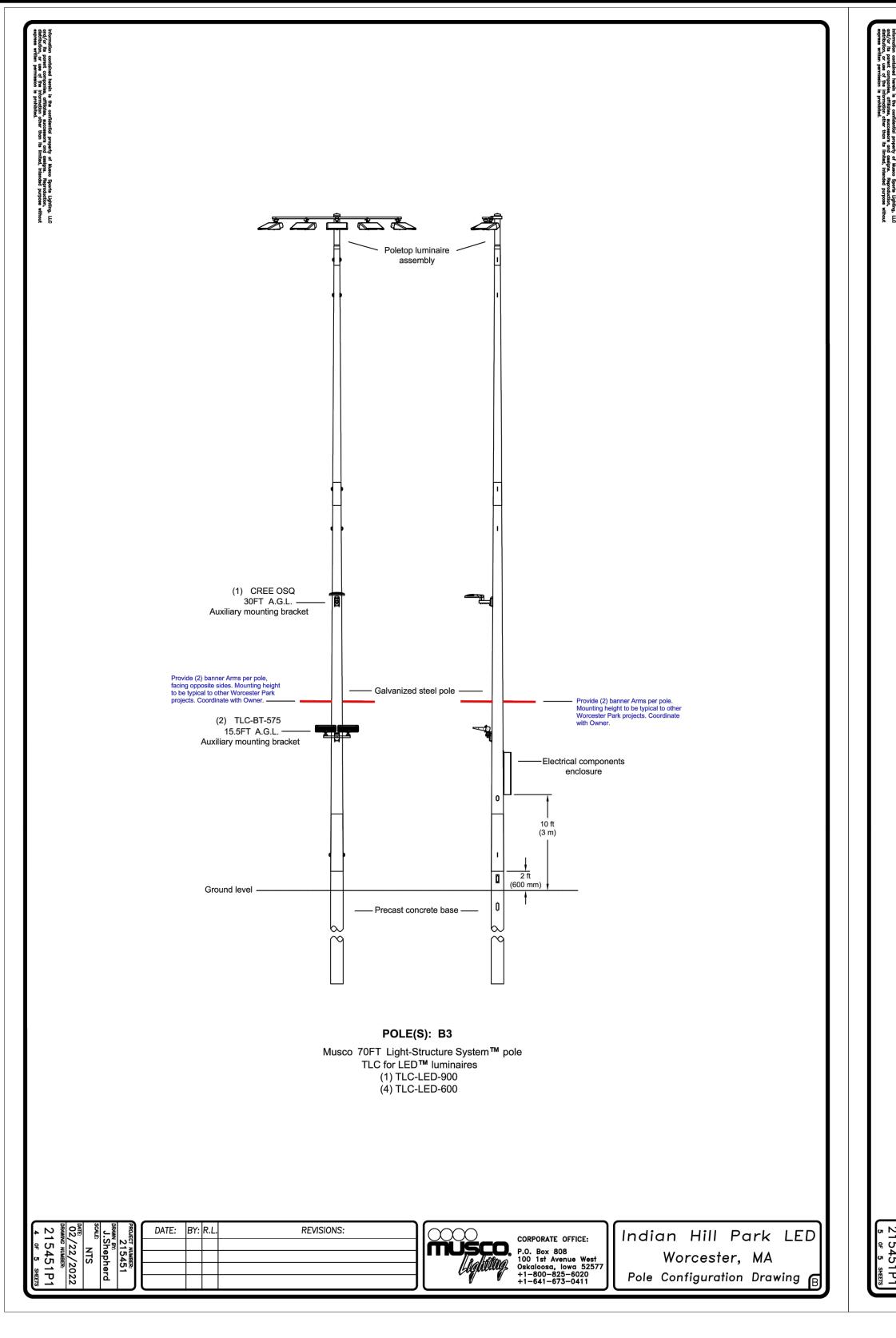
SPORTS
FIELD
LIGHTING
DETAIL

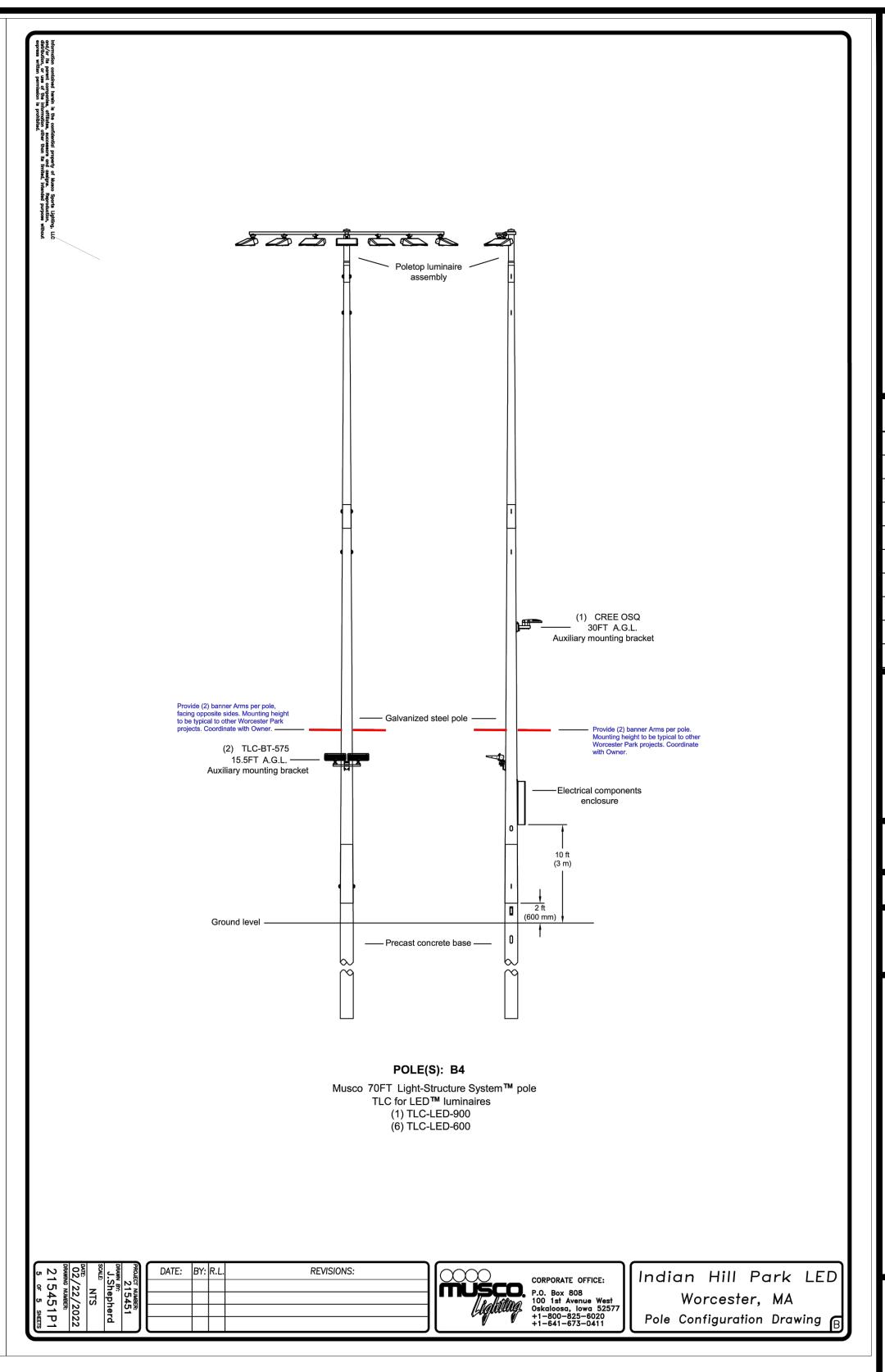
IEET NUMBER:

ART Engineering we build the future.

38 Front Street, FL 3, Worcester, MA 01608 www.artengineering.us

E-404







# REVISIONS

REV	DATE	ATE COMMENT	
REV DATE		COMMENT	CHECK



It's fast. It's free. It's the law.

# FOR CONCEPT PURPOSES ONLY

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. <u>IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT</u> UNLESS INDICATED OTHERWISE.

 PROJECT No.:
 W211159

 DRAWN BY:
 CV

 CHECKED BY:
 ~ AR/RB ~

 DATE:
 03/15/2022

 CAD I.D.:
 W211159-X-TTB

PROJECT:

# PROPOSED SITE PLAN DOCUMENTS

AN DOGGI



PROPOSED

DEVELOPMENT

165 ARARAT STREET

WORCESTER OF

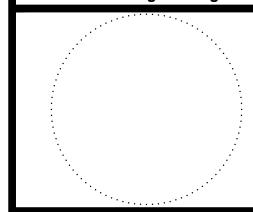
WORCESTER COUNTY,

# BOHLER //

**MASSACHUSETTS** 

352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772 Phone: (508) 480-9900

www.BohlerEngineering.com



SPORTS
FIELD
LIGHTING
DETAIL

SHEET NUMBER:

ART Engineering we build the future.

38 Front Street, FL 3, Worcester, MA 01608 www.artengineering.us

E-405