

# PRELIMINARY SUBDIVISION PLANS

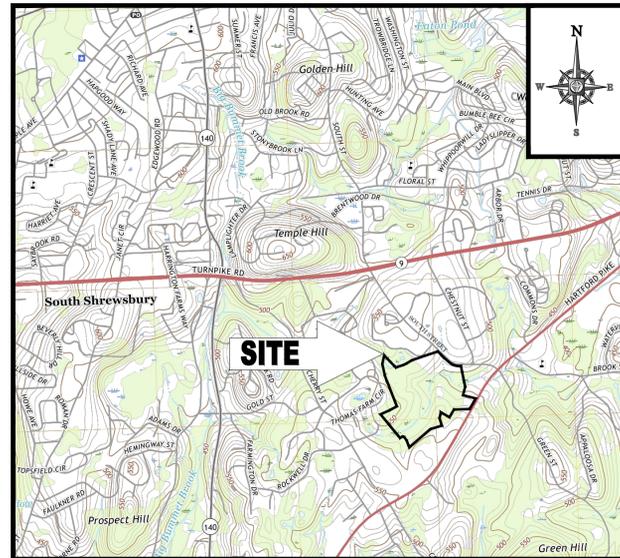
FOR:  
PROPOSED

## CENTECH PARK NORTH SUB-DISTRICT A

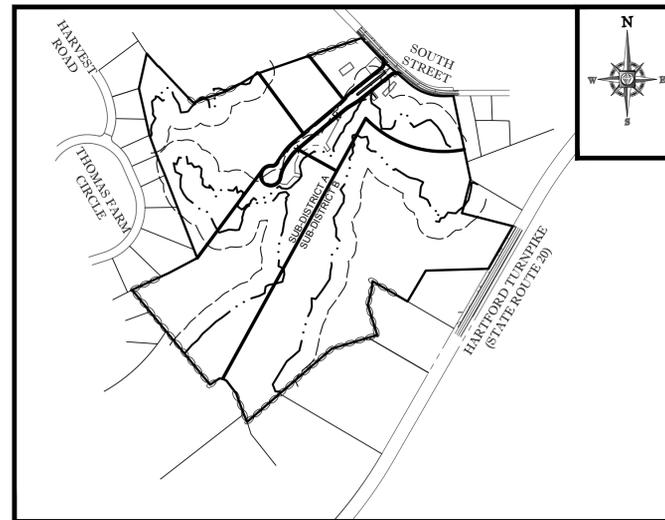
LOCATION OF SITE:

384-386 SOUTH STREET, TOWN OF SHREWSBURY  
WORCESTER COUNTY, MASSACHUSETTS

MAP #42, LOT #11



**LOCATION MAP**  
SCALE: 1"=2000'  
PLAN REFERENCE: SHREWSBURY USGS QUADRANGLE



**AREA PLAN**  
SCALE: 1"=500'

SHEET TITLE	SHEET NUMBER
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GENERAL NOTES SHEET	C-2 OF 13
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**BOHLER ENGINEERING**  
 SITE CIVIL AND CONSULTING ENGINEERING ARCHITECTURE  
 LAND SURVEYING DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES  
 SUSTAINABLE DESIGN URBAN DESIGN TRANSPORTATION SERVICES  
 URBAN DESIGN TRANSPORTATION SERVICES  
 OFFICE LOCATIONS:  
 BOSTON, MA • CHICAGO, IL • CHARLOTTE, NC  
 DALLAS, TX • DENVER, CO • HOUSTON, TX  
 LOS ANGELES, CA • MEMPHIS, TN • NEW YORK, NY  
 PHILADELPHIA, PA • RICHMOND, VA • WASHINGTON, DC  
 WASHINGTON, DC • WASHINGTON, DC

REVISIONS			
REV	DATE	COMMENT	BY
1			
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5			
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PRELIMINARY	
PROJECT No.:	W181144
DRAWN BY:	GJZ/CMC
CHECKED BY:	MJD/JAK
DATE:	12/12/2018
SCALE:	AS NOTED
CAD I.D.:	W181144SSD

**PROJECT: SITE DEVELOPMENT PLANS FOR CENTECH PARK NORTH SUB-DISTRICT A**  
 LOCATION OF SITE  
 MAP 42, LOT 11  
 384-386 SOUTH STREET  
 TOWN OF SHREWSBURY  
 WORCESTER COUNTY,  
 MASSACHUSETTS

**BOHLER ENGINEERING**  
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**J.A. KUCIUS**  
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 PROJECT NO. 181144  
 1400 STATE STREET, SUITE 100  
 SOUTHBOROUGH, MA 01772  
 MASSACHUSETTS REG. NO. 9616

SHEET TITLE:  
**COVER SHEET**

SHEET NUMBER:  
**1**  
OF 13

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PREPARED BY  
**BOHLER ENGINEERING**

## GENERAL NOTES

CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE NOTES AND SPECIFICATIONS CONTAINED HEREIN. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS.

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

- BOUNDARY & TOPOGRAPHIC SURVEY - MASSDEVELOPMENT; PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 10/22/18, REVISED THROUGH 11/12/18 (7 SHEETS).

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST VERIFY THAT HESHE HAS THE LATEST EDITION OF THE DOCUMENTS REFERENCED ABOVE. THIS IS CONTRACTOR'S RESPONSIBILITY.

- ALL ACCESSIBLE (AKA ADA) PARKING SPACES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF THE REQUIREMENTS OF THE "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 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.

- THE OWNER/CONTRACTOR MUST BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

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 ENGINEER, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORTS AND PLANS AND SPECIFICATIONS PRIOR 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 THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.

- 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 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.

- 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 APPLICABLE). CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND SITE ENGINEER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST.

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.

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

THE CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE 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.

- 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, CURB, ETC. AND SHALL BEAR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REPAIR, SURVEY, REPERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE AND MUST REPLACE ALL SIGNAL, INTERCONNECTED 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 STATUTES. CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND TO NOTIFY THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.

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, DETAILS AND/OR GEOTECHNICAL REPORT.

- 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 PROJECT 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.

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

- ALL CONTRACTORS MUST CARRY THE SPECIFIED STATUTORY WORKERS' COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND LIMITS OF 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 SUBSIDENTS. IN ADDITION, CONTRACTORS WILL BE REQUIRED 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 ADDITION, ALL CONTRACTORS WILL TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS 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 SUBSIDENTS FROM AND AGAINST ANY DAMAGES, INJURIES, CLAIMS, ACTIONS, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, STATUTORY CLAIMS, STATUTORY CAUSES OF ACTION, LOSSES, DAMAGES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEY'S FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED 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 INSURANCE HEREUNDER.

BOHLER ENGINEERING WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, 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. CONTRACTOR MEANS AND/OR METHODS AND/OR TECHNIQUES OR PROCEDURES OR COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY OR LIABILITY FOR SAME. HEREUNDER, BOHLER ENGINEERING'S SHOP DRAWING REVIEW WILL BE 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 THE CONTRACTOR. BOHLER ENGINEERING WILL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

- 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 SUBSIDENTS AT A CONSTRUCTION PROJECT SITE, SHALL RELIEVE THE GENERAL CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES, DESIGN, CONSTRUCTION, PERFORMANCE, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT 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 RESPONSIBLE FOR JOB SITE SAFETY. BOHLER ENGINEERING SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND MUST BE NAMED AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE IN NOTE 19 FOR JOB SITE SAFETY.

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, ATTORNEY'S FEES, DAMAGES, COSTS, JUDGMENTS, PENALTIES AND THE LIKE RELATED TO SAME.

- CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF TRAFFIC PLAN FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE R.O.W. OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE.

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

- 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 INCURS.

OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICED ON THE PLANS AND RELATED DOCUMENTS. IN STRICT ACCORDANCE WITH THE APPROVED PLANS AND DESIGN, FURTHER ENGINEER IS NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SUCH SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICED 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.

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

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

- CONTRACTOR AND OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND ACCORDANCE WITH MANUFACTURERS STANDARDS AND RECOMMENDED INSTALLATION, OPERATION AND MAINTENANCE MANUALS. 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 RESULT OF SAID FAILURE.

CONTRACTOR IS RESPONSIBLE TO MAINTAIN ON-SITE STORMWATER POLLUTION 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.

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

- LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE INDEPENDENTLY CONFIRMED WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF 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 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.

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 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.

- 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 AND THE EXTENSION AND COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT AND/OR DISCREPANCY 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 TO 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 CONTRACTOR MUST LOCATE AND CLEARLY AND UNAMBIGUOUSLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE AND INACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.

- 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.

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 EXISTING BUILDING UTILITY CONNECTION LOCATIONS, GRESSE TRAP REQUIREMENTS, FLOOR 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 INTERCONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY SERVICE WHERE A CONFLICT 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 DETERMINED UNSUITABLE BY OWNER/DEVELOPER, OR OWNER/DEVELOPER'S REPRESENTATIVE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL AS AUTHORIZED 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, COMPACTON AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION MUST BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND MUST BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS. WHEN THE PROJECT DOES NOT HAVE GEOTECHNICAL RECOMMENDATIONS, FILL AND COMPACTON 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, COMPACTON AND BACKFILL. FURTHER, CONTRACTOR IS FULLY RESPONSIBLE FOR EARTHWORK BALANCE.

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

- PAVEMENT MUST BE SAW CUT IN STRAIGHT LINES, AND EXCEPT FOR EDGE OF BUTT JOINTS, MUST EXTEND TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS MUST BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.

THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS MUST BE ADJUSTED, AS NECESSARY, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL APPLICABLE STANDARDS, REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.

- DURING THE INSTALLATION OF SANITARY SEWER, STORM SEWER, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO LOCATE 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.

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

- 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, CURBS, 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 POONDING. CONTRACTOR MUST IMMEDIATELY NOTIFY, IN WRITING, TO THE ENGINEER, ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY, HEALTH OR GENERAL WELFARE, OR PROJECT COST. IF 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.

PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 1/8" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF .075% GUTTER GRADE ALONG CURB FACE. IF IT CONTRACTOR'S OBLIGATION TO ENSURE THAT DESIGN ENGINEER APPROVES FINAL CURBING OUT SHEETS PRIOR TO INSTALLATION OF SAME.

REFER TO THIS SHEET FOR ADDITIONAL NOTES.

- IN THE EVENT OF DISCREPANCIES AND/OR CONFLICTS BETWEEN PLANS OR RELATIVE TO OTHER PLANS, THE SITE PLAN WILL TAKE PRECEDENCE AND CONTROL. CONTRACTOR MUST IMMEDIATELY NOTIFY THE DESIGN ENGINEER, IN WRITING, OF ANY DISCREPANCIES AND/OR CONFLICTS.

CONTRACTOR IS REQUIRED TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS FOR ALL OFF SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR MUST SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING ANY WORK.

- 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 FOOTING FOUNDATION ELEVATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/TERMINATED BY THE CONTRACTOR BASED ON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS.
- STORM DRAINAGE PIPE UNLESS INDICATED OTHERWISE, ALL STORM SEWER PIPE MUST BE REINFORCED CONCRETE PIPE (RCP) CLASS III WITH SLT TIGHT JOINTS. WHEN HIGH-DENSITY POLYETHYLENE PIPE (HDPE) IS CALLED FOR ON THE PLANS, IT MUST CONFORM TO ASTM D2688 AND TYPE B (SMOOTH INTERIOR WITH ANGULAR CORUGATIONS) WITH GASKET FOR SLT TIGHT JOINT. PVC PIPE FOR ROOF DRAIN CONNECTION MUST BE SDR 26 PER SCHEDULE 40 UNLESS INDICATED OTHERWISE.

UNLESS INDICATED OTHERWISE ON THE DRAWINGS, SANITARY SEWER PIPE SHALL BE AS FOLLOWS:

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

STORM AND SANITARY SEWER PIPE LENGTHS INDICATED ARE NOMINAL AND MEASURED CENTER OF INLET AND/OR MANHOLES STRUCTURE TO CENTER OF STRUCTURE.

- STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON PRELIMINARY ARCHITECTURAL PLANS. CONTRACTOR IS RESPONSIBLE TO AND FOR VERIFYING LOCATIONS OF SAME BASED ON FINAL ARCHITECTURAL PLANS.

SEWERS CROSSING STREAMS AND/OR LOCATION WITHIN 10 FEET OF THE STREAM BANKMOUNT, OR WHERE SITE CONDITIONS SO INDICATE, MUST BE CONSTRUCTED OF STEEL, REINFORCED CONCRETE, DUCTILE IRON OR OTHER NON-CORRODING 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 12 FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES MUST BE IN SEPARATE 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 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 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 MUST BE PROVIDED.

WATER MAIN PIPING MUST BE INSTALLED IN ACCORDANCE WITH 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.

- 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.

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

- 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

THIS PLAN REFERENCES DOCUMENTS AND INFORMATION BY:

- "BOUNDARY & TOPOGRAPHIC SURVEY - MASSDEVELOPMENT", PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 10/22/18, REVISED THROUGH 11/12/18 (7 SHEETS).

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 IMPROVEMENTS.

- 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 OR 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:

- 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.

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

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

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

- 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.

PROTECTING AND MAINTAINING IN OPERATION, ALL ACTIVE UTILITIES AND SYSTEMS THAT ARE NOT BEING REMOVED DURING ALL DEMOLITION ACTIVITIES.

- 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.

COORDINATION WITH UTILITY COMPANIES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE AFFECTED PARTIES. WORK REQUIRED TO BE DONE "OFF-PEAK" IS TO BE DONE AT NO ADDITIONAL COST TO THE OWNER.

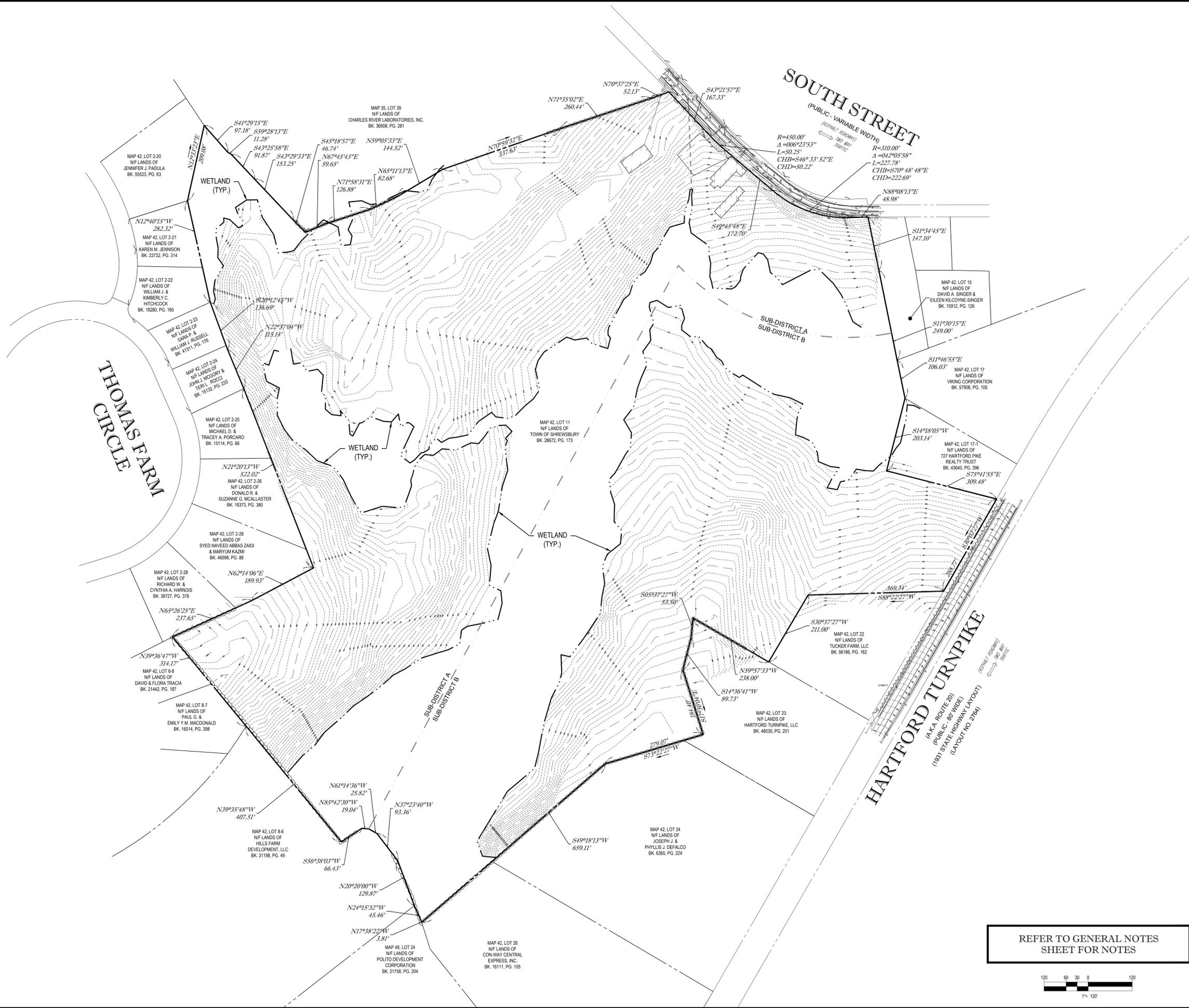
- IN THE EVENT THE CONTRACTOR DISCOVERS ANY HAZARDOUS MATERIAL, THE REMOVAL OF WHICH IS NOT ADDRESSED IN THE PROJECT PLANS AND SPECIFICATIONS, THE CONTRACTOR MUST IMMEDIATELY CEASE ALL WORK AND IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF THE DISCOVERY OF SUCH MATERIALS.

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. CONTRACTOR MUST USE QUALIFIED MATERIAL FOR ALL REPAIRS. CONTRACTOR MUST NOTIFY THE OWNER OF THE RESTORATION OF ANY ITEMS REPAIRED TO THE PRE-DEMOLITION 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 DIRECTION OF THE OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.

- 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



**BOHLER ENGINEERING**

SITE CIVIL AND CONSULTING ENGINEERING ARCHITECTURE  
LAND SURVEYING DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES  
SUSTAINABLE DESIGN

NEW YORK  
NEW JERSEY  
NEW HAMPSHIRE  
CONNECTICUT  
MASSACHUSETTS  
VIRGINIA  
FLORIDA  
ALABAMA  
LOUISIANA  
MISSISSIPPI  
ARKANSAS  
KENTUCKY  
TENNESSEE  
MISSOURI  
ILLINOIS  
INDIANA  
OHIO  
PENNSYLVANIA  
DELAWARE  
MARYLAND  
DISTRICT OF COLUMBIA  
WEST VIRGINIA  
MICHIGAN  
OHIO  
INDIANA  
KENTUCKY  
TENNESSEE  
MISSISSIPPI  
ALABAMA  
LOUISIANA  
MISSOURI  
ILLINOIS  
INDIANA  
OHIO  
PENNSYLVANIA  
DELAWARE  
MARYLAND  
DISTRICT OF COLUMBIA  
WEST VIRGINIA

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**PRELIMINARY**

PROJECT No.: W181144  
DRAWN BY: GJZ/CMC  
CHECKED BY: MJD/JAK  
DATE: 12/12/2018  
SCALE: AS NOTED  
CAD I.D.: W181144SSD

**SITE DEVELOPMENT PLANS**  
FOR  
**CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE  
MAP 42, LOT 11  
384-386 SOUTH STREET  
TOWN OF SHREWSBURY  
WORCESTER COUNTY,  
MASSACHUSETTS

**BOHLER ENGINEERING**

352 TURNPIKE ROAD  
SOUTHBOROUGH, MA 01772  
Phone: (508) 480-9900  
Fax: (508) 480-9080  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)

**J.A. DEFALCO**

JOHN A. DEFALCO  
CIVIL ENGINEER  
PROJ. NO. 181144-SSD  
MASS. REG. NO. 15300  
MASS. EXPIRES 12/31/2023

SHEET TITLE:  
**OVERALL EXISTING CONDITIONS PLAN**

SHEET NUMBER:  
**3**

REV 0 - 12/12/2018

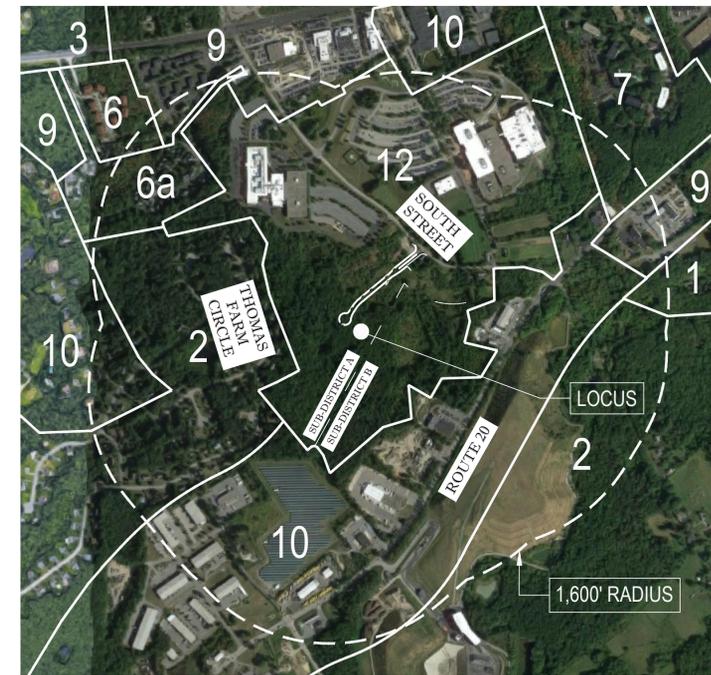
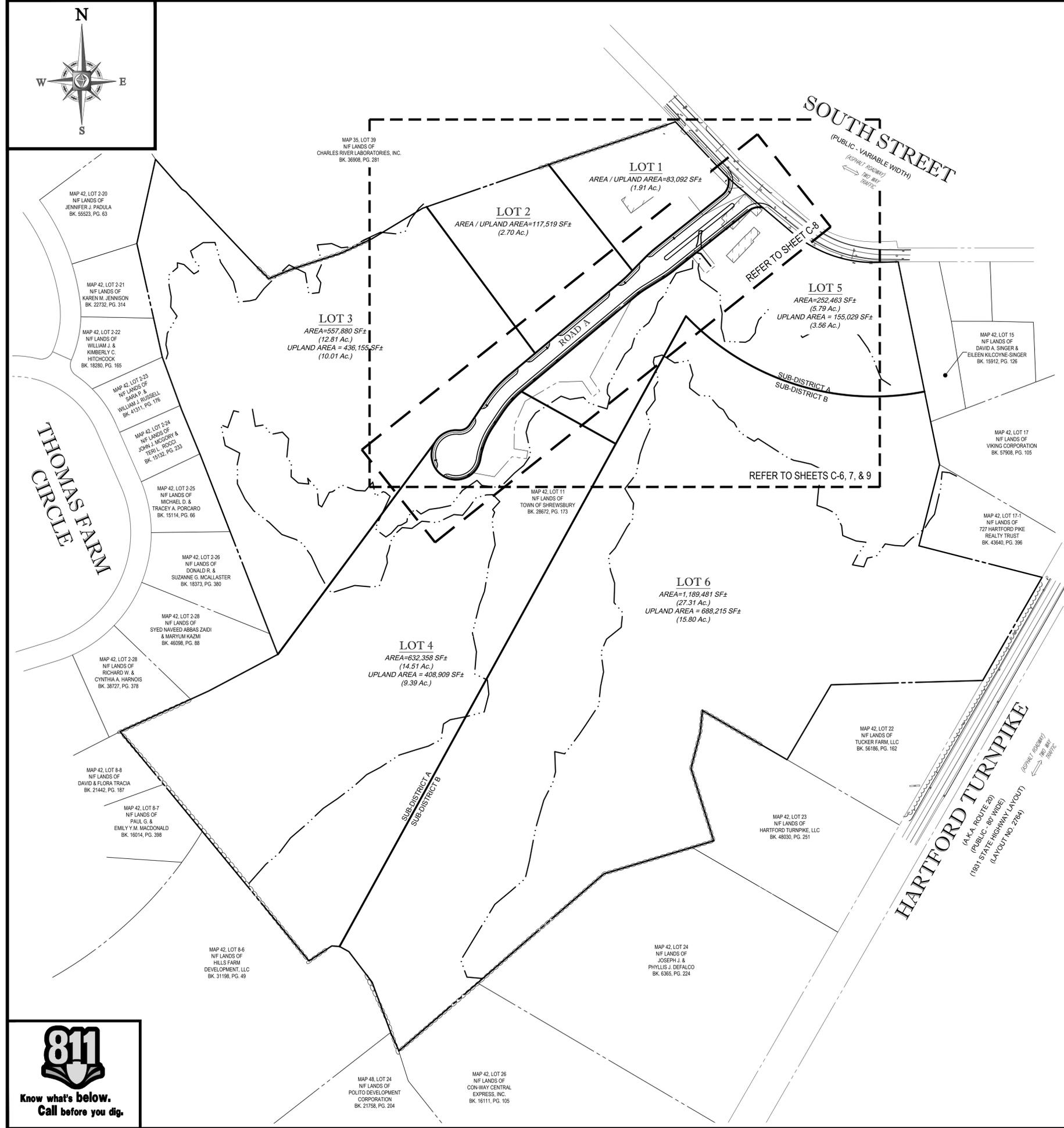
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**811**

Know what's below.  
Call before you dig.

REFER TO GENERAL NOTES  
SHEET FOR NOTES

1" = 120'



LOCUS PLAN OF SUBDIVISION - ZONING

SCALE: 1"=800'

ZONING DISTRICTS

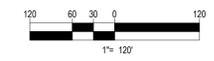
1	RURAL "A"
2	RURAL "B"
3	RESIDENCE "A"
6	MF-1 GARDEN-TYPE
6a	MF-2 TOWNHOUSE-TYPE
7	APARTMENT
9	COMMERCIAL - BUSINESS
10	LIMITED INDUSTRIAL
12	OFFICE - RESEARCH

SUBDIVISION ANALYSIS TABLE		
ROAD CLASSIFICATION	MINOR STREET (PROVIDE ACCESS TO ADJUTING LOTS AND NOT FOR THROUGH TRAFFIC)	
DESIGN CRITERIA	REQUIRED	PROPOSED PUBLIC ROADWAY
DESIGN SPEED (SECTION IV.A.3.c)	30 MPH	25 MPH (W)
MIN. CENTERLINE RADIUS (SECTION IV.A.1.f)	200'	200'
MIN. ANGLE OF INTERSECTION OF 2 STREETS (SECTION IV.A.1.g)	60°	79°
MIN. CENTERLINE GRADE (SECTION IV.A.3.a)	1.0%	1.5%
MAX. CENTERLINE GRADE (SECTION V.L.5)	6%	2.0%
MAX. CUT/FILL (SECTION IV.A.1.j)	8"	13" (W)
MIN. LENGTH OF LEVELING AREA (SECTION IV.A.3.b)	50'	>50'
MIN. RIGHT-OF-WAY WIDTH (SECTION IV.A.2)	50'	50'
MIN. PAVEMENT WIDTH (SECTION V.L.3)	30'	30'
MIN. PROPERTY LINE RADIUS AT INTERSECTIONS (SECTION IV.A.1.h)	30'	40'
MAX. DEAD END LENGTH (SECTION IV.A.4.a)	600'	1,019' (W)
MIN. CUL-DE-SAC PAVEMENT WIDTH (SECTION IV.A.4.b)	100'	100'
MIN. CUL-DE-SAC ROW DIAMETER (SECTION IV.A.4.b)	120'	120'
MIN. GRASSPLOTS WIDTH - ROADWAY / CUL-DE-SAC (SECTION IV.B.1)	6' / 8'	4.5' (W)
STORM PIPE MATERIAL (SECTION V.H.2)	REINFORCED CONCRETE	HDPE (W)
SIDEWALK ON BOTH SIDE OF STREETS (SECTIONS IV.B.1 & V.L.1)	BOTH SIDES	ONE SIDE (W)
INDUSTRIAL ROAD DEAD ENDS (SECTION V.L.6)	NEED SECONDARY EXIT	CUL-DE-SAC (W)
MIN. SANITARY DEPTH (TYPICAL CROSS SECTION)	7'	6' (W)
MIN. DRAIN DEPTH (TYPICAL CROSS SECTION)	4'	3' (W)
DETENTION BASIN BERM (SECTION IV.H)	GRAVEL AROUND ENTIRE BERM	GRASS AROUND HALF BERM (W)

(W) - WAIVER REQUESTED, IN ADDITION TO THE FOLLOWING:  
 PENCIL ON PAPER PLAN AT A SCALE OF 1" = 100' (SECTION III - B.2)  
 HYDRANT LOCATIONS AT ALL HIGH AND LOW POINTS IN ROAD (SECTION IV-K)  
 APPLICATION FEES (SECTION III - D.1.c)

REFER TO GENERAL NOTES SHEET FOR NOTES

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY



**BOHLER ENGINEERING**

SITE CIVIL AND CONSULTING ENGINEERING ARCHITECTURE  
 LAND SURVEYING DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES  
 SUSTAINABLE DESIGN

CHARLOTTE, NC  
 BALTIMORE, MD  
 BOSTON, MA  
 CHICAGO, IL  
 COLUMBIA, SC  
 DALLAS, TX  
 DENVER, CO  
 HOUSTON, TX  
 KANSAS CITY, MO  
 LOS ANGELES, CA  
 MEMPHIS, TN  
 MIAMI, FL  
 MINNEAPOLIS, MN  
 NEW YORK, NY  
 PHILADELPHIA, PA  
 RICHMOND, VA  
 SOUTH BEND, IN  
 TAMPA, FL  
 WASHINGTON, DC

REVISIONS			
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PRELIMINARY

PROJECT No.: W181144  
 DRAWN BY: GJZ/CMC  
 CHECKED BY: MJD/JAK  
 DATE: 10/12/2018  
 SCALE: AS NOTED  
 CAD I.D.: W181144S0

PROJECT: **SITE DEVELOPMENT PLANS**  
 FOR  
**CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE  
 MAP 42, LOT 11  
 384-386 SOUTH STREET  
 TOWN OF SHREWSBURY  
 WORCESTER COUNTY,  
 MASSACHUSETTS

**BOHLER ENGINEERING**

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[www.BohlerEngineering.com](http://www.BohlerEngineering.com)

**J.A. DEFALCO**

JOHN A. DEFALCO  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 1530  
 REGISTERED IN THE STATE OF MASSACHUSETTS  
 EXPIRES 12/31/2023

SHEET TITLE:  
**OVERALL SITE INDEX AND LOCUS PLANS**

SHEET NUMBER:  
**4**  
 OF 13

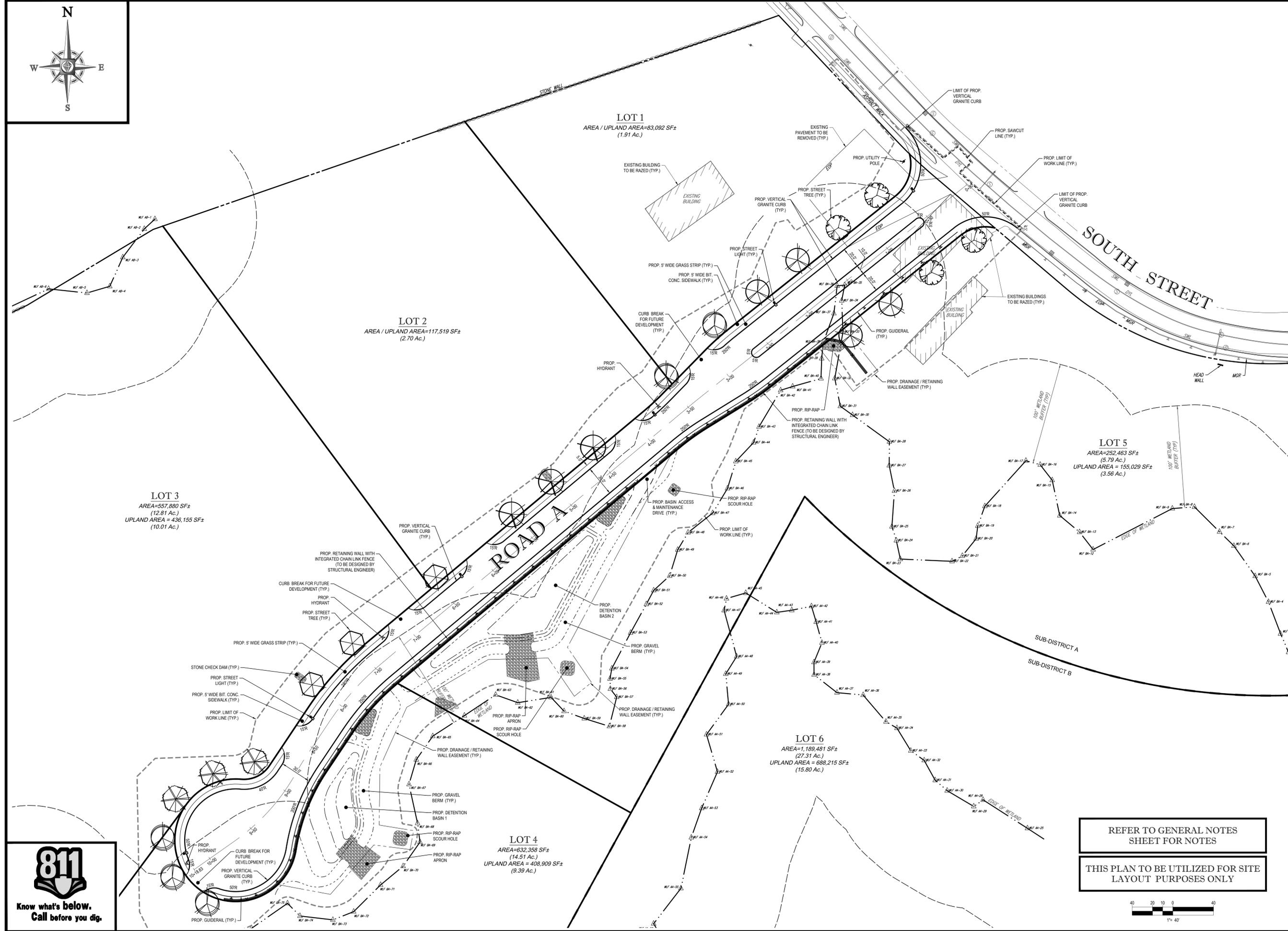
REV 0 - 12/12/2018

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**811**

Know what's below.  
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LOT 1  
AREA / UPLAND AREA=83,092 SF±  
(1.91 Ac.)

LOT 2  
AREA / UPLAND AREA=117,519 SF±  
(2.70 Ac.)

LOT 3  
AREA=557,880 SF±  
(12.81 Ac.)  
UPLAND AREA = 436,155 SF±  
(10.01 Ac.)

LOT 5  
AREA=252,463 SF±  
(5.79 Ac.)  
UPLAND AREA = 155,029 SF±  
(3.56 Ac.)

LOT 6  
AREA=1,189,481 SF±  
(27.31 Ac.)  
UPLAND AREA = 688,215 SF±  
(15.80 Ac.)

LOT 4  
AREA=632,358 SF±  
(14.51 Ac.)  
UPLAND AREA = 408,909 SF±  
(9.39 Ac.)

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PRELIMINARY

PROJECT No.: W1811444  
DRAWN BY: GJZ/CMC  
CHECKED BY: MJD/JAK  
DATE: 10/12/2018  
SCALE: AS NOTED  
CAD I.D.: W181144S0

PROJECT: **SITE DEVELOPMENT PLANS**  
FOR  
**CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE  
MAP 42, LOT 11  
384-386 SOUTH STREET  
TOWN OF SHIREWSBURY  
WORCESTER COUNTY,  
MASSACHUSETTS

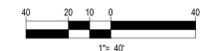
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Phone: (508) 480-9900  
Fax: (508) 480-9080  
[www.BohlerEngineering.com](http://www.BohlerEngineering.com)

**J.A. KUCI**  
JOHN A. KUCI  
CIVIL ENGINEER  
PROJECT NO. 181444  
10/12/2018  
CONTRACT VALUE: \$1,189,481  
MASS. REG. NO. 1177  
MASS. EXPIRES 03/31/2023

REFER TO GENERAL NOTES SHEET FOR NOTES

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY



SHEET TITLE: **SITE PLAN**

SHEET NUMBER: **6**  
OF 13

REV 0 - 12/12/2018

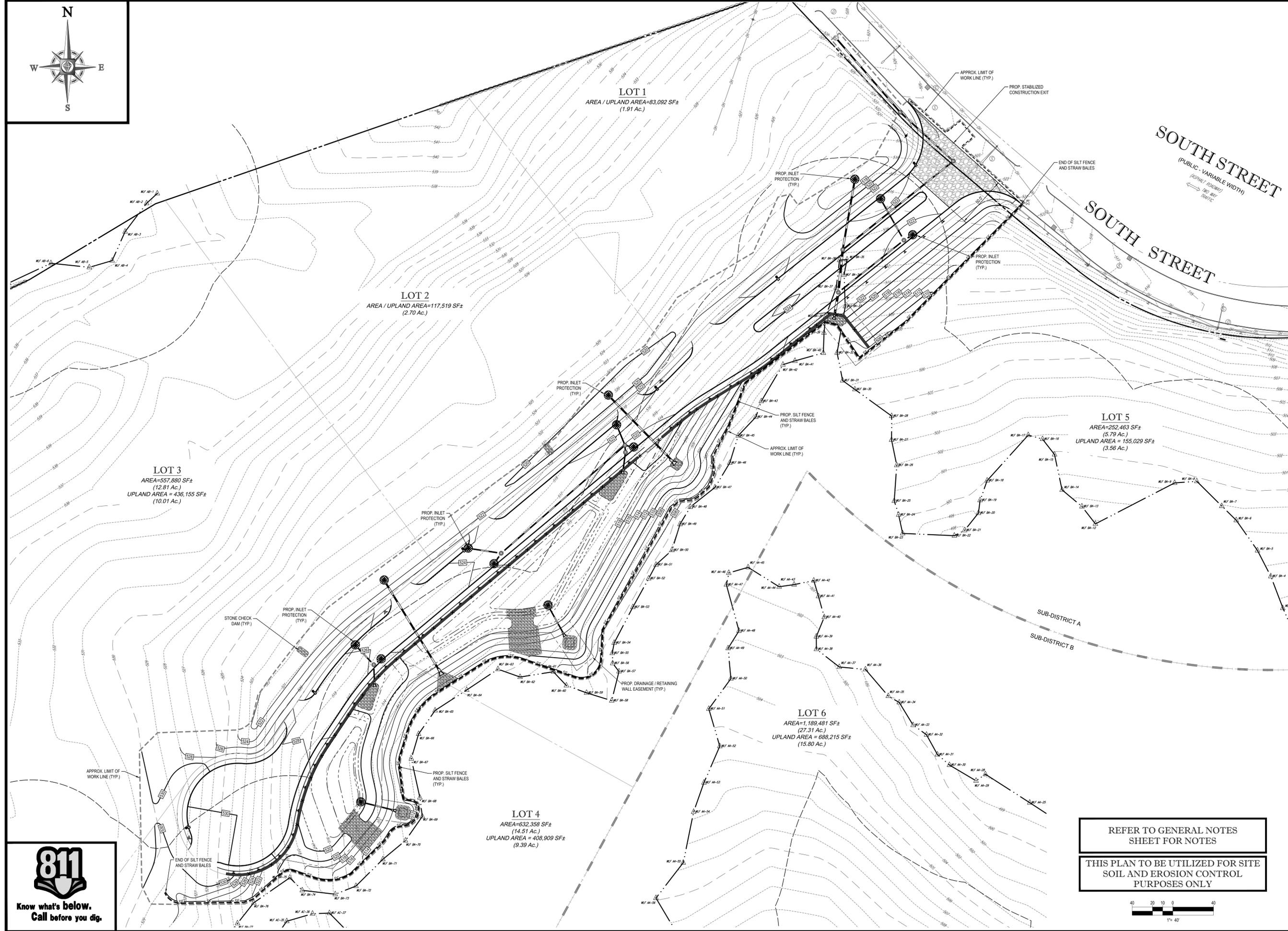
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REVISIONS

REV	DATE	COMMENT	BY
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PRELIMINARY

PROJECT No.: W1811444  
 DRAWN BY: GJZ/CMC  
 CHECKED BY: MJD/JAK  
 DATE: 12/12/2018  
 SCALE: AS NOTED  
 CAD I.D.: W181144SS0 - EROS

**SITE DEVELOPMENT PLANS**  
 FOR  
**CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE  
 MAP 42, LOT 11  
 384-386 SOUTH STREET  
 TOWN OF SHIREWSBURY  
 WORCESTER COUNTY,  
 MASSACHUSETTS

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**J.A. KUCIENSKI**  
 JOHN A. KUCIENSKI  
 PROJECT NO. 181444-SS0  
 1400 STATE STREET, SUITE 100  
 SOUTHBOROUGH, MASSACHUSETTS 01772  
 MA 01772-1000

REFER TO GENERAL NOTES SHEET FOR NOTES

THIS PLAN TO BE UTILIZED FOR SITE SOIL AND EROSION CONTROL PURPOSES ONLY



SHEET TITLE:  
**SEDIMENTATION & EROSION CONTROL PLAN**

SHEET NUMBER:  
**9**  
 OF 13

REV 0 - 12/12/2018

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## EROSION & SEDIMENT CONTROL NOTES

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE AS SET FORTH IN THE MOST CURRENT STATE SEDIMENT AND EROSION CONTROL MANUAL.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 100 FEET OF A STREAM OR POND, THE AREA SHALL BE STABILIZED WITHIN 7 DAYS OR PRIOR TO ANY STORM EVENT (THIS WOULD INCLUDE WETLANDS).
- SEDIMENT BARRIERS (SILT FENCE, STRAW BARRIERS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- INSTALL SILTATION BARRIER AT TOE OF SLOPE TO FILTER SILT FROM RUNOFF. SEE SILTATION BARRIER DETAILS FOR PROPER INSTALLATION. SILTATION BARRIER WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO TO ONE (2:1).
- IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED AS DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCH (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT FROM SPRING RUNOFF PROBLEMS.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
  - SIX INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
  - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 LB PER ACRE OR 18.4 LB PER 1,000 SF USING 10-20-20 OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SF).
  - FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEED TO A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEED TO A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYEGRASS. SEEDING RATE IS 1.03 LBS PER 1,000 SF LAWN QUALITY SOO MAY BE SUBSTITUTED FOR SEED.
  - STRAW MULCH AT THE RATE OF 70-90 LBS PER 1,000 SF. A HYDRO-APPLICATION OF WOOD OR PAPER FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS WILL BE USED ON STRAW MULCH FOR WIND CONTROL.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
- WETLANDS WILL BE PROTECTED WITH STRAW BALES AND/OR SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL HAVE AN EXPOSURE WINDOW OF NOT MORE THAN 7 DAYS.
- ALL AREAS WITHIN 100 FEET OF A FLAGGED WETLAND OR STREAM SHALL FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IF NOT BEING ACTIVELY WORKED.

**MULCH**

LOCATION	MULCH	RATE (1000 SF)
PROTECT AREA	STRAW	100 POUNDS
WINDY AREA	SHREDDED OR CHOPPED CORNSTALKS (ANCHORED)	185-275 POUNDS 100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES GREATER THAN 3:1	JUTE MESH OR EXCELSIOR MAT	AS REQUIRED
GREATER THAN 3:1	(REFER TO GEOTECHNICAL REPORT FOR FINAL DESIGN REQUIREMENT)	

\*A HYDRO-APPLICATION OF WOOD, OR PAPER FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SUCH AS CURASOL OR RMB PLUS SHALL BE USED ON STRAW MULCH FOR WIND CONTROL.

**MULCH ANCHORING**  
ANCHOR MULCH WITH PEG AND TWINE (1" SQ. YODBLOCK), MULCH NETTING (AS PER MANUFACTURER), WOOD CELLULOSE FIBER (750 LBS/ACRE), CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS), USE OF A SERRATED STRAIGHT DISK, NETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

## EROSION CONTROL NOTES DURING WINTER CONSTRUCTION

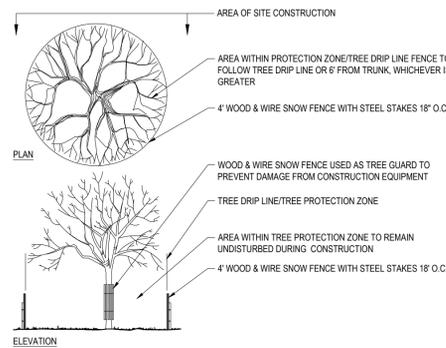
- WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- CONTINUATION OF EARTHWORK OPERATION ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR  $9\text{mm}$  AT A RATE OF 100 LB PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDING, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 15, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDING AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOADED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEEDING AT A RATE OF 200 - 300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ON ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF STRAW OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- MULCHING REQUIREMENTS:
  - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING OR WOOD CELLULOSE FIBER.
  - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPE EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
  - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1ST THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING THE WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
- STOCKPILING OF MATERIALS (DIRT, WOOD, CONSTRUCTION MATERIALS, ETC.) MUST REMAIN COVERED AT ALL TIMES TO MINIMIZE ANY DUST PROBLEMS THAT MAY OCCUR WITH ADJACENT PROPERTIES AND TO PROVIDE MAXIMUM PROTECTION AGAINST EROSION RUNOFF.
- EXISTING CATCH BASIN STRUCTURES SHALL BE PROTECTED UNTIL SUCH TIME AS THEY ARE REMOVED.

## CONSTRUCTION SEQUENCE

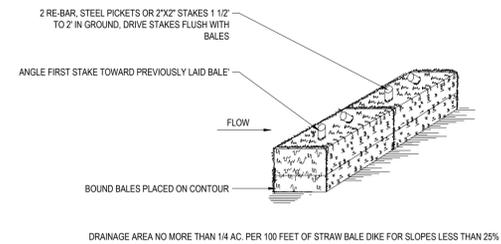
THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

- INSTALLATION OF STABILIZED CONSTRUCTION ENTRANCE/EXIT (AS SHOWN)
- INSTALLATION OF EROSION CONTROL BARRIER (STRAW BALES AND SILT FENCE) (AS SHOWN)
- INSTALLATION OF INLET PROTECTION IN STREET (AS SHOWN)
- DEMOLITION OF EXISTING SITE STRUCTURES (SEE DEMOLITION PLAN)
- DEMOLITION OF EXISTING SITE PAVEMENT AND AMENITIES (SEE DEMOLITION PLAN)
- CLEARING AND GRUBBING
- INSTALLATION OF TEMPORARY SWALES AND SEDIMENT BASINS
- EARTHWORK AND EXCAVATION/FILLING AS NECESSARY
- CONSTRUCTION OF UTILITIES
- STABILIZE PERMANENT LAWN AREAS AND SLOPES WITH TEMPORARY SEEDING
- INSTALLATION OF INLET PROTECTION OF ON-SITE UTILITIES (AS SHOWN)
- CONSTRUCTION OF BUILDINGS
- CONSTRUCTION OF ALL CURBING AND LANDSCAPE ISLANDS AS INDICATED ON THE PLANS
- SPREAD TOPSOIL ON SLOPED AREAS AND SEED AND MULCH
- FINAL GRADING OF ALL SLOPED AREAS
- PLACE 6" TOPSOIL ON SLOPES AFTER FINAL GRADING COMPLETED. FERTILIZE, SEED, AND MULCH SEED MIXTURE TO BE INSTALLED AS REQUIRED.
- REMOVAL OF THE TEMPORARY SEDIMENT BASINS
- PAVE PARKING LOT
- LANDSCAPING PER LANDSCAPING PLAN
- REMOVE EROSION CONTROLS AS DISTURBED AREAS BECOME STABILIZED TO 70% STABILIZATION OR GREATER.

## TREE PROTECTION DURING CONSTRUCTION



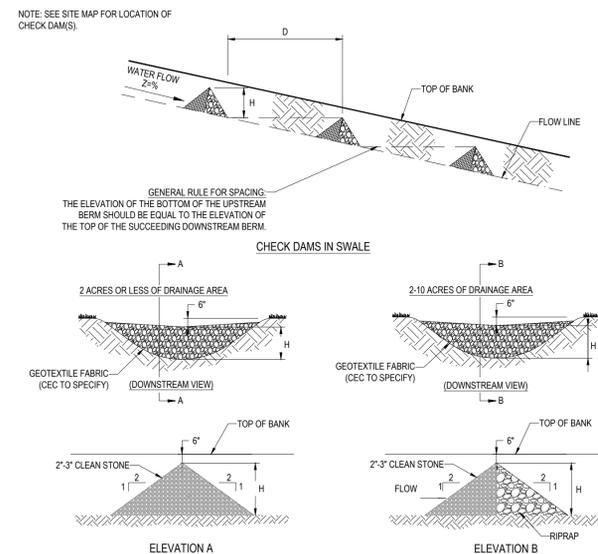
N.T.S.



- NOTES:
- BALES SHALL BE PLACED AT THE TOP OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
  - EACH BALE SHALL BE PLACED SO THE BINDINGS ARE HORIZONTAL.
  - BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
  - INSPECTION SHALL BE FREQUENT AND REPAIR/REPLACEMENT SHALL BE PROMPTLY AS NEEDED.
  - BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

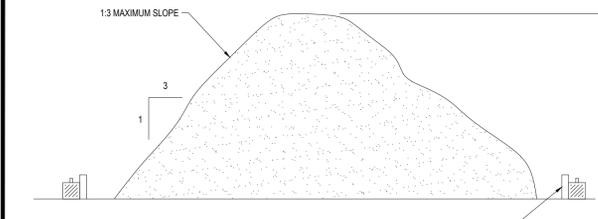
## STRAW BALE DETAIL

N.T.S.



## ROCK CHECK DAM

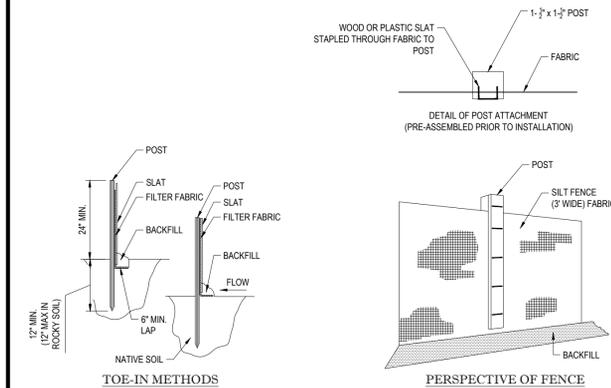
N.T.S.



## TEMPORARY STOCKPILE DETAIL

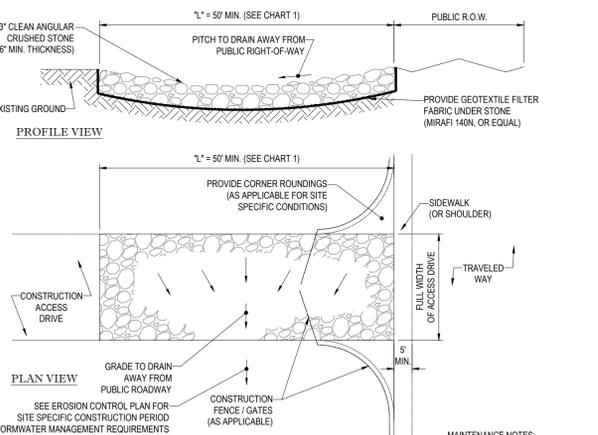
N.T.S.

- INSTALLATION:
- EXCAVATE A 6\"/>



## TYP. SILTATION FENCE DETAIL

N.T.S.



**CHART 1**

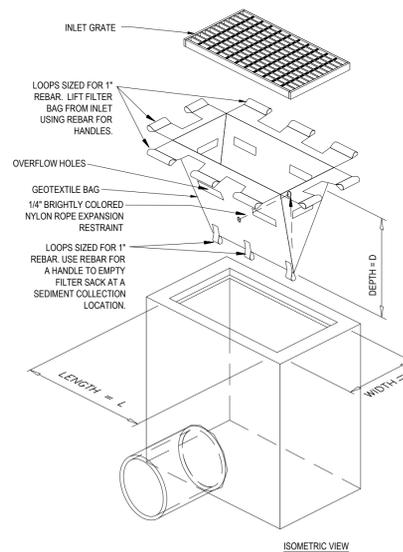
PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200 FT
>5%	ENTIRE ENTRANCE STABILIZED WITH FABC BASE COURSE (1)	

(1) AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

- MAINTENANCE NOTES:**
- INSPECT STABILIZED CONSTRUCTION ENTRANCE / ANTI-TRACKING PAD AND SEDIMENT DISPOSAL AREA WEEKLY OR AFTER EVERY MAJOR RAIN STORM EVENT. WASH WATER (IF USED) SHALL BE DIRECTED TOWARD A SEDIMENT TRAP. SUFFICIENTLY SIZED FOR SPECIFIC SITE CONDITIONS.
  - EXCESSIVELY MUD-CLOGGED STONE SHALL BE REMOVED AND REPLACED, AS NEEDED.

## STABILIZED CONSTRUCTION EXIT

N.T.S.



## FILTER SACKS (GRATED INLETS)

N.T.S.

DO NOT USE IN PAVED AREAS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.  
TO BE USED IN EXISTING RIGHT OF WAY

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## PRELIMINARY

PROJECT No.: W181144  
DRAWN BY: GJZ/CMC  
CHECKED BY: MJD/JAK  
DATE: 12/22/18  
SCALE: AS NOTED  
CAD I.D.: W181144S0 - EROS

**SITE DEVELOPMENT PLANS**  
FOR  
**CENTECH PARK NORTH**  
SUB-DISTRICT A

LOCATION OF SITE  
MAP 42, LOT 11  
384-386 SOUTH STREET  
TOWN OF SHREWSBURY  
WORCESTER COUNTY,  
MASSACHUSETTS

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**J.A. KUCIUS**

JOHN A. KUCIUS  
PROFESSIONAL ENGINEER  
140 CONANT STREET  
MILFORD, MA 01860  
PHONE: (508) 853-9616  
FAX: (508) 853-9616

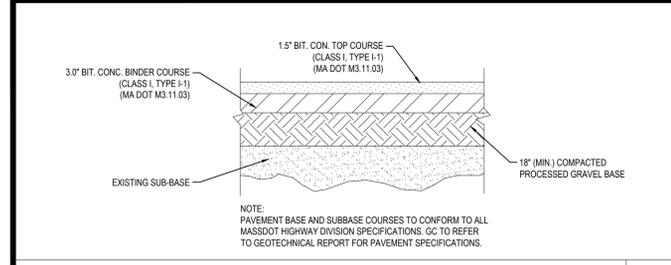
## SOIL EROSION CONTROL NOTES & DETAILS SHEET

SHEET NUMBER:  
**10**  
OF 14

REV 0 - 12/12/2018

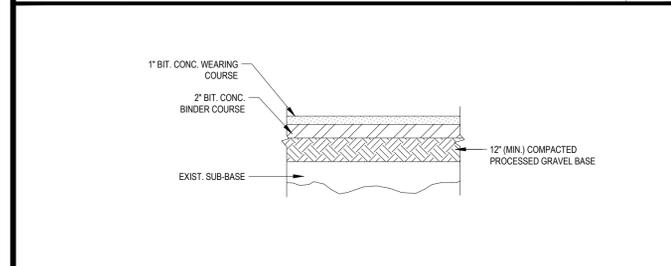


Know what's below.  
Call before you dig.



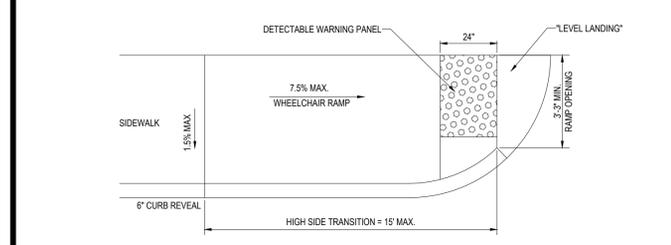
TYPICAL PAVEMENT SECTION

N.T.S.



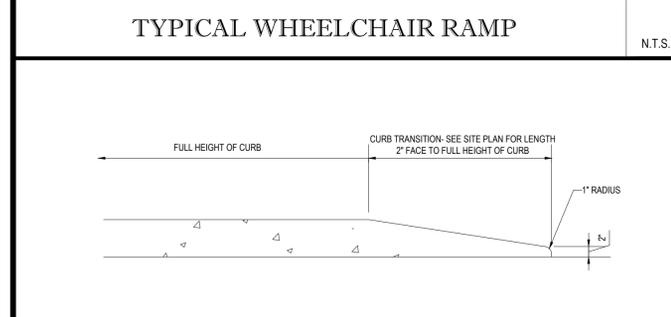
TYPICAL BITUMINOUS ASPHALT SIDEWALK SECTION

N.T.S.



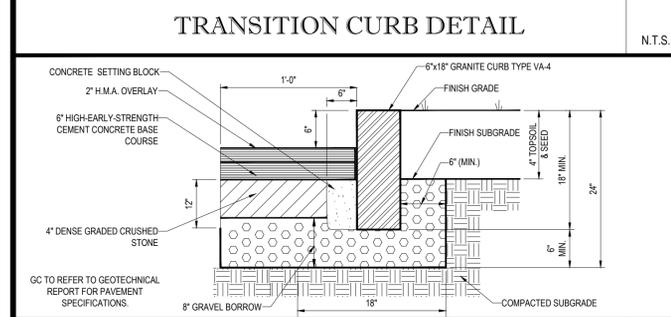
TYPICAL WHEELCHAIR RAMP

N.T.S.



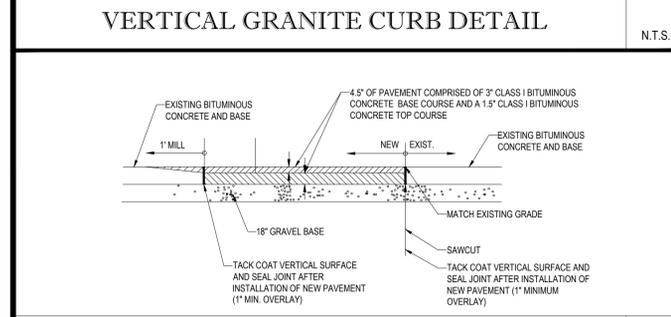
TRANSITION CURB DETAIL

N.T.S.



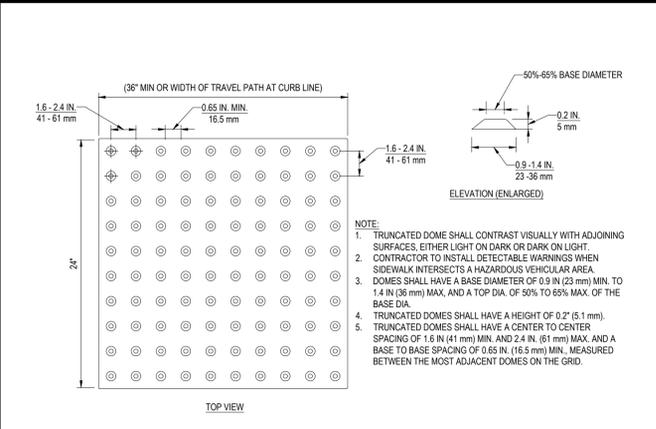
VERTICAL GRANITE CURB DETAIL

N.T.S.



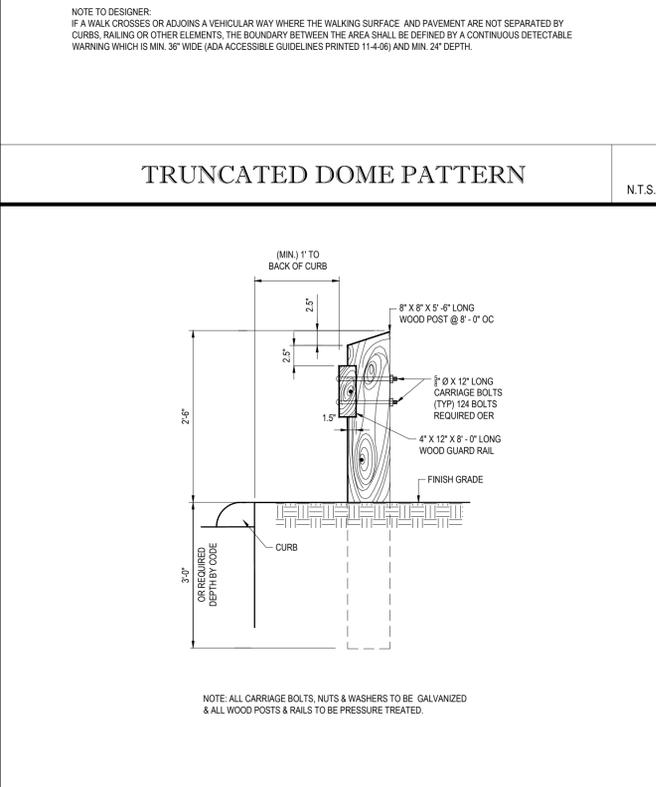
ROADWAY PATCHING DETAIL

N.T.S.



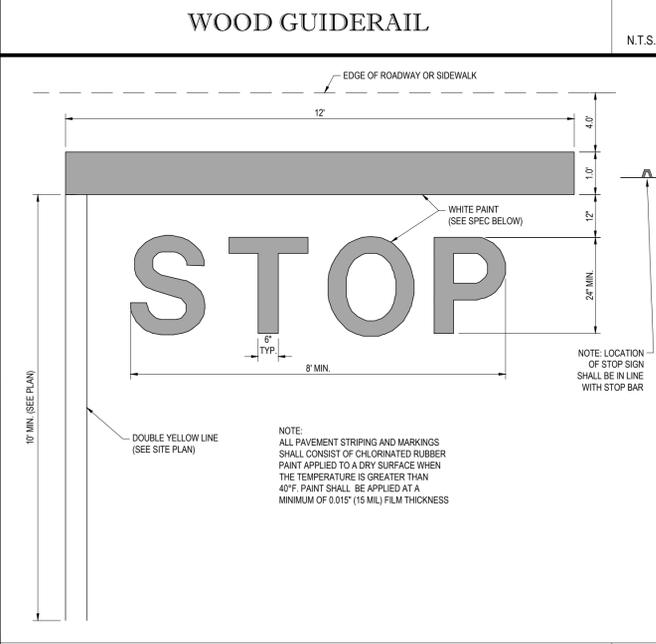
TRUNCATED DOME PATTERN

N.T.S.



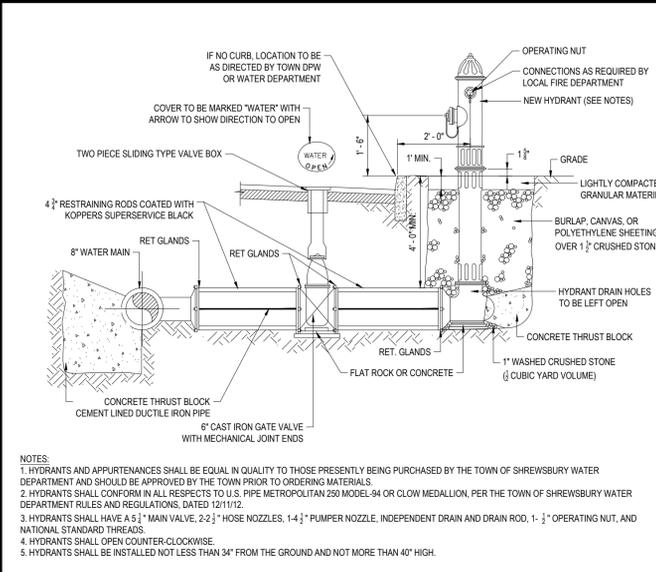
WOOD GUIDERAIL

N.T.S.



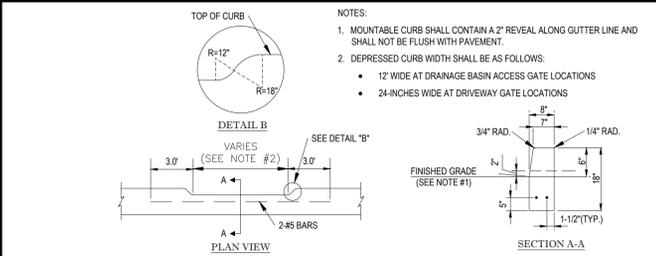
'STOP' BAR DETAIL

N.T.S.



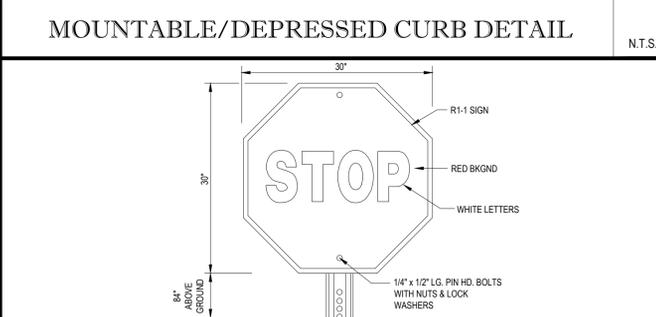
HYDRANT & VALVE INSTALLATION

N.T.S.



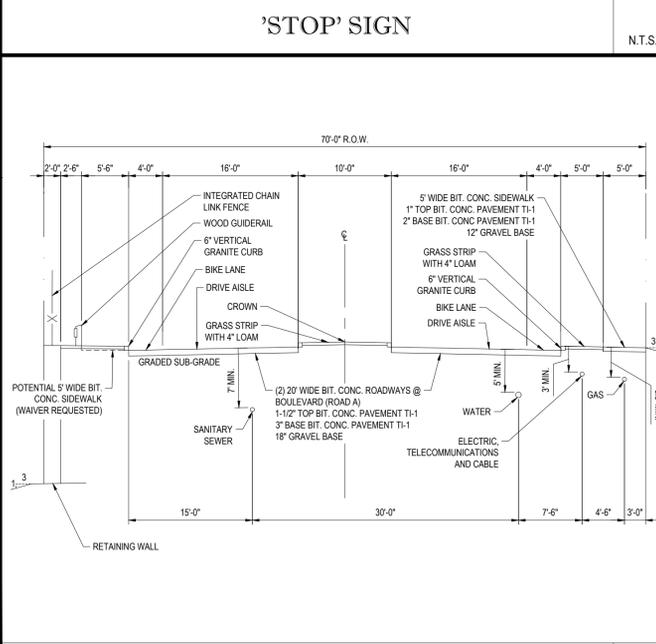
MOUNTABLE/DEPRESSED CURB DETAIL

N.T.S.



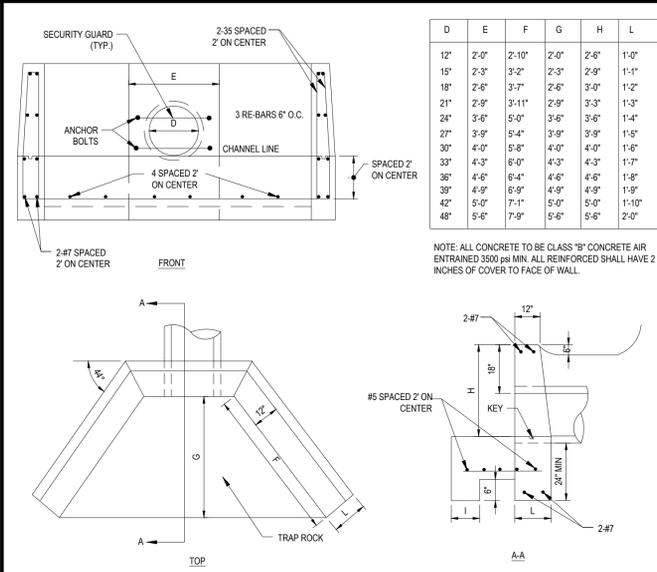
'STOP' SIGN

N.T.S.



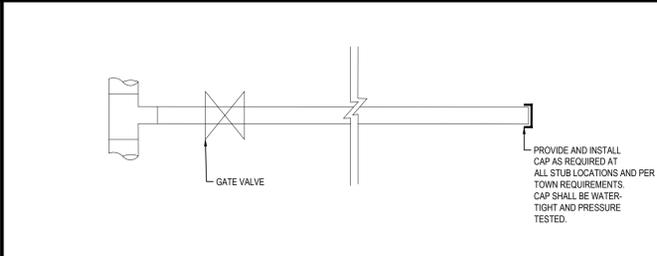
TYPICAL BOULEVARD CROSS SECTION STATION 2+25 (50' WIDE ROADWAY)

1\"/>



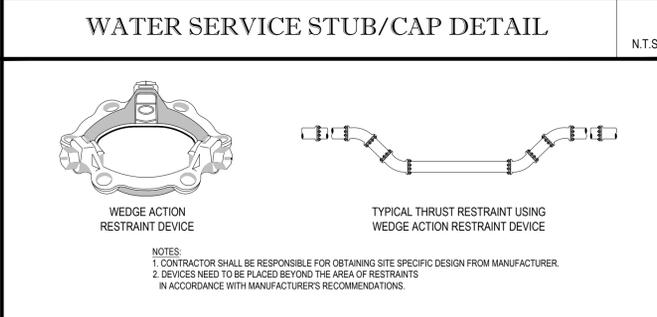
HEADWALL DETAIL

N.T.S.



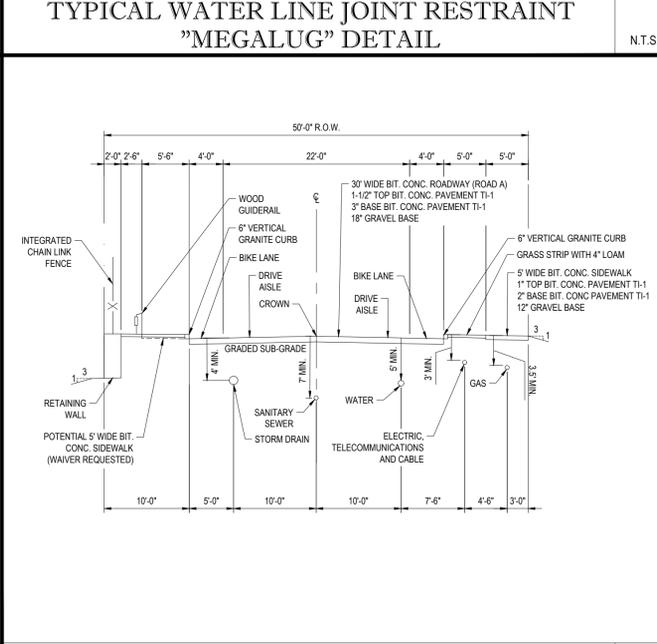
WATER SERVICE STUB/CAP DETAIL

N.T.S.



TYPICAL WATER LINE JOINT RESTRAINT "MEGALUG" DETAIL

N.T.S.



TYPICAL CROSS SECTION STATION 5+75 (30' WIDE ROADWAY)

1\"/>

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REVISIONS

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PRELIMINARY

PROJECT No.: W181144  
 DRAWN BY: GJZ/CMC  
 CHECKED BY: MJD/JAK  
 DATE: 12/12/2018  
 SCALE: AS NOTED  
 CAD I.D.: W181144SS0 - DET

PROJECT: **SITE DEVELOPMENT PLANS** FOR **CENTECH PARK NORTH SUB-DISTRICT A**

LOCATION OF SITE  
 MAP 42, LOT 11  
 384-386 SOUTH STREET  
 TOWN OF SHREWSBURY  
 WORCESTER COUNTY,  
 MASSACHUSETTS

**BOHLER ENGINEERING**

352 TURNPIKE ROAD  
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[www.BohlerEngineering.com](http://www.BohlerEngineering.com)

**J.A. KUCI ARCHITECT**

JOHN A. KUCI  
 ARCHITECT

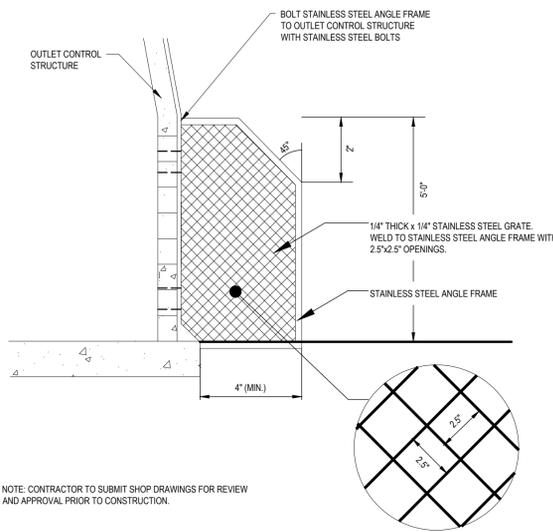
PROFESSIONAL SEAL  
 STATE OF MASSACHUSETTS  
 LICENSE NO. 14593  
 EXPIRES 12/31/2018

SHEET TITLE: **CONSTRUCTION DETAIL SHEET & ROADWAY CROSS-SECTIONS**

SHEET NUMBER: **11** OF 13

REV 0 - 12/12/2018

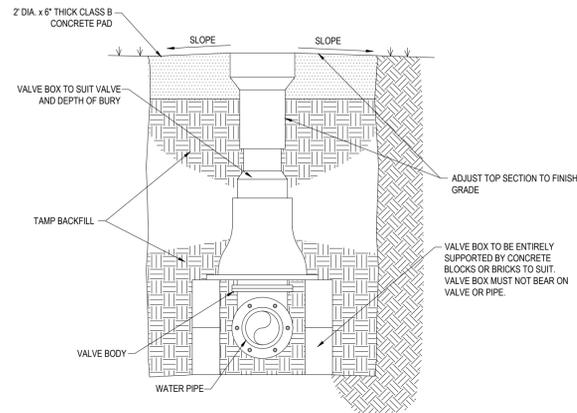
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NOTE: CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

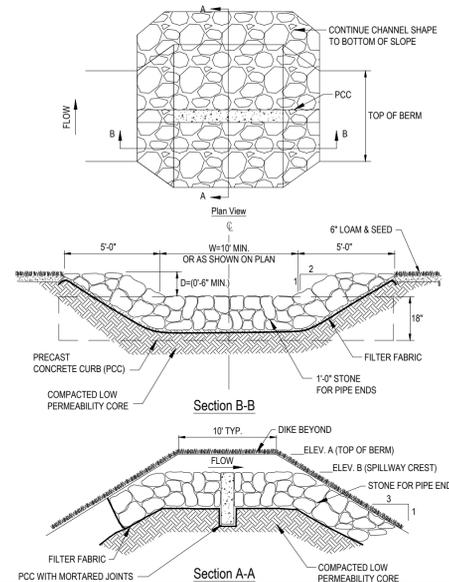
TRASH RACK DETAIL

N.T.S.



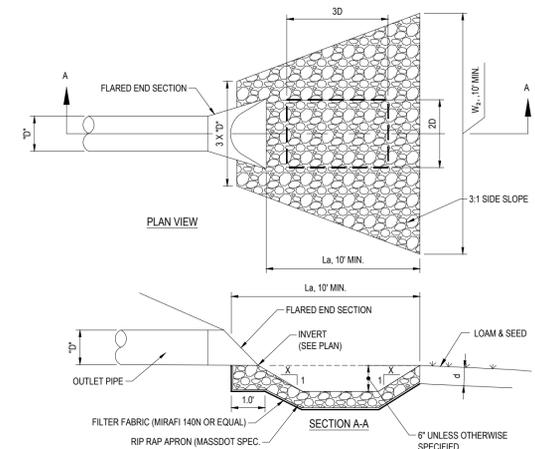
GATE VALVE DETAIL

N.T.S.

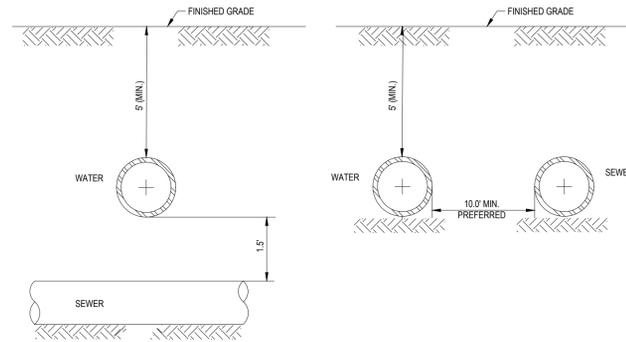


OVERFLOW SPILLWAY

N.T.S.



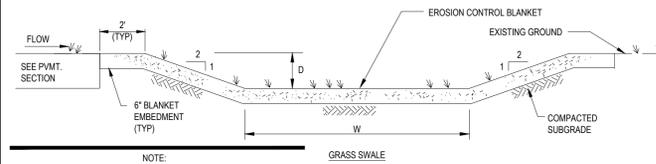
FLARED END SECTION WITH RIP RAP APRON



NOTE: 10' HORIZONTAL SEPARATION AND 1.5' VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER AND SEWER AS DEPICTED IN THIS DETAIL OR SEWER SHALL BE ENCASED IN CONCRETE (SEE "CONCRETE ENCASEMENT DETAIL AT UTILITY CROSSING" DETAIL THIS SHEET) IN SECTIONS WHERE SEPARATIONS SHALL NOT BE ACHIEVED.

WATER/SEWER CROSSING DETAIL

N.T.S.



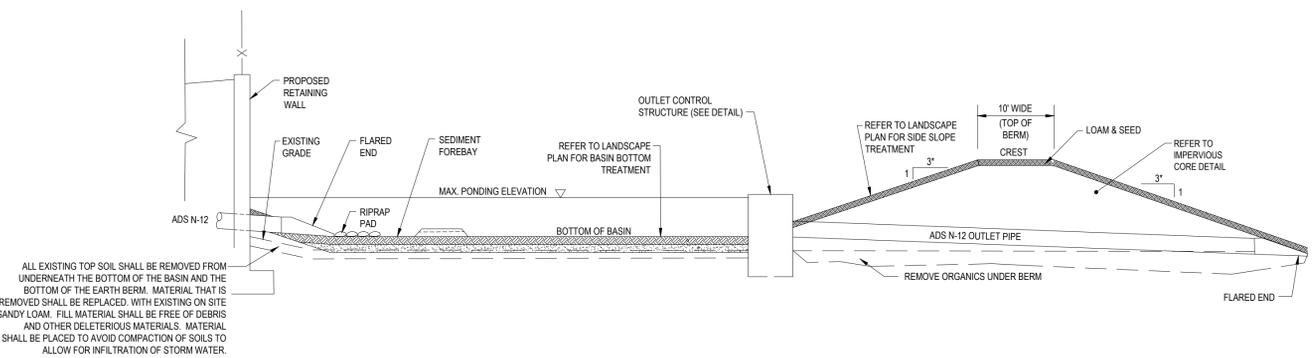
- GEOTECHNICAL FABRIC TO BE INSTALLED FOR SLOPE STABILIZATION WHERE SLOPES EXCEED 4%.
- SEED MIX FOR GRASSED SWALES SHALL CONSIST OF THE FOLLOWING:  
70% RED FESCUE  
15% PERENNIAL RYE GRASS  
15% BERG'S FOOT TREFOL.

SWALE DESIGNATION	W	D
TYPICAL *	2'	2'

\* UNLESS OTHERWISE NOTED ON GRADING PLANS

GRASSED SWALE

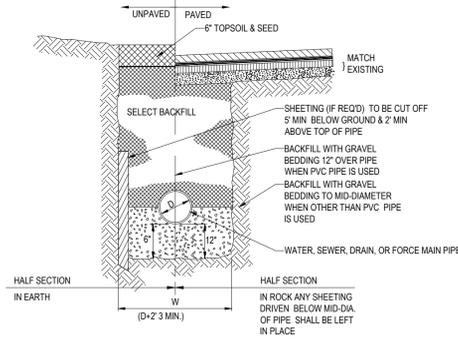
N.T.S.



ALL EXISTING TOP SOIL SHALL BE REMOVED FROM UNDERNEATH THE BOTTOM OF THE BASIN AND THE BOTTOM OF THE EARTH BERM. MATERIAL THAT IS REMOVED SHALL BE REPLACED WITH EXISTING ON SITE SANDY LOAM. FILL MATERIAL SHALL BE FREE OF DEBRIS AND OTHER DELETERIOUS MATERIALS. MATERIAL SHALL BE PLACED TO AVOID COMPACTION OF SOILS TO ALLOW FOR INFILTRATION OF STORM WATER.

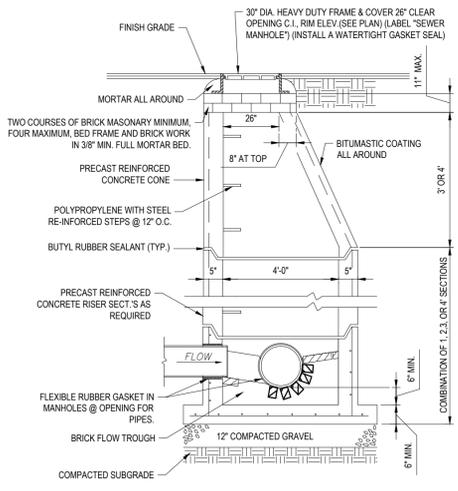
TYPICAL BASIN CROSS SECTION DETAIL

N.T.S.



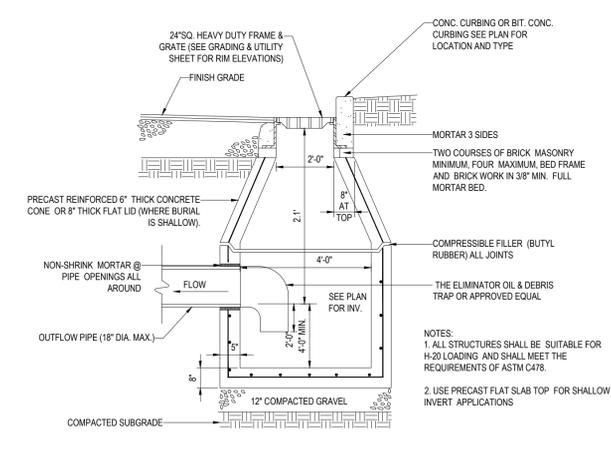
TYPICAL UTILITY TRENCH

N.T.S.



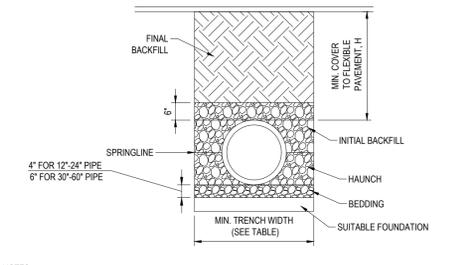
TYP. PRECAST CONCRETE SANITARY MANHOLE

N.T.S.



PRECAST CONCRETE DEEP SUMP CATCH BASIN DETAIL

N.T.S.



- NOTES:
- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321 "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
  - MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
  - FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MUST BE STABILIZED USING A GEOTEXTILE MATERIAL.
  - BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER, UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm), 6" (150mm) FOR 30"-60" (750mm-900mm).
  - INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6' ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
  - MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOODING FOR TRAFFIC APPLICATIONS. MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 64"-80" DIAMETER PIPE. MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

HDPE STORM DRAINAGE TRENCH

N.T.S.

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PRELIMINARY

PROJECT No.: W181144  
 DRAWN BY: GJZ/CMC  
 CHECKED BY: MJD/JAK  
 DATE: 12/12/2018  
 SCALE: AS NOTED  
 CAD I.D.: W181144SS0 - DET

SITE DEVELOPMENT PLANS FOR CENTECH PARK NORTH SUB-DISTRICT A

LOCATION OF SITE  
 MAP 42, LOT 11  
 384-386 SOUTH STREET  
 TOWN OF SHREWSBURY  
 WORCESTER COUNTY,  
 MASSACHUSETTS

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**J.A. KUCIENSKI**

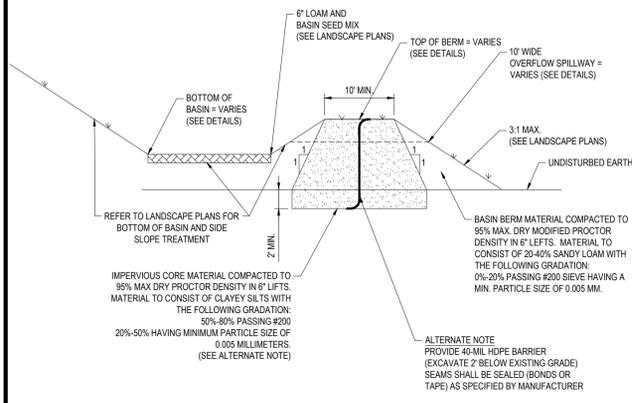
PROFESSIONAL ENGINEER  
 LICENSE NO. 11530  
 REGISTERED PROFESSIONAL ENGINEER  
 MASSACHUSETTS

SHEET TITLE: CONSTRUCTION DETAIL SHEET

SHEET NUMBER: 12 OF 13

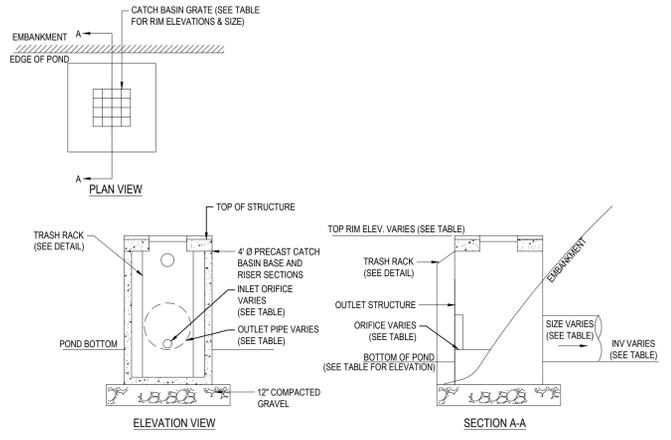
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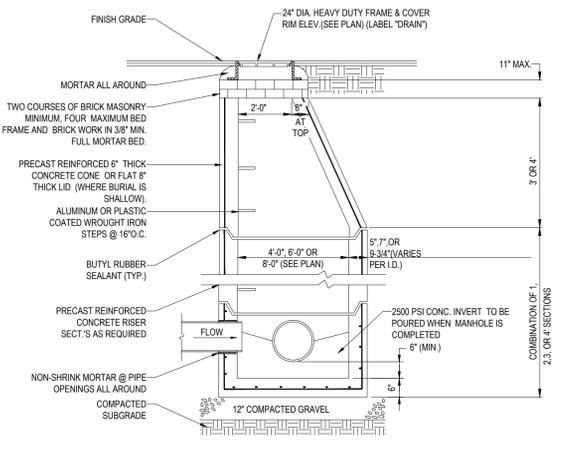
BASIN IMPERVIOUS CORE DETAIL

N.T.S.



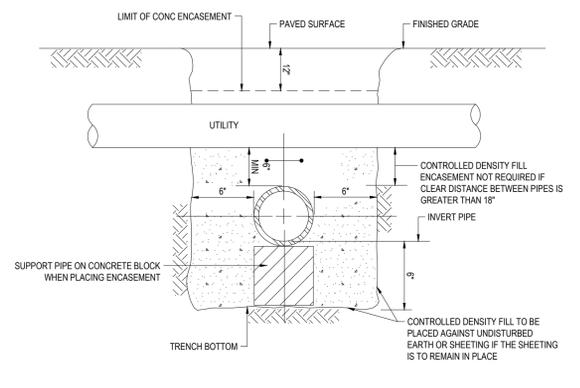
OUTLET CONTROL STRUCTURE DETAIL (OCS500 & OCS501)

N.T.S.



TYP. PRECAST CONCRETE MANHOLE STORM DRAIN

N.T.S.



CONCRETE ENCASEMENT AT UTILITY CROSSING

N.T.S.

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PROJECT No.: W181144  
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**J.A. BOHLER**  
 JOHN A. BOHLER  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 41639  
 EXPIRES 12/31/2020  
 MA 01901

SHEET TITLE: **CONSTRUCTION DETAIL SHEET**

SHEET NUMBER: **13**  
 OF 13

REV 0 - 12/12/2018

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