Site Development Plans for Woodland Golf Club Racquet Courts 1897 Washington Street, Auburndale, MA 02466

APPLICANT: WOODLAND GOLF CLUB

1897 WASHINGTON STREET AUBURNDALE, MA 02466

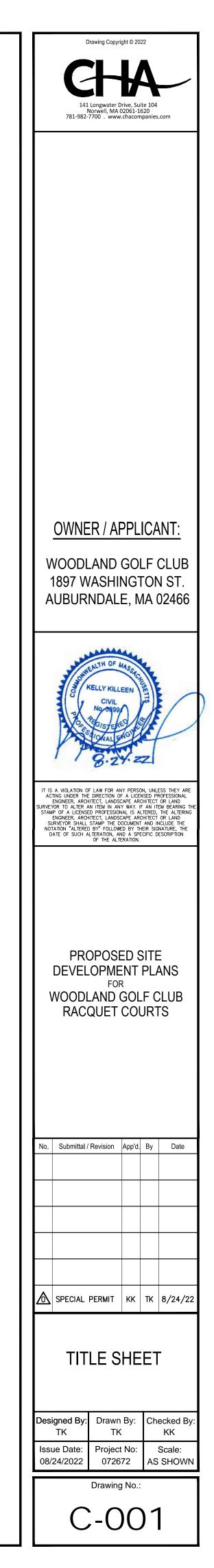
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SURVEY NOTES:

- 1. THE EXISTING CONDITIONS INFORMATION SHOWN HEREON IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY CHA CONSULTING, INC. IN DECEMBER OF 2021. 2. ALL DEED REFERENCES ARE TO MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS UNLESS OTHERWISE NOTED.
- 3. TOPOGRAPHY, CONTOURS AND BENCHMARKS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). TEMPORARY BENCHMARKS, REFERENCED TO THE DATUM ARE INDICATED ON THE SURVEY. IN
- THE EVENT THAT BENCHMARKS (TBM'S), ESTABLISHED FOR THIS PROJECT AND PUBLISHED ON THIS SURVEY ARE DESTROYED, NOT RECOVERABLE OR A DISCREPANCY IS FOUND. THE USER SHOULD NOTIFY THIS FIRM IN WRITING PRIOR TO COMMENCING OR CONTINUING ANY WORK. 4. LOCATION OF SUBSURFACE UTILITIES SHOWN HEREON ARE APPROXIMATE AND ADDITIONAL UTILITIES MAY EXIST THAT ARE NOT SHOWN ON THIS PLAN. LOCATIONS ARE COMPILED FROM UTILITY PLANS OF RECORD AND DIG-SAFE FIELD MARKINGS. RIM AND INVERT INFORMATION HAS BEEN COMPILED AND FIELD VERIFIED WHERE POSSIBLE. THIS INFORMATION IS NOT TO BE USED FOR CONSTRUCTION. PRIOR TO ANY CONSTRUCTION.

GENERAL

. PROTECTION

CONTACT DIG-SAFE (1-800-344-7233) TO FIELD VERIFY LOCATION OF ALL UTILITIES.

- A. PROVIDE PROTECTION NECESSARY TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS, TREES OR VEGETATION. B. PROTECT IMPROVEMENTS ON ADJOINING PROPERTIES AND ON OWNER'S PROPERTY.
- RESTORE DAMAGED IMPROVEMENTS TO ORIGINAL CONDITION AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.
- D. CONDUCT OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH OPERATIONS, STREETS, WALKS, AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION. STREETS AND ROADWAYS SHALL BE THOROUGHLY CLEANED AND/OR SWEPT ON A DAILY BASIS OR MORE FREQUENTLY AS REQUIRED BY THE OVERNING AUTHORITY
- 2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MASSACHUSETTS DOT SPECIFICATIONS FOR HIGHWAYS AND BRIDGES AND/OR THE APPROPRIATE LOCAL AUTHORITIES. 3. ALL SLOPES, UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND SEEDED FOR STABILIZATION AS SOON AS POSSIBLE TO PREVENT EROSION TOWARD RESOURCE AREAS AND BUFFERS, ABUTTING PROPERTIES, OR PUBLIC
- NAYS. EROSION CONTROL BLANKETS ARE REQUIRED FOR ALL 2H:1V SLOPES. SLOPES MAY NOT EXCEED 2H:1V. 4. ANY DEVIATIONS, I.E. "FIELD CHANGES" FROM THE DESIGN PLAN(S) MUST BE APPROVED BY THE DESIGN ENGINEER IN WRITING. CONTRACTOR SHOULD BE AWARE THAT LOCAL AND STATE AUTHORITIES HAVE JURISDICTION AND APPROVALS MUST BE OBTAINED FROM THE APPROPRIATE AUTHORITY PRIOR TO THE IMPLEMENTATION OF THE "FIELD CHANGE." CHA INC. ASSUMES NO LIABILITY OR RESPONSIBILITY FOR WORK ASSOCIATED WITH FIELD NGES COMPLETED WITHOUT REGARD TO THE "FIELD CHANGE" PROCEDUF
- 5. RELOCATION OF ANY UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY. 6. *** DIG SAFE NOTE *** IN ACCORDANCE WITH MGL. CH. 82, SEC. 40 INCLUDING AMENDMENTS, ALL CONTRACTORS SHALL NOTIFY UTILITY COMPANIES AND GOVERNMENT AGENCIES, IN WRITING, OF THE INTENT TO EXCAVATE. BLAST, DEMOLISH, BORE, OR PERFORM OTHER EARTH MOVING OPERATIONS NO LESS THAN 72 HOURS AND NO MORE THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF SUCH WORK (EXCLUSIVE OF SATURDAYS. SUNDAYS. AND EGAL HOLIDAYS) OR CALL "DIG SAFE" AT 1-888-DIG-SAFE.
- 7. ADDITIONAL BENCHMARKS TO BE SET BY CONTRACTOR PRIOR TO CONSTRUCTION TO ENSURE QUALITY WORKMANSHIP.
- 8. ANY STILLING AND/OR DETENTION BASINS SHOULD RECEIVE PERIODIC MAINTENANCE DURING CONSTRUCTION TO REMOVE DEPOSITED SILTS AND DEBRIS TO ENSURE PROPERTY DRAINAGE AND SETTLING OF PARTICULATE
- 9. ALL MANHOLE COVERS FOR CROSS-COUNTRY LOCATIONS OR IN PUBLIC GATHERING LOCATIONS SHALL BE FITTED WITH BOLT LOCKS OR EQUIVALENT.
- 10. UNLESS OTHERWISE LABELED, ALL REINFORCED CONCRETE PIPE. RCP. SHALL BE CLASS III: ALL DUCTILE IRON PIPE SHALL BE CEMENT LINED CLASS 52: ALL PVC GRAVITY SEWER SHALL BE SDR 35: ALL PRESSURE SEWER SHALL BE SDR 21; ALL HDPE PIPE TO BE N-12 WATER TIGHT JOINT OR APPROVED EQUAL

SITE WORK

- . CAUTION NOTICE TO CONTRACTOR
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON DESIGN PLANS AND LIMITED AS-BUILT INFORMATION. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS (EXCLUSIVE OF SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS) PRIOR TO ANY EXCAVATION, DEMOLITION, BORING, OR OTHER EARTH MOVING OPERATIONS TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS AT NO ADDITIONAL EXPENSE TO OWNER.
- 2. FILL MATERIAL A. REFER TO SECTION 310000 EARTHWORK OF THE PROJECT SPECIFICATIONS.
- 3. FINISH GRADING
- A. GRADE ALL AREAS WHERE FINISH GRADE ELEVATIONS ARE INDICATED ON DRAWINGS. OTHER THAN PAVED AREAS AND BUILDINGS, INCLUDING EXCAVATED AREAS, FILLED AND TRANSITION AREAS, AND LANDSCAPED AREAS ED AREAS SHALL BE UNIFORM AND SMOOTH, FREE FROM DEBRIS, OR IRREGULAR SURFACE CHANGES. FINISHED SUBGRADE SURFACE SHALL NOT BE MORE THAN 0.10 FEET ABOVE OR BELOW ESTABLISHED SUBGRADI ELEVATIONS, AND ALL GROUND SURFACES SHALL VARY UNIFORMLY BETWEEN INDICATED ELEVATIONS. FINISH DITCHES SHALL BE GRADED TO ALLOW FOR PROPER DRAINAGE WITHOUT PONDING AND IN A MANNER THAT WILL **MINIMIZE EROSION POTENT**
- B. GRADE SURFACE TO MATCH ADJACENT GRADES AND TO PROVIDE FLOW TO SURFACE DRAINAGE STRUCTURES, OR GRADE AS DESIGNATED ON THE PLANS AFTER FILL PLACEMENT AND COMPACTION. 4 THE CONTRACTOR IS RESPONSIBLE FOR GENERAL CLEANUP OF THE PROJECT ON A DAILY BASIS AND AT THE COMPLETION OF THE PROJECT. OPEN TRENCHES, DITCHES, EXCAVATIONS, ETC. SHALL NOT BE PERMITTED TO BE LEFT OPEN OVERNIGHT. CONTRACTOR WILL BACKFILL OR UTILIZE SUITABLE STEEL PLATES FOR THE SECURING OF THE PROJECT SITE PRIOR TO CEASING WORK EACH DA
- APPROPRIATE TRAFFIC CONTROL, I.E. SIGNAGE, BARRICADES, AND OTHER MEANS, WILL BE SUPPLIED BY THE CONTRACTOR IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL AGENCIES.
- 6. UNDER NO CIRCUMSTANCES MAY ANY UTILITY, STRUCTURE, AND/OR REPAIR BE BACKFILLED UNLESS INSPECTED AND APPROVED BY THE TOWN OFFICIALS AND/OR REPRESENTATIVE. RECEIPT OF APPROVAL TO BACKFILL WILL NOT RELEASE THE CONTRACTOR FROM ANY RESPONSIBILITY OR LIABILITY FOR PERFORMANCE TESTS REQUIRED AS PART OF THIS PROJECT. 7. PROPER SHORING AND TRENCH BOXES SHALL BE UTILIZED AS REQUIRED BY LOCAL, STATE, AND FEDERAL REGULATORY AGENCIES TO PROVIDE A SAFE WORKING ENVIRONMENT. SHORING SHALL BE DESIGNED BY A
- PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS WITH EXPERIENCE IN SHORING DESIG
- 8. ALL UTILITIES DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- 9. <u>WATER</u>
- A. ALL WATER PIPING, VALVES, HYDRANTS, AND FITTINGS ETC. TO CONFORM TO LOCAL GUIDELINES OR AS DIRECTED BY THE WATER DEPARTMENT. CONSTRUCTION OF WATER LINE TO CONFORM TO ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION
- B. ALL WATER PIPE SHALL BE THICKNESS CLASS 52 DUCTILE IRON. ALL PIPES AND FITTINGS SHALL HAVE A CEMENT LINING TWICE THE THICKNESS SPECIFIED IN AWWA C104 AND SHALL HAVE A BITUMINOUS SEAL COAT APPLIES INSIDE AND OUTSIDE CONFORMING TO AWWA C104, "TYTON" OR MECHANICAL JOINTS ARE PERMITTED UNLESS OTHERWISE DIRECTED. C. REFER TO PLUMBING PLANS FOR WATER SERVICE, FIRE PROTECTION, AND SANITARY SEWER CONNECTIONS UNLESS OTHERWISE NOTED.
- 10. CONTRACTOR SHALL OBTAIN APPROVAL FOR ALL TRANSFORMER LOCATIONS FROM THE FIRE DEPARTMENT AND BUILDING INSPECTOR PRIOR TO CONSTRUCTION

WATER TESTING

- 1. REQUIRED TESTS FOR WATERLINES AND FORCE MAINS:
- A. PERFORM THE FOLLOWING AFTER THE PIPE HAS BEEN INSTALLED AND PRIOR TO FINAL ACCEPTANCE:

LL TESTING SHALL CONFORM TO CITY OF NEWTON STANDARD SPECIFICATION

- A.1. PRESSURE TEST. / A.2. LEAKAGE TEST.
- 2. PRESUMPTIVE HYDROSTATIC TESTS MAY BE PERFORMED WHEN THE SYSTEM IS PARTIALLY BACKFILLED TO "CHECK" THE WORK, BUT FINAL ACCEPTANCE SHALL BE BASED ON HYDROSTATIC TESTS PERFORMED ON THE FINISHED SYSTEM AFTER IT IS COMPLETELY BACKFILLED. PRESSURE TEST
- A. TEST PIPING TO 1.5 TIMES THE PIPE WORKING PRESSURE, OR 150 PSI, WHICHEVER IS GREATER. MEASURE TEST PRESSURES AT THE LOWEST POINT IN THE PIPE SECTION AND CORRECT TO THE ELEVATION OF THE
- B. RELIEVE TRAPPED AIR AT THE SECTION HIGH POINTS THROUGH HYDRANTS, OR TAPS INSTALLED FOR THIS PURPOSE, PROVIDED TEMPORARY INSTALLATIONS ARE REMOVED AND PLUGGED AFTER ACCEPTANCE C. MAINTAIN THE TEST PRESSURE FOR A PERIOD OF TWO (2) HOURS. AT THE END OF THE TEST PERIOD, IF THE TEST PRESSURE REMAINS CONSTANT. THE PIPE SECTION SHALL HAVE PASSED THE TEST. IF THE PRESSURE HAS DROPPED, IT SHALL BE BROUGHT BACK TO THE TEST PRESSURE BY PUMPING A KNOWN VOLUME OF WATER (BY PUMPING FROM A GRADUATED CONTAINER OR BY METERING) BACK INTO THE PIPE THE VOLUME OF WATER THUS USED, REPRESENTING LEAKAGE FROM THE PIPE, SHALL BE RECORDED. IF THE LEAKAGE IS LESS THAN THE ALLOWABLE LEAKAGE SPECIFIED BELOW, THE PIPE SHALL HAVE PASSED THE TEST. IF THE LEAKAGE EXCEEDS THE ALLOWABLE LEAKAGE SPECIFIED, THE CONTRACTOR SHALL LOCATE THE LEAK, PERMANENTLY REPAIR THE SECTION OF PIPE WHERE THE LEAK IS OCCURRING TO THE SATISFACTION OF THE ENGINEER, AND RETEST THE PIPE AS SPECIFIED ABOVE.
- 4. LEAKAGE TEST:
- A. CONDUCT THE LEAKAGE TEST CONCURRENTLY WITH THE PRESSURE TEST. B. THE MAXIMUM ALLOWED LEAKAGE IS DETERMINED BY THE FOLLOWING FORMULA
 - L = <u>N x D x P 1/2</u> WHERE L = ALLOWABLE LEAKAGE, IN GPH ; WHERE N = NO. OF JOINTS IN TEST SECTION WHERE D = NOMINAL PIPE DIAMETER, IN INCHES ; WHERE P = AVERAGE TEST PRESSURE, IN PSIG
- 5. ACCEPTANCE SHALL BE DETERMINED ON THE BASIS OF ALLOWABLE LEAKAGE. IF ANY PIPE SECTION DISCLOSES LEAKAGE GREATER THAN THAT SPECIFIED, LOCATE, REPAIR AND RETEST UNTIL THE LEAKAGE IS WITHIN THE LIMITS SPECIFIED. 6. MAKE ALL VISIBLE LEAKS TIGHT REGARDLESS OF THE AMOUNT OF LEAKAGE, AND IF THE LINES DO NOT MEET THE ABOVE LEAKAGE TEST, REPAIR AND RETEST AS NECESSARY UNTIL THE LEAKAGE REQUIREMENT IS MET.
- REPAIR OR REPLACE ALL DEFECTIVE WORK.
- DISINFECTION OF POTABLE WATER MAINS
- 1. DISINFECT ALL POTABLE WATER MAINS IN ACCORDANCE WITH THE LATEST VERSION OF AWWA C651, EXCEPT THAT THE PLACEMENT OF CHLORINE POWDER OR TABLETS INSIDE THE PIPE DURING INSTALLATION SHALL NOT BE ALLOWED. DISINFECT WATER MAINS AFTER THE PIPING HAS PASSED THE PRESSURE AND LEAKAGE TESTING
- 2. FLUSH THE PIPE WITH WATER AT A MINIMUM VELOCITY OF 2.5 FEET PER SECOND (FPS) TO CLEAR ALL FOREIGN MATERIAL FROM THE PIPE. 3. APPLY A CHLORINE SOLUTION WITH A CONCENTRATION BETWEEN 50 PARTS PER MILLION (PPM) AND 100 PPM. THE CHLORINE SOLUTION SHALL REMAIN IN THE PIPING FOR A MINIMUM OF 24 HOURS. THE
- CONCENTRATION AT THE END OF THIS PERIOD SHALL BE AT LEAST 25 PPM IN ALL SECTIONS OF THE MAIN. REPEAT THE ENTIRE PROCEDURE IF THE RESIDUAL IS LESS THAN 25 PPM
- A. WHILE THE CHLORINATED WATER IS BEING ADDED, ALL APPURTENANCES (VALVES, HYDRANTS, ETC.) SHALL BE OPERATED SO AS TO COMPLETELY DISINFECT THE NEW WORK. B. POSITION VALVES SO THAT THE CHLORINE SOLUTION IN THE SECTION BEING DISINFECTED WILL NOT FLOW INTO WATER MAINS IN ACTIVE SERVICE.
- C. CHLORINE RESIDUAL SAMPLES SHALL BE TAKEN AS DIRECTED BY THE ENGINEER.
- 4. AFTER THE TWENTY FOUR (24) HOUR RETENTION PERIOD, FLUSH THE MAIN UNTIL RESIDUAL TESTING INDICATES THAT THE CHLORINE CONCENTRATION IS APPROXIMATELY THAT OF THE NEIGHBORING SERVICE AREA. A. DISPOSE OF HEAVILY CHLORINATED WATER INTO SANITARY SEWER OR TANK TRUCK.
- B. THE OWNER AND THE OWNER OF THE SANITARY SEWER SYSTEM SHALL BE NOTIFIED A MINIMUM OF TWENTY-FOUR (24) HOURS PRIOR TO THE DISCHARGE OF ANY WATER TO THE SANITARY SEWER. CONTRACTOR SHALL SUBMIT TO THE ENGINEER WRITTEN CONFIRMATION THAT THE OWNER OF SANITARY SEWER SYSTEM (THE TOWN), HAS APPROVED THE DISCHARGE OF WATER TO ITS SANITARY SEWER. C. UNDER NO CIRCUMSTANCES WILL THE EMPTYING OF WATER ONTO ROADWAYS, OR INTO DITCHES, CULVERTS, STREAMS OR WETLANDS BE ALLOWED
- 5 AFTER DISINFECTION AND FINAL FURSHING AND PRIOR TO PLACING THE LINES IN SERVICE. THE CONTRACTOR SHALL COLLECT BACTERIOLOGICAL SAMPLES (BOTH COLLEORM AND HETEROTROPHIC PLATE COUNT) AND SUBMIT SAMPLES TO AN APPROVED TESTING LABORATORY. TWO CONSECUTIVE SETS OF SAMPLES SHALL BE TAKEN AT LEAST 24 HOURS APART IN ACCORDANCE WITH AWWA C651. THE COLLECTION POINTS SHALL BE AS DIRECTED BY THE ENGINEER AND LOCAL AUTHORITY HAVING JURISDICTION.
- A. THE TESTING LABORATORY PERFORMING THE BACTERIOLOGICAL ANALYSIS SHALL BE ACCEPTABLE TO THE ENGINEER. B. SUBMIT THREE (3) COPIES OF THE LABORATORY ANALYSIS TO THE ENGINEER
- A. SHOULD SAFE RESULTS NOT OCCUR AFTER LABORATORY TESTS, THE CONTRACTOR SHALL, AT HIS EXPENSE, REPEAT THE DISINFECTION PROCEDURE UNTIL SAFE RESULTS ARE OBTAINED. THIS INCLUDES A POSITIVE RESULT FOR COLIFORM OR A MEASURED HETEROTROPHIC PLATE COUNT OF GREATER THAN 500 COLONY-FORMING UNITS PER ML.
- B. CONTRACTOR SHALL PAY FOR ALL TESTING REQUIRED 6. ALL PRECAUTION SHALL BE TAKEN TO MAINTAIN DRY AND SANITARY CONDITIONS AND PREVENT CONTAMINATION OF ANY PIPING. IF, IN THE OPINION OF THE ENGINEER, CONTAMINATION HAS OCCURRED, THE INTRACTOR SHALL REPEAT THE DISINFECTION PROCEDURE AND TESTING AT HIS COST AND EXPENSE

SEWER

ALL TESTING SHALL BE PER CITY OF NEWTON STANDARDS

- 1. THESE NOTES ARE INTENDED TO SUPPLEMENT THE LOCAL REQUIREMENTS FOR MATERIALS AND WORKMANSHIP
- 2. WATER AND SEWER MAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST LOCAL AND STATE CODES INCLUDING THE RECOMMENDATIONS OF THE AMERICAN WATER WORKS ASSOCIATION AND THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION TECHNICAL REPORT 16. CONSTRUCTION SHALL PROCEED IN WORKMANLIKE MANNER WITH STATE-OF-THE-ART CONSTRUCTION TECHNIQUES. THE CONTRACTOR SHALL INSULATE WATER AND SEWER MAINS AS INDICATED ON THE PLANS OR WHEN DESIGN OR CONSTRUCTION ENCUMBRANCES DICTATE ALIGNMENT TO
- OCCUR ABOVE THE FROST LINE. PROCUREMENT AND INSTALLATION OF PIPE INSULATION SHALL CONFORM TO THE REQUIREMENTS LISTED IN THE LATEST MASS. DOT STANDARI FICATIONS FOR SECTION 301.60P AND MATERIAL SPECIFICATION M9.11.1. THE PIPE INSULATION SHALL BE PRE-MOLDED TYPE CELLULAR GLASS INSULATION WITH ALUMINUM JACKET CONFORMING TO THE LATEST REQUIREMENTS OF ASTM-522 OR APPROVED EQUAL. 4. THE CONTRACTOR SHALL FOLLOW ALTERNATE CONSTRUCTION PROCEDURES WHEN DESIGN OR CONSTRUCTION ENCUMBRANCES PREVENT HORIZONTAL SEPARATION OF 10 FEET
- OR THE ALTERNATE OF 18 INCHES OF VERTICAL SEPARATION BETWEEN WATER AND SEWER MAINS. IN AREAS WHERE THE ABOVE OFFSETS CANNOT BE MAINTAINED, THE WATER MAIN SHALL BE CONSTRUCTED WITH MEGA-LUG MECHANICAL TYPE FITTINGS OR APPROVED EQUAL FOR A DISTANCE OF 10-FEET ON EITHER SIDE OF THE CROSSING OR LATERAL ENCROACHMENT AND SHALL STRADDLE A FULL LENGTH OF CLASS 52 CEMENTED LINED DUCTILE IRON WATER PIPE. 5. THE DEFLECTION IN ALL GRAVITY SEWER PIPE SHALL BE TESTED USING A GO, NO-GO MANDREL TEST TO ENSURE THAT PROPER INSTALLATION HAS OCCURED. TEST SHALL
- CONFORM WITH PIPE MANUFACTURER'S RECOMMENDATIONS AND SHALL NOT INDICATE MORE THAN 7.5% DEFLECTION, U.O.N. 6. EACH SEGMENT OF THE SEWER MAIN INCLUDING MANHOLES SHALL BE LEAK TESTED AND OBSERVED BY A REPRESENTATIVE OF THE TOWN AND/OR ENGINEER IN ACCORDANCE

EXFILTRATION TEST FOR NEW SEWER MAIN

WITH THE FOLLOWING PROCEDURES

- 1. PREPARATION OF TEST. AFTER THE MANHOLE HAD BEEN ASSEMBLED IN PLACE, ALL LIFTING HOLES AND THOSE EXTERIOR JOINTS WITHIN SIX FEET OF THE GROUND SURFACE SHALL BE FILLED AND POINTED WITH AN APPROVED NON-SHRINKING MORTAR. THE TEST SHALL BE MADE PRIOR TO PLACING THE SHELF AND INVERT AND BEFORE FILLING AND POINTING THE HORIZONTAL JOINTS BELOW THE 6- FOOT DEPTH LINE. IF THE GROUNDWATER TABLE HAS BEEN ALLOWED TO RISE ABOVE THE 30TTOM OF THE MANHOLE, IT SHALL BE LOWERED FOR THE DURATION OF THE TEST. ALL PIPES AND OTHER OPENINGS INTO THE MANHOLE SHALL BE SUITABLE PLUGGED AND PLUGS BRACED TO PREVENT BLOW OUT.
- 2. TEST PROCEDURE. THE MANHOLE SHALL THEN BE FILLED WITH WATER TO THE TOP OF THE CONE SECTION. IF THE EXCAVATION HAS NOT BEEN BACKFILLED AND DESERVATION INDICATED NO VISIBLE LEAKAGE, THAT IS, NO WATER VISIBLY MOVING DOWN THE SURFACE OF THE MANHOLE, THE MANHOLE MAY BE CONSIDERED TO BE SATISFACTORILY WATERTIGHT. IF THE TEST AS DESCRIBED ABOVE IS UNSATISFACTORY AS DETERMINED BY THE ENGINEER OR IF THE MANHOLE EXCAVATION HAS BEEN BACKFILLED THE TEST SHALL BE CONTINUED. A PERIOD OF TIME MAY BE PERMITTED, IF THE CONTRACTOR WISHES, TO ALLOW FOR ABSORPTION
- 3. AT THE END OF THIS PERIOD, THE MANHOLE SHALL BE REFILLED TO THE TOP OF THE CONE, IF NECESSARY, AND THE MEASURING TIME OF AT LEAST EIGHT HOURS BEGUN. AT THE END OF THE TEST PERIOD. THE MANHOLE SHALL BE REFILLED TO THE TOP OF THE CONE, MEASURING THE VOLUME OF WATER ADDED. THIS AMOUNT SHALL BE EXTRAPOLATED TO A 24-HOUR RATE AND THE LEAKAGE DETERMINED ON THE BASIS OF DEPTH. THE LEAKAGE FOR EACH MANHOLE SHALL NOT EXCEED ONE GALLON PER VERTICAL FOOT FOR A 24-HOUR PERIOD. IF THE TEST FAILS THIS REQUIREMENTS, BY THE LEAKAGE DOES NOT EXCEED THREE GALLONS PER VERTICAL FOOT PER. DAY REPAIRS BY APPROVED METHODS MAY BE MADE AS DIRECTED BY THE ENGINEER TO BRING THE LEAKAGE WITHIN THE ALLOWABLE RATE ON ONE GALLON PER VERTICAL FOOT PER DAY. LEAKAGE DUE TO A DEFECTIVE SECTION OF JOINT OF EXCEEDING THE THREE-GALLON PER VERTICAL FOOT PER DAY RATE, SHALL BE CAUSE FOR THE REJECTION OF THE MANHOLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UNCOVER, DISASSEMBLE, RECONSTRUCT OR REPLACE THE MANHOLE AS DIRECTED BY THE ENGINEER. THE MANHOLE SHALL THEN BE RE-TESTED AND, IF SATISFACTORY, INTERIOR JOINTS SHALL BE FILLED AND POINT
- 4. BACKFILLING. THE TEST MAY BE CONDUCTED EITHER BEFORE OR AFTER BACKFILLING AROUND THE MANHOLE. HOWEVER, IF THE CONTRACTOR ELECTS TO BACKFILL PRIOR TO TESTING, IT SHALL BE AT HIS OWN RISK AND IT SHALL BE INCUMBENT UPON THE CONTRACTOR TO DETERMINE THE REASON FOR ANY FAILURE OF THE TEST. NO ADJUSTMENT IN THE LEAKAGE ALLOWANCE WILL BE MADE FOR LINKNOWN CAUSES SLICH AS LEAKING PLUGS, ABSORPTION, ETC. LE, IT WILL BE ASSUMED THAT ALL LOSS. OF WATER DURING THE TEST IS A RESULT OF LEAKS THROUGH THE JOINTS OF THROUGH THE CONCRETE. FURTHERMORE, THE CONTRACTOR SHALL TAKE ANY STEPS NECESSARY TO ASSURE THE ENGINEER THAT THE WATER TABLE IS BELOW THE BOTTOM OF THE MANHOLE THROUGHOUT THE TEST.

VACUUM TEST FOR NEW SEWER MAIN :

- 1. THE VACUUM TESTING SYSTEM SHALL BE SUPPLIED BY NPC SYSTEMS, INC. OR EQUIVALENT AS APPROVED BY THE ENGINEER. THE TESTING SHALL BE DONE IMMEDIATELY AFTER ASSEMBLY OF THE MANHOLE AND BEFORE BACKFILLING. A 60 LB-FT. TORQUE WRENCH SHALL BE USED TO TIGHTEN EXTERNAL CLAMPS THAT SECURE THE TEST COVER TO THE TOP OF THE MANHOLE. ALL LIFT HOLES SHALL BE PLUGGED WITH A NON-SHRINKING MORTAR. THE CONTRACTOR SHALL PLUG THE PIPE OPENINGS, TAKING CARE TO SECURELY BRACE THE PLUGS AND THE PIPE TO PREVENT THE PLUGS FROM BEING DRAWN INTO THE MANHOL
- 2. A VACUUM OF 10 INCHES OF MERCURY, HG (4.9 PSI), SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. THE MANHOLE PASSES THE TEST IF THE VACUUM REMAINS GREATER THAN OR EQUAL TO 9 INCHES HG (4.4 PSI) FOR A PERIOD GREATER THAN ONE MINUTE FOR MANHOLES UP TO 10 FEET DEEP; ONE MINUTE FIFTEEN SECONDS FOR MANHOLES 10-15 FEET DEEP; AND ONE MINUTE THIRTY SECONDS FOR MANHOLES 15-25 FEET DEEP.
- 3. IF THE MANHOLE FAILS THE INITIAL TEST, THE CONTRACTOR SHALL LOCATE THE LEAKS AND MAKE PROPER REPAIRS. LEAKS MAY BE FILLED WITH A WET SLURRY OF ACCEPTED QUICK SETTING MATERIAL. IF THE MANHOLE FAILS THE VACUUM TEST AGAIN, ADDITIONAL REPAIRS MUST BE MADE, AND THE MANHOLE MUST BE TESTED BY EXFILTRATION AS OUTLINED IN PARAGRAPH 3.03 (A). FIELD QUALITY CONTROL LEAKAGE TEST :
- 1. THE PIPELINES SHALL BE MADE AS NEARLY WATERTIGHT AS PRACTICABLE, AND LEAKAGE TESTS AND MEASUREMENTS SHALL BE MADE AFTER THE PIPELINE HAS BEEN BACKFILLED
- 2. WHERE THE GROUNDWATER LEVEL IS MORE THAN 1 FT ABOVE THE TOP OF THE PIPE AT ITS UPPER END, THE CONTRACTOR SHALL CONDUCT EITHER INFILTRATION TESTS OR LOW PRESSURE AIR TESTS.
- 3. WHERE THE GROUNDWATER LEVEL IS LESS THAN 1 FT. ABOVE THE TOP OF THE PIPE AT ITS UPPER END, THE CONTRACTOR SHALL CONDUCT EITHER EXFILTRATION TESTS OR
- LOW PRESSURE AIR TES 4. AT THE TIME OF THE TEST, THE CONTRACTOR SHALL DETERMINE THE GROUNDWATER ELEVATION FROM OBSERVATION WELLS, EXCAVATIONS OR OTHER MEANS, ALL SUBJECT TO REVIEW BY THE ENGINEER
- 5. FOR MAKING THE LOW PRESSURE AIR TESTS, THE CONTRACTOR SHALL USE EQUIPMENT SPECIFICALLY DESIGNED AND MANUFACTURED FOR THE PURPOSE OF TESTING SEWER PIPELINES USING LOW PRESSURE AIR. THE EQUIPMENT SHALL BE PROVIDED WITH AN AIR REGULATORY VALVE OR AIR SAFETY SO SET THAT THE INTERNAL AIR PRESSURE IN THE PIPELINE CANNOT EXCEED 8 PSIG
- 6. THE LEAKAGE TEST USING LOW PRESSURE AIR SHALL BE MADE ON EACH MANHOLE-TO-MANHOLE SECTION OF PIPELINE AFTER PLACEMENT OF THE BACKFILL 7. PNEUMATIC PLUGS SHALL HAVE A SEALING LENGTH EQUAL TO OR GREATER THAN THE DIAMETER OF THE PIPE TO BE TESTED. PNEUMATIC PLUGS SHALL RESIST INTERNAL FEST PRESSURES WITHOUT REQUIRING EXTERNAL BRACING OR BLOCKING.
- 8. ALL AIR USED SHALL PASS THROUGH A SINGLE CONTROL PANEL.
- 9. LOW PRESSURE AIR SHALL BE INTRODUCED INTO THE SEALED LINE UNTIL THE INTERNAL AIR PRESSURE REACHES 4 PSIG. GREATER THAN THE MAXIMUM PRESSURE EXERTED BY THE GROUNDWATER THAT MAY BE ABOVE THE INVERT OF THE PIPE AT THE TIME OF THE TEST. HOWEVER, THE INTERNAL AIR PRESSURE IN THE SEALED LINE SHALL NOT BE ALLOWED TO EXCEED 8 PSIG. WHEN THE MAXIMUM PRESSURE EXERTED BY THE GROUNDWATER IS GREATER THAN 4 PSIG., THE CONTRACTOR SHALL CONDUCT ONLY AN INFILTRATION TEST.
- 10. AT LEAST TWO MINUTES SHALL BE ALLOWED FOR THE AIR PRESSURE TO STABILIZE IN THE SECTION UNDER TEST. AFTER THE STABILIZATION PERIOD, THE LOW PRESSURE AIR SUPPLY HOSE SHALL BE QUICKLY DISCONNECTED FROM THE CONTROL PANEL. THE TIME REQUIRED IN MINUTES FOR THE PRESSURE IN THE SECTION UNDER TEST TO DECREASE FROM 3.5 TO 2.5 PSIG (GREATER THAN THE MAXIMUM PRESSURE EXERTED BY GROUNDWATER THAT MAY BE ABOVE THE INVERT OF THE PIPE) SHALL NOT BE LESS THAN THAT SHOWN IN THE FOLLOWING TABLE:



11. FOR MAKING THE INFILTRATION AND EXFILTRATION TESTS, THE CONTRACTOR SHALL FURNISH SUITABLE TEST PLUGS, WATER PUMPS, AND APPURTENANCES, AND ALL LABOR REQUIRED TO PROPERLY CONDUCT THE TESTS ON SECTIONS OF ACCEPTABLE LENGTH.

- 12. FOR MAKING THE INFILTRATION TESTS, UNDERDRAINS, IF USED, SHALL BE PLUGGED AND OTHER GROUNDWATER DRAINAGE SHALL BE STOPPED TO PERMIT THE GROUNDWATER TO RETURN TO ITS NORMAL LEVEL INSOFAR AS PRACTICABLE
- 13. UPON COMPLETION OF A SECTION OF THE SEWER, THE CONTRACTOR SHALL DEWATER IT AND CONDUCT AN EXFILTRATION TEST TO MEASURE THE INFILTRATION FOR AT LEAST 24 HOURS. THE AMOUNT OF INFILTRATION. INCLUDING MANHOLES. TEES, AND CONNECTIONS. SHALL NOT EXCEED 200 GAL. PER INCH DIAMETER PER MILE OF SEWER PER 24
- 14. FOR MAKING THE EXFILTRATION TESTS, THE SEWERS SHALL BE SUBJECTED TO AN INTERNAL PRESSURE BY PLUGGING THE PIPE AT THE LOWER END AND THEN FILLING THE PIPELINES AND MANHOLES WITH CLEAN WATER TO A HEIGHT OF 2 ET ABOVE THE TOP OF THE SEWER AT ITS LIPPER END. WHERE CONDITIONS BETWEEN MANHOLES, MAN RESULT IN TEST PRESSURES WHICH WOULD CAUSE LEAKAGE AT THE STOPPERS IN BRANCHES, PROVISIONS SHALL BE MADE BY SUITABLE TIES, BRACES, AND WEDGES TO SECURE THE STOPPERS AGAINST LEAKAGE RESULTING FROM THE TEST PRESSURE.
- 15. THE RATE OF LEAKAGE FROM THE SEWERS SHALL BE DETERMINED BY MEASURING THE AMOUNT OF WATER REQUIRED TO MAINTAIN THE LEVEL 2 FT. ABOVE THE TOP OF THE 16. LEAKAGE FROM THE SEWERS UNDER TEST SHALL NOT EXCEED THE REQUIREMENTS FOR LEAKAGE INTO SEWERS AS HEREIN BEFORE SPECIFIED.
- 17. THE SEWERS SHALL BE TESTED BEFORE ANY CONNECTIONS ARE MADE TO BUILDINGS.
- 18. THE CONTRACTOR SHALL CONSTRUCT WEIRS OR OTHER MEANS OF MEASUREMENTS AS MAY BE REQUIRED.
- 19. SUITABLE BULKHEADS SHALL BE INSTALLED, AS REQUIRED, TO PERMIT THE TEST OF THE SEWER
- 20.SHOULD THE SECTIONS UNDER TEST FAIL TO MEET THE REQUIREMENTS, THE CONTRACTOR SHALL DO ALL WORK OF LOCATING AND REPAIRING LEAKS AND RETESTING AS THE ENGINEER MAY REQUIRE WITHOUT ADDITIONAL COMPENSATION
- 21.IF, IN THE JUDGMENT OF THE ENGINEER, IT IS IMPRACTICABLE TO FOLLOW THE FOREGOING PROCEDURES FOR ANY REASON, ACCEPTABLE MODIFICATIONS IN THE PROCEDURES SHALL BE MADE AS REQUIRED, BUT IN ANY EVENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ULTIMATE OVE

ELECTRIC BOX

LEGEND - EXISTING

TEST REQUIREMENTS

·····	
	BUILDING LINE
	PARCEL BOUNDARY LINE
	EASEMENT LINE
	ADJOINING PARCEL LINE
	STREET/HIGHWAY LINE
	EDGE OF ASPHALT
	EDGE OF CONCRETE EDGE OF GRAVEL/CRUSHED STONE WATER LINE
D	DRAIN LINE
S	SEWER LINE
G	GAS LINE OVERHEAD UTILITY LINE W/POWER POLE TREE LINE
Z TEL PED	TELEPHONE PEDESTAL
◯ gv ⊙ gas mtr	GAS VALVE GAS METER
⊙ MHSA	SEWER MANHOLE
O VENT	VENT
Ø	UTILITY POLE
*	LIGHT POLE
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ELECTRIC MANHOLE

- (-	WETLAND FLAG
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o p	DOUBLE POST SIGN
	MONITORING WELL
O POST	POST
Ġ	HANDICAP ICON
TREE	PINE TREE
	DECIDUOUS TREE
🚫 SHRUB	SHRUB
O DRAIN	FLOOR DRAIN
CB	SQUARE CATCH BASIN
○ MHST	STORM MANHOLE
< inv.	INVERT
⊙ WSO	WATER SHUT OFF
L wv	WATER VALVE

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-	DOMESTIC WATER
_	FIRE PROTECTION
_	UNDERGROUND ELECTRIC SERVICE
-	UNDERGROUND SITE ELECTRIC
_	SANITARY SEWER
_	FORCEMAIN
	STORM SEWER
_	NATURAL GAS
_	CHAINLINK FENCE
	CATCH BASIN
	DOUBLE CATCH BASIN
	DRAIN MANHOLE
	HYDRANT ASSEMBLY
	LINE VALVE
	POST INDICATOR VALVE
	SANITARY MANHOLE
	SEWER PUMP
	RETAINING WALL

SWPPP NOTES

- PROJECT DETAIL SHEETS.
- 4. AREAS SUBJECT TO EROSION SHALL BE MINIMIZED IN TERMS OF TIME AND AREA.
- 7. DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT OF GRADING.
- URES SHALL BE IN PLACE AND OBSERVED PRIOR TO ANY WORK STARTING ON THE PROJECT
- IMPOSED FOR TRACKING ONTO PUBLIC ROADS SHALL BE PAID BY THE CONTRACTOR.
- 10. TEMPORARY SEEDING OR OTHER METHOD OF STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE ON ANY AREA OF THE SITE, UNLESS ITIONAL CONSTRUCTION OF THE AREAS IS EXPECTED WITHIN 14 DAYS OF THE LAST DISTURBANCE
- 11. INSTALL AND MAINTAIN CATCH BASIN INSERTS IN ALL EXISTING CATCH BASINS WITHIN WORK ZONE (NOT REMOVED)
- CATCH BASIN
- IINIMUM DENSITY, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, IS ACHIEVED.
- ON-SITE IN A MANNER NOT CONTRIBUTING TO ADDITIONAL SILTATION GREASE, FUEL, AND LUBE OIL, PESTICIDES, ANY SOLID WASTE MATERIALS.
- 16. ALL SIDE SLOPES SHALL BE SEEDED WITH GRASS OR INSTALL JUTE NETTING TO PREVENT EROSION. SIDE SLOPES ALONG THE PERIMETER OF THE DEVELOPED AREA SHALL BE STABILIZED IMMEDIATELY FOLLOWING CONSTRUCTION. 17. INSPECTIONS: INSPECTIONS ARE TO BE PERFORMED BY QUALIFIED PERSONNEL. DISTURBED AREAS THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR STORAGE, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, MUST BE INSPECTED ONCE EVERY 7 DAYS OR WITHIN 24 HOURS OF A
- 18. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL ACCUMULATED SILT FROM BEHIND SILTATION BARRIERS, PAVEMENT AREAS, AND CATCH BASIN SUMPS. DISPOSE OF SILT IN ACCORDANCE WITH THE SWPPP DOCUMENTS.
- 19. PROVIDE TEMPORARY SEDIMENTATION BASINS, BALES, ETC. AS NECESSARY
- 21. THE CONTRACTOR SHALL HAVE A WATER TRUCK ON-SITE AT ALL TIMES AND SHALL PROVIDE TEMPORARY PLANTINGS OR OTHER COVERINGS SUCH AS WOOD CHIPS TO MINIMIZE THE AMOUNT OF DUST LEAVING THE PREMISES
- 23. CONTRACTOR TO PROVIDE AND MAINTAIN TEMPORARY DEWATERING MEASURES TO ALLOW FOR EXCAVATION AND INSTALLATION OF UNDERGROUND UTILITIES AND DRAINAGE SYSTEM OR TOWARDS RESOURCE AREAS.
- 24. CONTRACTOR IS REQUIRED TO PROVIDE STREET SWEEPING TO CONTINUALLY MAINTAIN PAVEMENT AREAS FREE OF DIRT, DEBRIS, TRASH, ETC.

RETAINING WALL NOTES

- PRIOR TO THE START OF WALL CONSTRUCTION. ALL CALCULATIONS AND DRAWINGS SHALL BE PREPARED BY A QUALIFIED ENGINEER EXPERIENCED IN SEGMENTAL RETAINING WAL DESIGN. DESIGN TO INCLUDE INTERFACE AND FOUNDATION REQUIREMENTS FOR WALL.
- SIGN STANDARD SPECIFICATIONS OF THE SPECIFIED WALL SYSTEM
- 6. RETAINING WALL SHALL BE DESIGNED FOR SATURATED BACKFILL CONDITIONS.
- 7. CONTRACTOR TO PROVIDE SHOP DRAWING PRIOR TO CONSTRUCTION.

1. GENERAL

ALL STRUCTURAL D				
RESPONSIBILITY. THE CONTRACTOR REASONABLE CARE RROR AND FOR THA IT THE SITE. ALL DIS PRESUMED ALLOW/	IS RESPONSIBLE F HAS BEEN TAKEN T REASON IT IS IN CREPANCIES SHA	FOR DISSEMINA I IN THE PREPA IPERATIVE THA LL BE BROUGH	TION OF ALL R RATION OF AL T THE CONTR/ T TO THE ATTE	EVISIONS L DRAWIN ACTOR SH ENTION OF
2. CODE CONFORMAI TO COMPLY WITH TH ACI 301- "STRUCTUR ACI 315- "DETAILING ACI 318- "BUILDING ACI 322- "BUILDING ACI 347- "FORM WOI	E LATEST RECOM RAL CONCRETE FO CONCRETE WOR CODE REQUIREME CODE REQUIREME	DR BUILDINGS" K" ENTS FOR REINF	FORCED CONC	CRETE"
. MATERIALS				
CONCRETE: - APPROVED, READ THERWISE NOTED - PROVIDE AIR-ENTF				
- ASTM A615 GRADE	= 60 DEFORMED B	ARS. ASTM A18:	WELDED WIR	E FABRIC
ORM WORK: - SMOOTH PLYWOO FORMS PERMITTEI		POSED SLABS C	R VERTICAL S	URFACES
BROUT: NONMETALLIC, NON	I-SHRINK GROUT (JNDER BASE PL	ATES OR BEAI	RING PLAT
. EXECUTION				
CONCRETE: PLACE CONCRETE / NOTED WITH MAXIM				
EINFORCING STEEL PLACE REINFORCIN CONTINUOUS BARS - 3° CONCRETE PLA - 2° FORMED CONCF - 2° SLABS ON GRAE - 2° FRAMED SLABS - 2° FRAMED SLABS PLACE DEFORMED I SHALL CONFORM TO SLABS. BARS TO EXT	IG USING STANDA 40 DIAMETERS. P CED AGAINST EAR RETE EXPOSED TO 0E (MINIMUM FROM (NOT EXPOSED TO (EXPOSED TO WE BARS IN ACCORD/ ASTM A185. LAP T	ROVIDE THE FO TH DEARTH, WEATH MTOP) DWEATHER) ATHER) ANCE WITH THE WO SQUARES A	LATEST EDITI	IMUM CON ER ON OF CR AND AND
NO HORIZONTAL CC ALL GROUT FOR BA REINFORCING BAR #4 #5 #6 #7 #8	ONSTRUCTION JOI	NTS ARE ALLOV . BE NON-SHRIN	VED UNLESS S	PECIFICA
ORM WORK: PROPERLY BRACE / DETAILS NOT SHOW				

5. QUALITY CONTROL CONTRACTOR SHALL MAKE PROVISIONS TO HAVE FOUR CYLINDERS CAST FOR EACH (50) CUBIC FEET OF CONCRETE POURED OR FOR ANY ONE DAY TESTING LABORATORY SHALL BE RESPONSIBLE FOR MAKING AND CURING SPECIMENS IN CONFORMANCE TO ASTM C31 AND TESTING SPECIMENS IN ACCORDANCE TO ASTM C39. 6. EXCAVATION & COMPACTED FI COMPACTED FILL SHALL BE PLACED IN LEVEL, UNIFORM LIFTS NOT EXCEEDING 8 INCHES IN UNCOMPACTED THICKNESS AND BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557

- 7. EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS EXCEED 90' (IF APPLICABLE)
- THE ENGINEER OR TO THE MOST STRINGENT AC1 318 STANDARDS 8. CONCRETE FINISHING
- CHAMFERED THE ENGINEER

DSED

LIGHT FIXTURE

CONTRACTOR TO ABIDE BY PROVISIONS OF THE STORMWATER POLLUTION PREVENTION DOCUMENTS PREPARED FOR THE PROJECT SITE. CONTRACTOR TO USE EPA NPDES CONSTRUCTION PHASE NOTICE REQUIREMENTS AS A MINIMUM STANDARD FOR EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES 2 EROSION CONTROL MEASURES SHALL BE INCORPORATED IN THE SEQUENCE OF CONSTRUCTION TO PREVENT SEDIMENT-LADEN WATER FROM LEAVING THE SITE. THESE MEASURES MAY INCLUDE STAKED STRAW BALES, FILTER SOCK, POLYPROPYLENE SILT FENCING AND VARIOUS COMBINATIONS OF THE THREE. THE LOCATION FOR THI INSTALLATION OF THESE MATERIALS ON THE PROJECT SITE ARE INDICATED ON THE PROJECT PLANS AND APPROPRIATE CONSTRUCTION DETAILS ARE INCLUDED ON THE

3. NATURAL VEGETATION SHALL BE RETAINED WHENEVER FEASIBLE UP TO THE SCHEDULED START OF CONSTRUCTION ACTIVITY.

5. IN GENERAL, WORK REQUIRING EROSION CONTROL INCLUDES EXCAVATIONS, FILLS, DRAINAGE SWALES, ROUGH AND FINISHED GRADING, AND STOCKPILING OF EARTH. 6. ALL TEMPORARY STOCKPILE AREAS SHALL HAVE EROSION CONTROLS (STRAW AND SILT FENCE) AROUND THE PERIMETER.

8. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. SEDIMENTATION AND EROSION CONTROL

SITE ENTRY AND EXIT LOCATIONS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR ELOWING OF SEDIMENT ONTO PLIBLIC ROADWAYS ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON A PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY. WHEN WASHING IS REQUIRED TO REMOVE SEDIMENT PRIOR TO ENTRANCE TO A PUBLIC ROADWAY, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN. ALL FINES

12. STRAWBALES OR INSERTS (SILT SACKS OR SIMILAR) WILL BE PLACED AT EACH CATCH BASIN PROPOSED TO REMAIN TO PREVENT SEDIMENTATION FROM ENTERING THE 13. UPON COMPLETION OF DEMOLITION, ALL AREAS NOT OTHERWISE PERMANENTLY STABILIZED SHALL BE SEEDED AND MAINTAINED UNTIL A UNIFORM COVERAGE OF 75%±

14. MAINTENANCE - EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED OR REPLACED AS INSPECTION DEEMS NECESSARY OR AS DIRECTED BY THE ENGINEER OR ARCHITECT. ACCUMULATED SILT AT ANY EROSION AND SEDIMENT CONTROL DEVICE SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6", AND SHALL BE DISTRIBUTED

15. CONTRACTOR IS RESPONSIBLE FOR REESTABLISHING ANY EROSION CONTROL DEVICE WHICH HE DISTURBS. EACH CONTRACTOR SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DEFICIENCIES IN THE ESTABLISHED EROSION CONTROL MEASURES WHICH MAY LEAD TO UNAUTHORIZED DISCHARGE OR STORM WATER POLLUTION, SEDIMENTATION OR OTHER POLLUTANTS. UNAUTHORIZED POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO, EXCESS CONCRETE DUMPING OR CONCRETE RESIDUE, PAINTS, SOLVENTS,

STORM EVENT OF 0.25 INCHES OR GREATER. STABILIZED AREAS ARE TO BE INSPECTED ONCE PER MONTH DISTURBED AREAS AND STORAGE AREAS EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING THE DRAINAGE SYSTEM. CONTROL MEASURES SHALL BE OBSERVED TO ENSURE THEY ARE WORKING PROPERLY. DISCHARGE LOCATIONS AND POINTS SHALL BE INSPECTED TO ASCERTAIN WHETHER CONTROLS ARE PREVENTING SIGNIFICAN MPACT. BASED ON THE RESULTS OF THE ABOVE INSPECTIONS, ANY NECESSARY CHANGES TO THE PLAN WILL BE MADE WITHIN 7 DAYS OF THE INSPECTION. THE CHANGES MUST BE IMPLEMENTED IN THE FIELD BEFORE THE NEXT STORM EVEN IF PRACTICABLE, OTHERWISE WITHIN 7 DAYS PER GENERAL CONSTRUCTION PERMI

20. STOCKPILES ARE TO BE AT LEAST 100 FEET FROM WETLAND AREAS. STOCKPILES NOT TO BE REUSED WITHIN 14 DAYS ARE TO BE STABILIZED WITH SEED OR MULCH.

22. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY STORMWATER MANAGEMENT MEASURES FOR THE DURATION OF CONSTRUCTION.

STRUCTURES. CONVEY WATER TO TEMPORARY SEDIMENT CONTROL/DEWATERING AREAS. NO UNTREATED WATER SHALL BE DISCHARGED DIRECTLY TO THE STORMWATER

THE RETAINING WALLS ARE SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY. IT DOES NOT REPRESENT OR INTEND TO DETAIL THE REQUIREMENTS FOR DESIGN AND/OR CONSTRUCTION OF HE WALL. OTHER FACTORS WHICH CANNOT BE REASONABLY FORESEEN AT THIS TIME MAY REQUIRE ALTERATION TO THE WALL CONCEPT INCLUDING BUT NOT LIMITED TO GEOGRID REINFORCEMENT, ALTERNATE CROSS SECTIONS, MEANS & METHODS OF CONSTRUCTION, AND TEMPORARY SHORING AND STABILIZATION OF SOILS. 2. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO OBTAIN DETAILED DESIGN AND CONSTRUCTION DRAWINGS FROM THE MANUFACTURER, INCLUDING APPLICABLE CALCULATIONS,

3. THE DESIGN SHALL BE BASED UPON THE GEOTECHNICAL INVESTIGATION REPORT TO ENSURE PROPER DATA IS AVAILABLE TO DESIGN THE WALL 4. THE CONTRACTOR SHALL SUBMIT CERTIFICATIONS AND WARRANTY INFORMATION TO THE OWNER TO SUBSTANTIATE THAT THE PROPOSED WALL CONSTRUCTION MATERIALS MEET THE

5. THE SITE DESIGN ENGINEER ASSUMES NO LIABILITY FOR INTERPRETATION OF SUBSURFACE CONDITIONS, SUITABILITY OF SOIL DESIGN PARAMETERS AND INTERPRETATIONS OF SUBSURFACE GROUNDWATER CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE WALL DESIGN ENGINEER IS CONTACTED IF CONDITIONS VAR

CONCRETE AND REINFORCING STEEL NOTES

E SET OF DRAWINGS ETHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIALS IS THE CONTRACTOR'S L REVISIONS AND REQUIREMENTS TO THE SUBCONTRACTORS ALL DRAWINGS AND SPECIFICATIONS. HOWEVER THE ENGINEER DOES NOT GUARANTEE AGAINST HUMAN

TRACTOR SHALL CHECK ALL DIMENSIONS AND DETAILS AND MUST VERIFY ALL CONDITIONS AND DIMENSIONS NTION OF THE ENGINEER BEFORE PROCEEDIN ERIFY IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.

NCRETE AIN CONCRETE

MPRESSIVE STRENGTH (f'c) OF 3,500 PSI AT 28 DAYS WITH 3/4"AGGREGATE MAX., SLUMP 3-5 INCHES UNLESS HAW RESISTANCE OF ALL EXPOSED CONCRETE

L SURFACES. BOARD FORMS FOR FOOTINGS OR UNEXPOSED CONCRETE SURFACES. NO EARTH

EARING PLATES

ACI 301.89. STRENGTH (fc) OF 3500 PSI AT 28 DAYS, SLUMP 3-5 INCHES UNLESS OTHERWISE AIR ENTERTAINMENT FOR EXTERIOR CONCRETE EXPOSED TO MOISTURE

VIDE PROPER CLEARANCE AND PREVENT DISPLACEMENT DURING CONCRETE OPERATIONS. LAP INIMUM CONCRETE COVERA TER

TION OF CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS." ALL WELDED WIRE MESH TS AND AND TIE AT 3'-0" ON CENTER. PROVIDE (2) #5 BARS EACH SIDE OF ALL OPENINGS IN WALLS AND SIZE AND LOCATION OF OPENINGS REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SPECIFICALLY SHOWN ON THE DRAWINGS OR ALLOWED IN WRITING BY THE ENGINEER. -METALLIC WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.

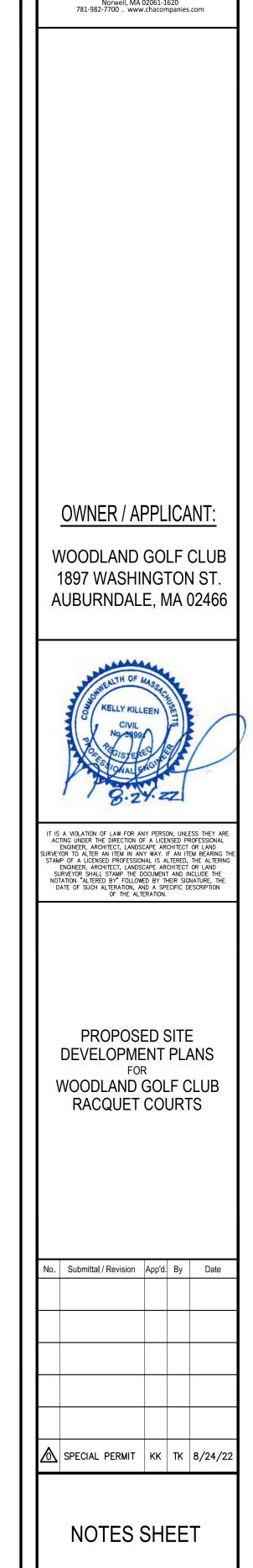
MENT AND TOLERANCES IN ACCORDANCE TO ACI 347. WITH ACI DETAILING MANUAL (ACI 315).

- FILL TO CONFORM TO THE PROJECT SPECIFICATIONS FOR STRUCTURAL FILL OR AS DIRECTED BY THE ENGINEER. BACKFILL AND EXCAVATION TO BE COMPLETED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER.

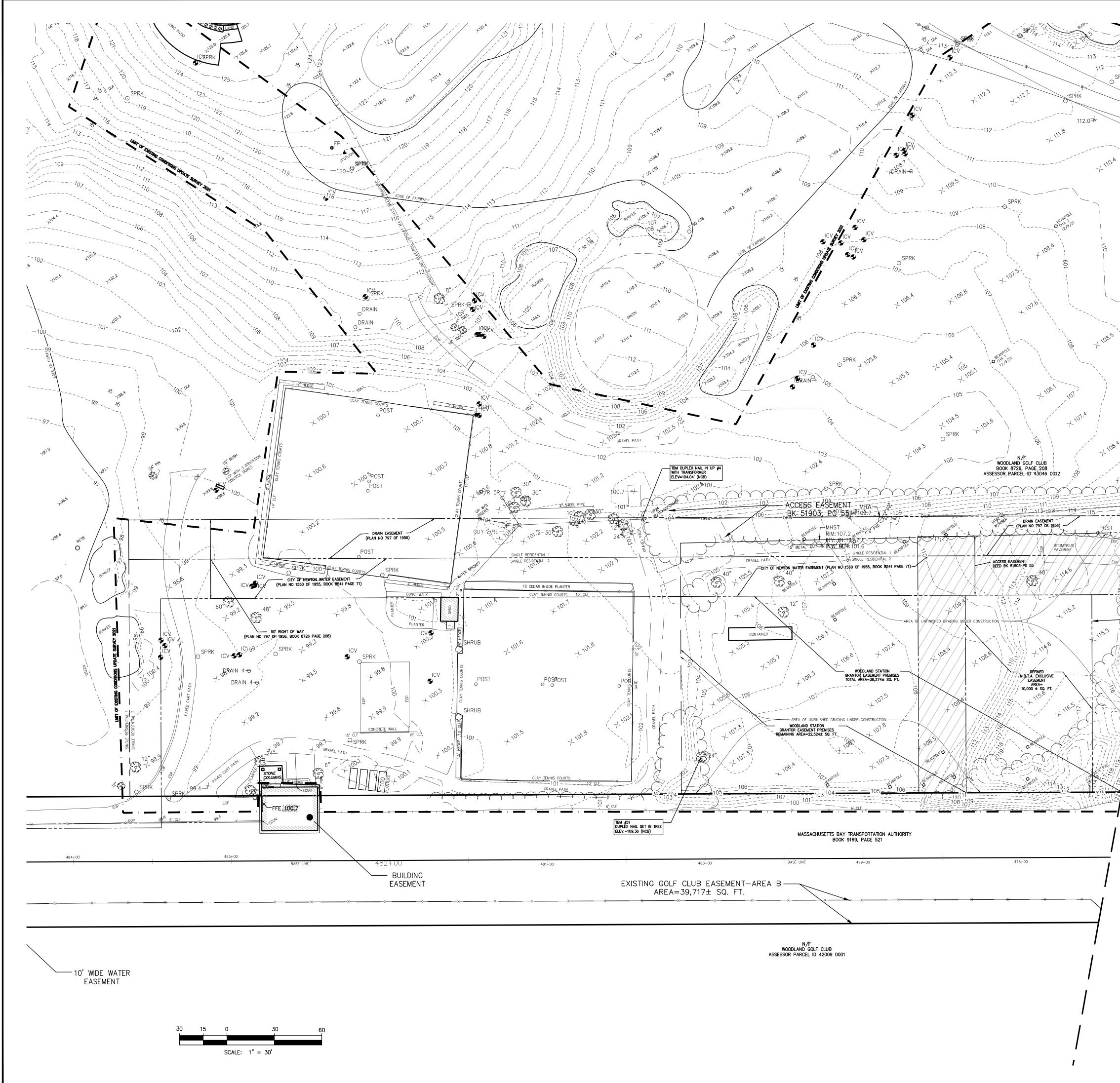
CONTRACTOR SHALL PROVIDE CONTRACTION JOINTS IN WALLS AND SLABS NOT TO EXCEED 20' (OR EQUALLY SPACED) AND EXPANSION JOINTS NOT TO LL CONSTRUCTION JOINTS SHALL HAVE ROUGHENED, KEYED, AND/OR BONDING AGENT APPLIED TO THE CONCRETE LAYING SURFACES AS DIRECTED BY

- ALL EXPOSED CONCRETE SHALL BE FINISHED TO PROJECT ARCHITECTURAL STANDARDS OR AS DIRECTED BY THE ENGINEER. ALL EXPOSED CORNERS SHALL BE - ALL VOIDS, POCKETS, AND DEFORMATIONS IN THE EXPOSED FACE OF WALL SHALL BE CORRECTED TO A SMOOTH, UNIFORM FINISH OR AS DIRECTED BY

NOTES SHEE Designed By: Drawn By: Checked ΤK TK KK Issue Date: Project No Scale: 072672 08/24/2022 Drawing No



Drawing Copyright © 202



WOODLAND STATION GRANTOR EASEMENT PREMISES REMAINING AREA=3,750± SQ. FT.

-LRIQS TSIG

RIM: 119.3

NO

WASHING PUBLIC -

GENERAL NOTES:

1. THE EXISTING CONDITIONS INFORMATION SHOWN HEREON IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY CHA CONSULTING, INC. IN DECEMBER OF 2021.

2. ALL DEED REFERENCES ARE TO MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS UNLESS OTHERWISE NOTED.

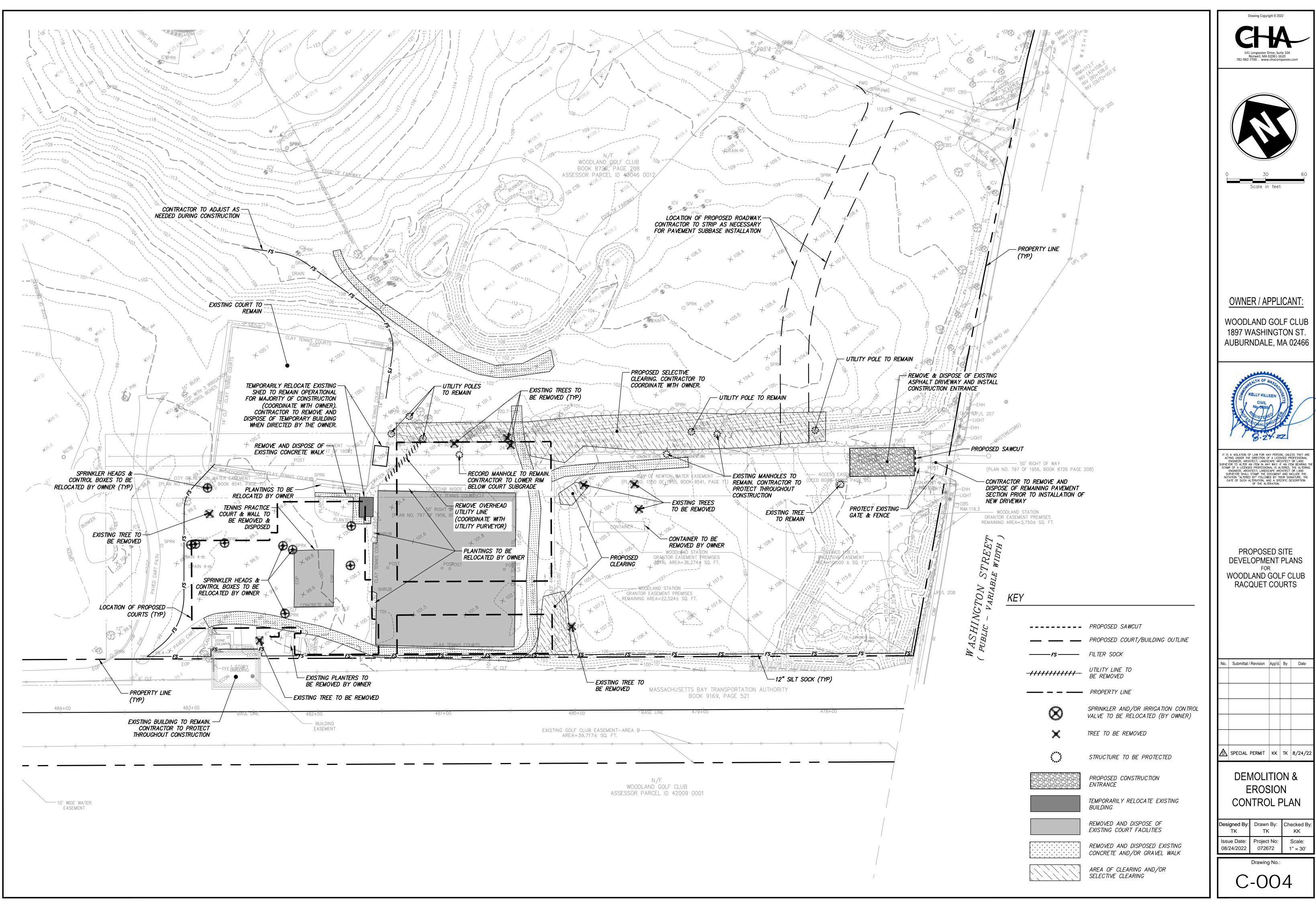
3. TOPOGRAPHY, CONTOURS AND BENCHMARKS ARE BASED ON THE NEWTON CITY BASE. TEMPORARY BENCHMARKS, REFERENCED TO THE DATUM ARE INDICATED ON THE SURVEY.

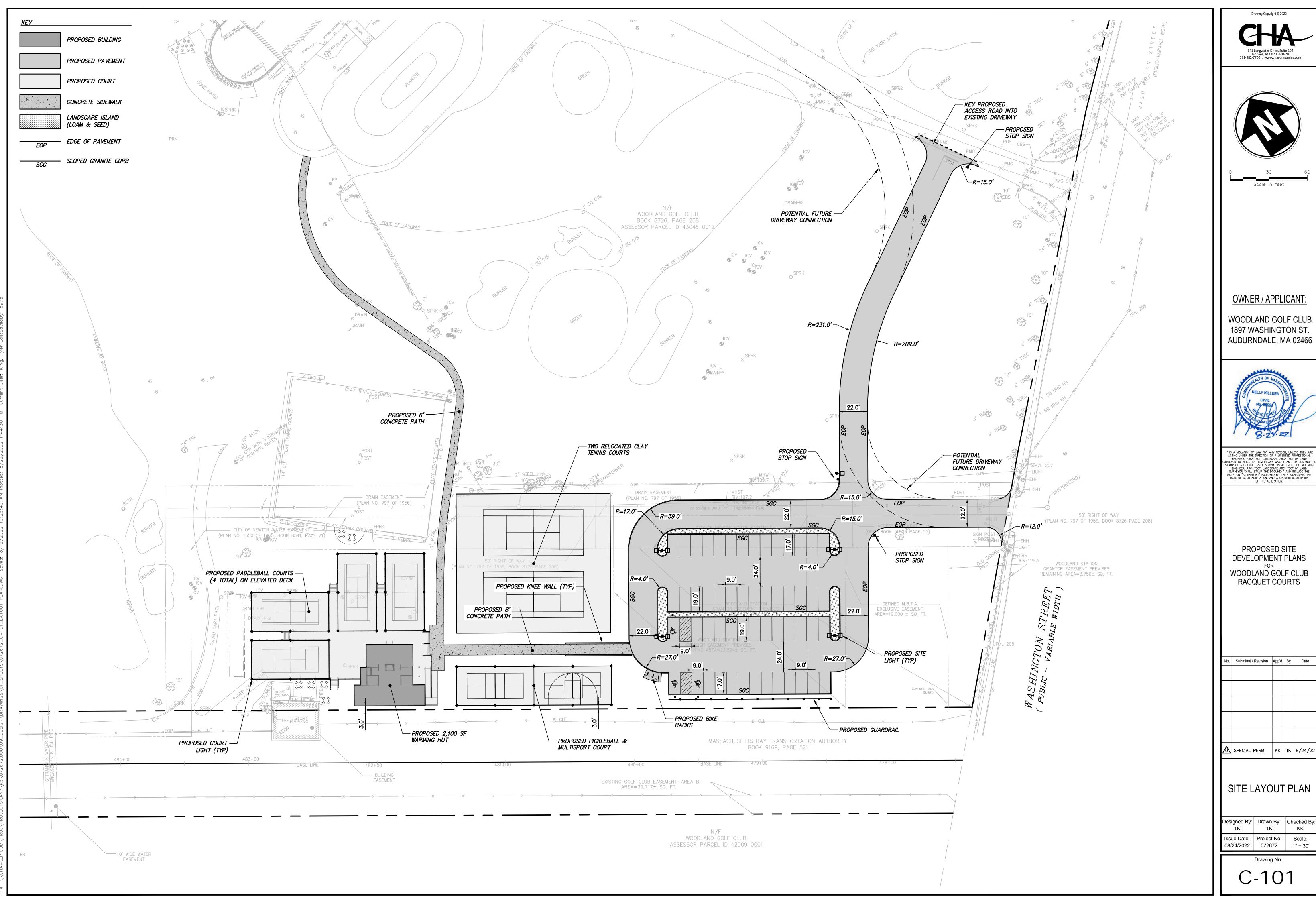
IN THE EVENT THAT BENCHMARKS (TBM'S), ESTABLISHED FOR THIS PROJECT AND PUBLISHED ON THIS SURVEY ARE DESTROYED, NOT RECOVERABLE OR A DISCREPANCY IS FOUND, THE USER SHOULD NOTIFY THIS FIRM IN WRITING PRIOR TO COMMENCING OR CONTINUING ANY WORK.

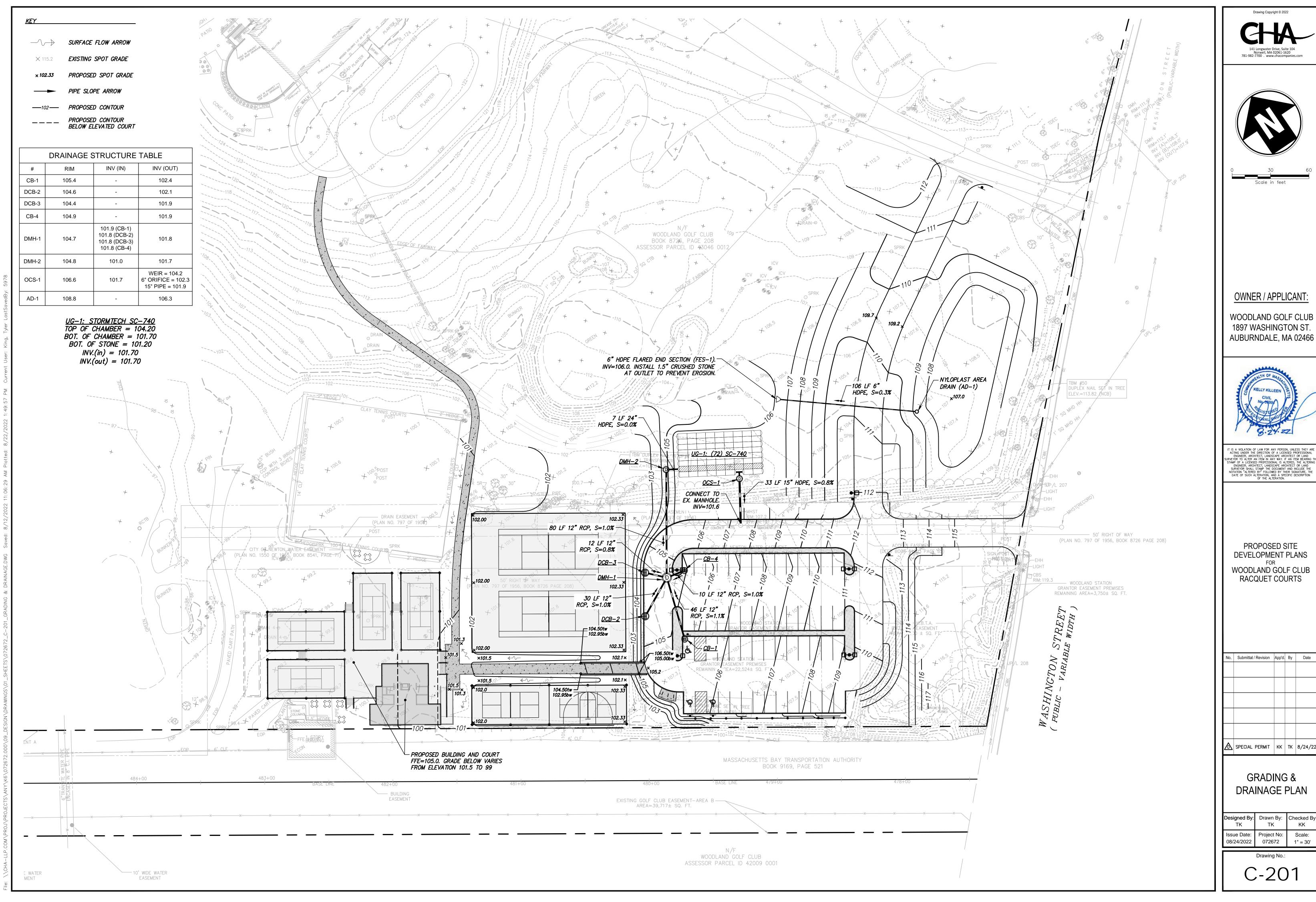
4. THE PROJECT AREA IS LOCATED IN FLOOD ZONE "X" AREAS OF MINIMAL FLOODING AS SHOWN ON FLOOD INSURANCE RATE MAP FOR MIDDLESEX COUNTY, COMMUNITY PANEL NUMBER 25017C0553E, EFFECTIVE DATE JUNE 4, 2010.

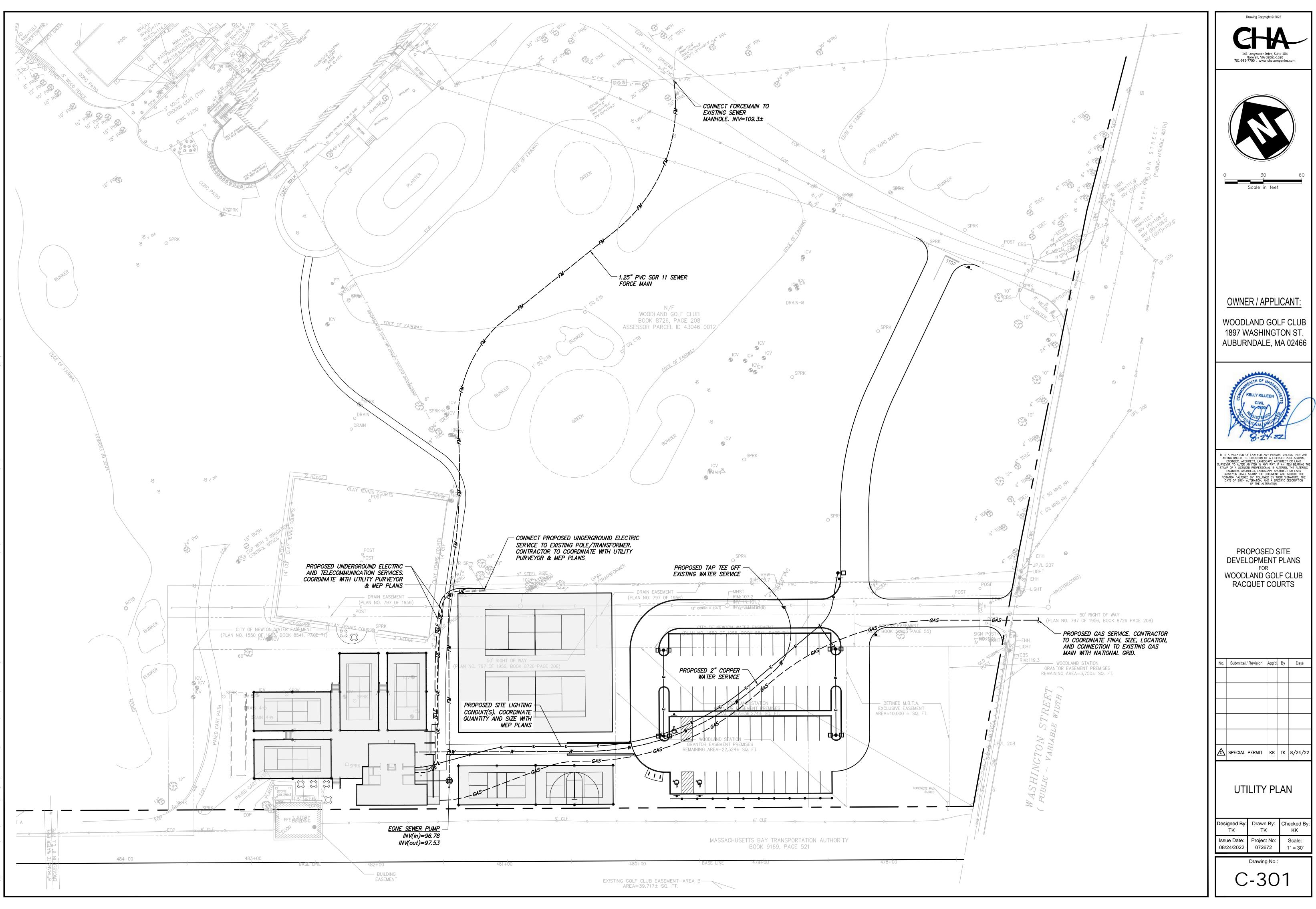
5. LOCATION OF SUBSURFACE UTILITIES SHOWN HEREON ARE APPROXIMATE AND ADDITIONAL UTILITIES MAY EXIST THAT ARE NOT SHOWN ON THIS PLAN. LOCATIONS ARE COMPILED FROM UTILITY PLANS OF RECORD AND DIG-SAFE FIELD MARKINGS. RIM AND INVERT INFORMATION HAS BEEN COMPILED AND FIELD VERIFIED WHERE POSSIBLE. THIS INFORMATION IS NOT TO BE USED FOR CONSTRUCTION. PRIOR TO ANY CONSTRUCTION, CONTACT DIG-SAFE (811) TO FIELD VERIFY LOCATION OF ALL UTILITIES.

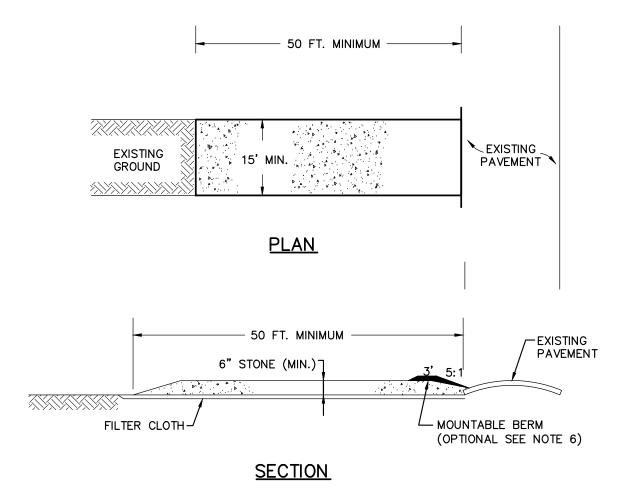
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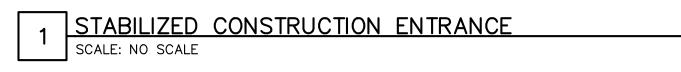


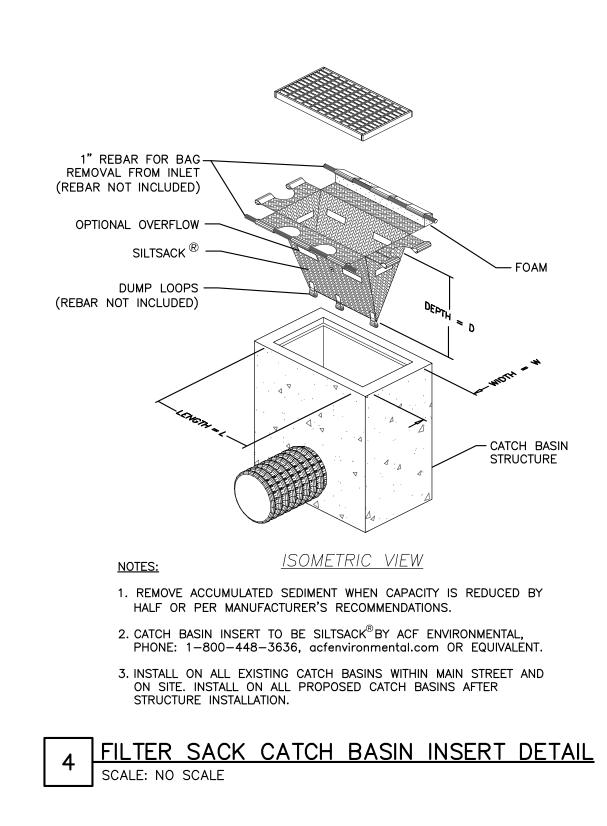


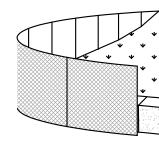
CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE: USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

- 2. LENGTH: RECOMMEND 100 FEET IN SILTS AND CLAYS.
- 3. THICKNESS: NOT LESS THAN SIX (6) INCHES.
- 4. WIDTH: FIFTEEN (15) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OF EGRESS OCCURS.
- 5. FILTER CLOTH: SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- 6. SURFACE WATER: ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM SHALL BE INSTALLED. 7. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING
- OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY AND ON AN ON GOING BASIS.
- 8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.

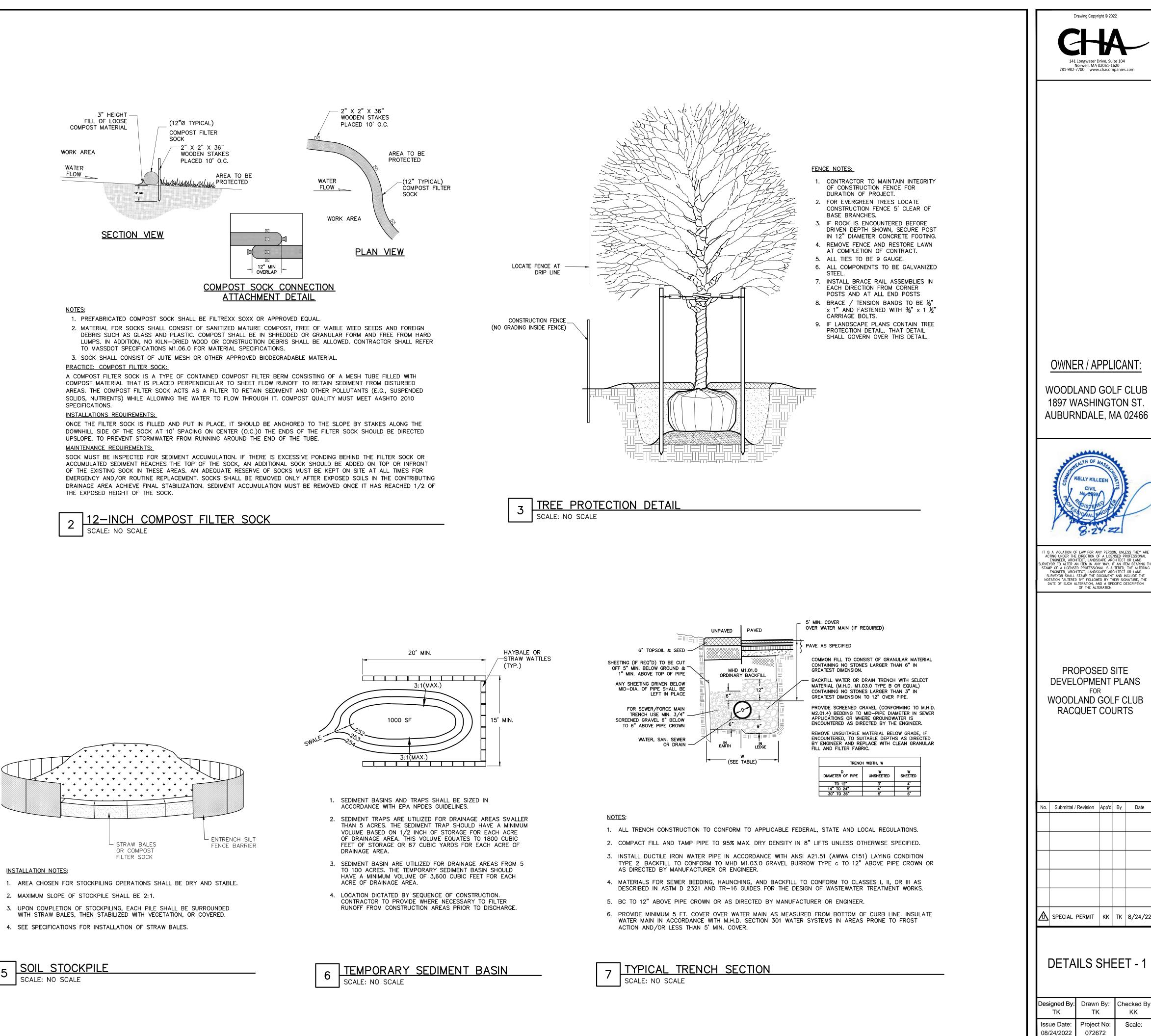


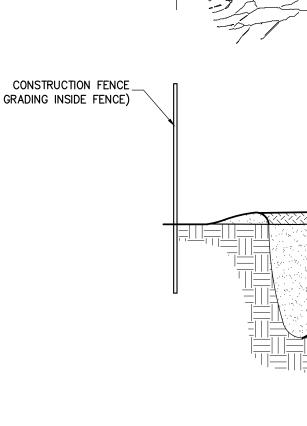


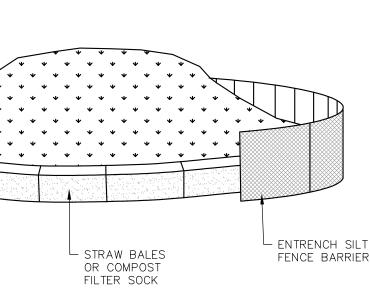


INSTALLATION NOTES:



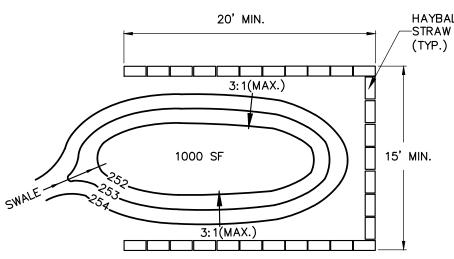






3. UPON COMPLETION OF STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH STRAW BALES, THEN STABILIZED WITH VEGETATION, OR COVERED.

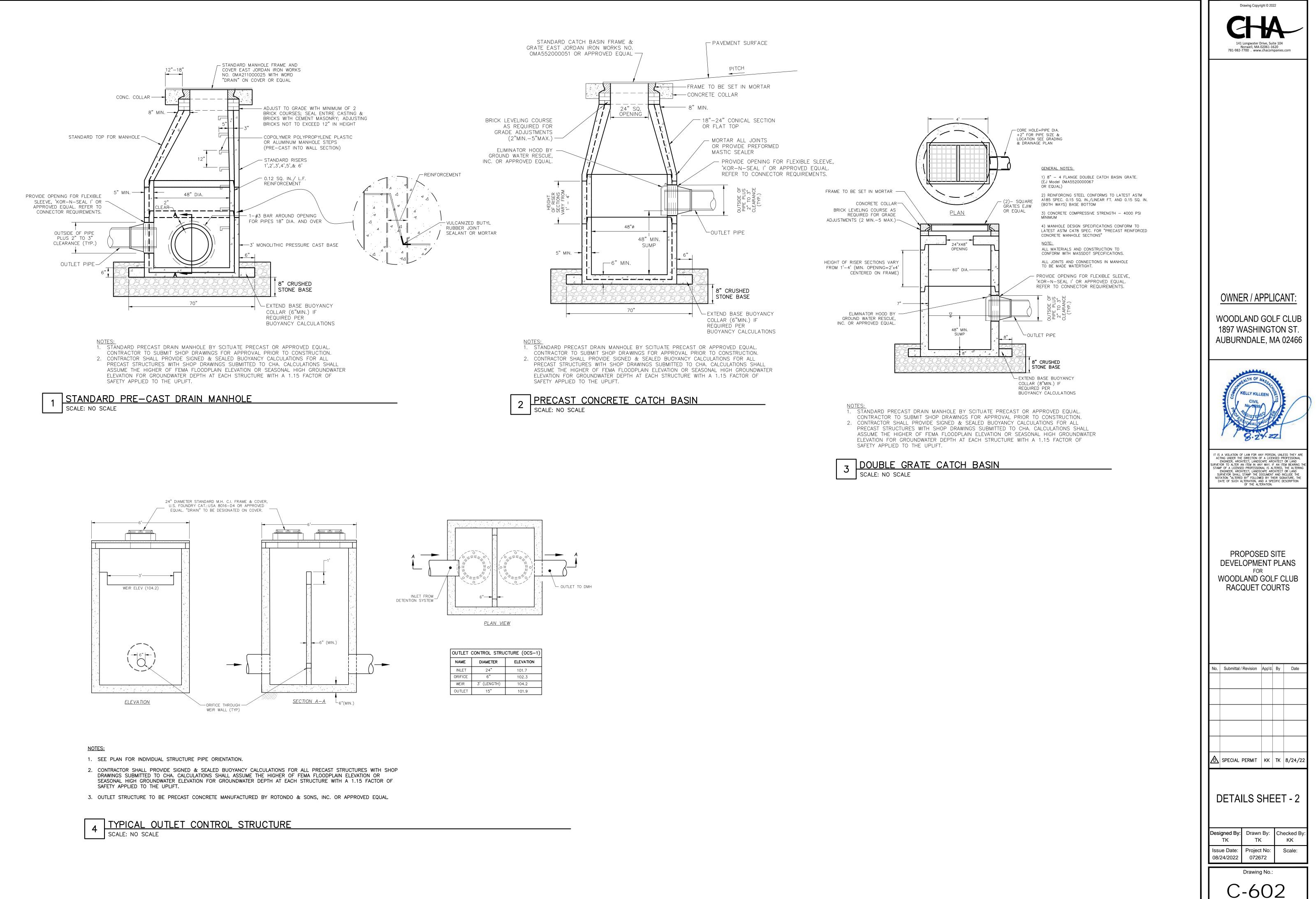
<u>C</u>	K	Ρ	I	L	Ε

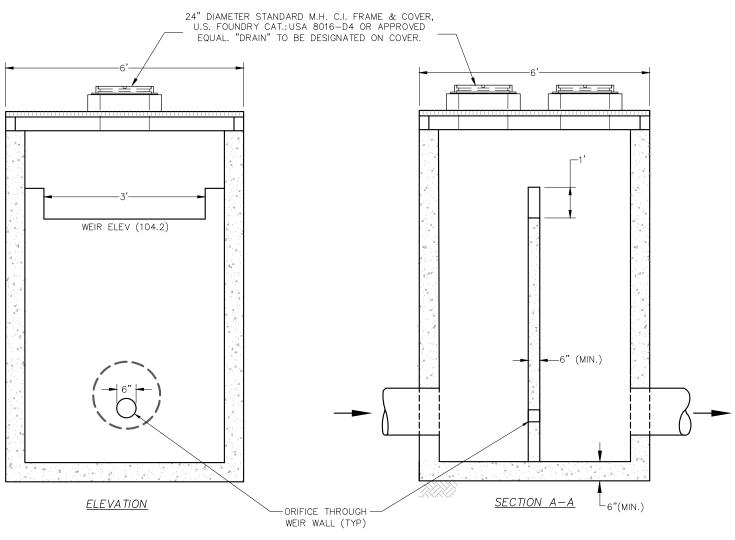


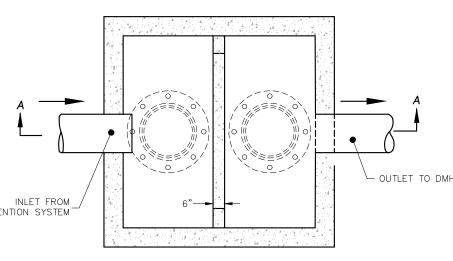


Drawing No.:

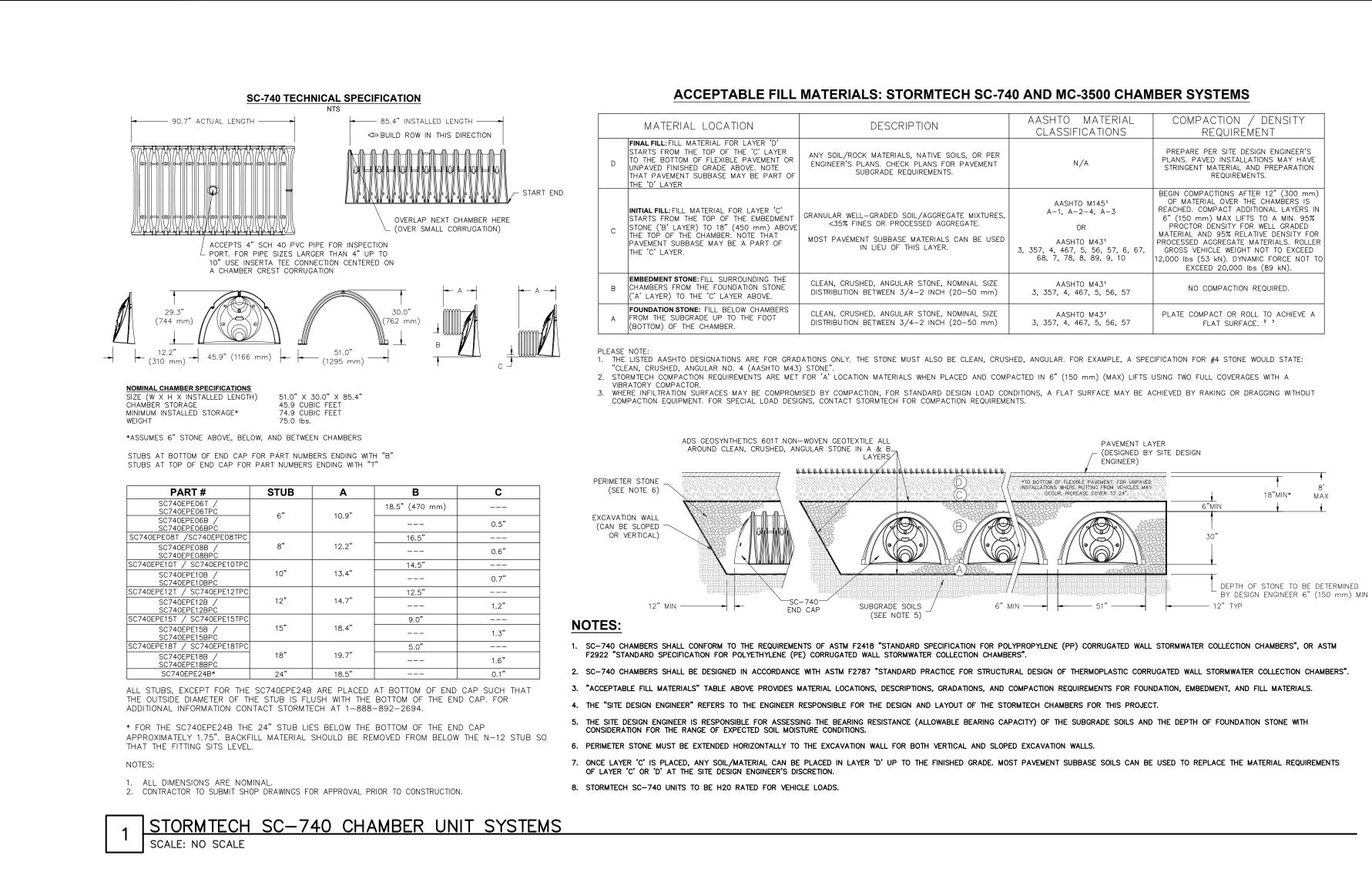
C-601

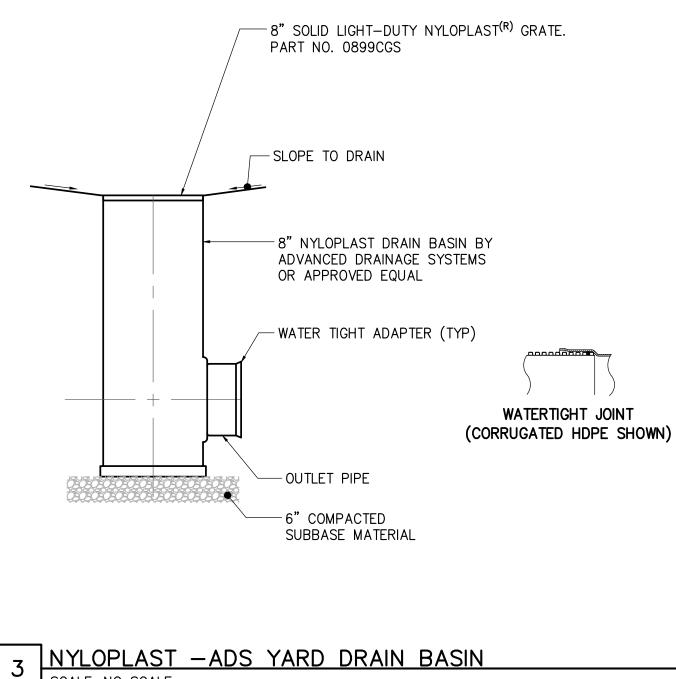






OUTLET CONTROL STRUCTURE (OCS-1)					
NAME DIAMETER ELEVATION					
INLET	24"	101.7			
ORIFICE	6"	102.3			
WEIR	3' (LENGTH)	104.2			
OUTLET	15"	101.9			

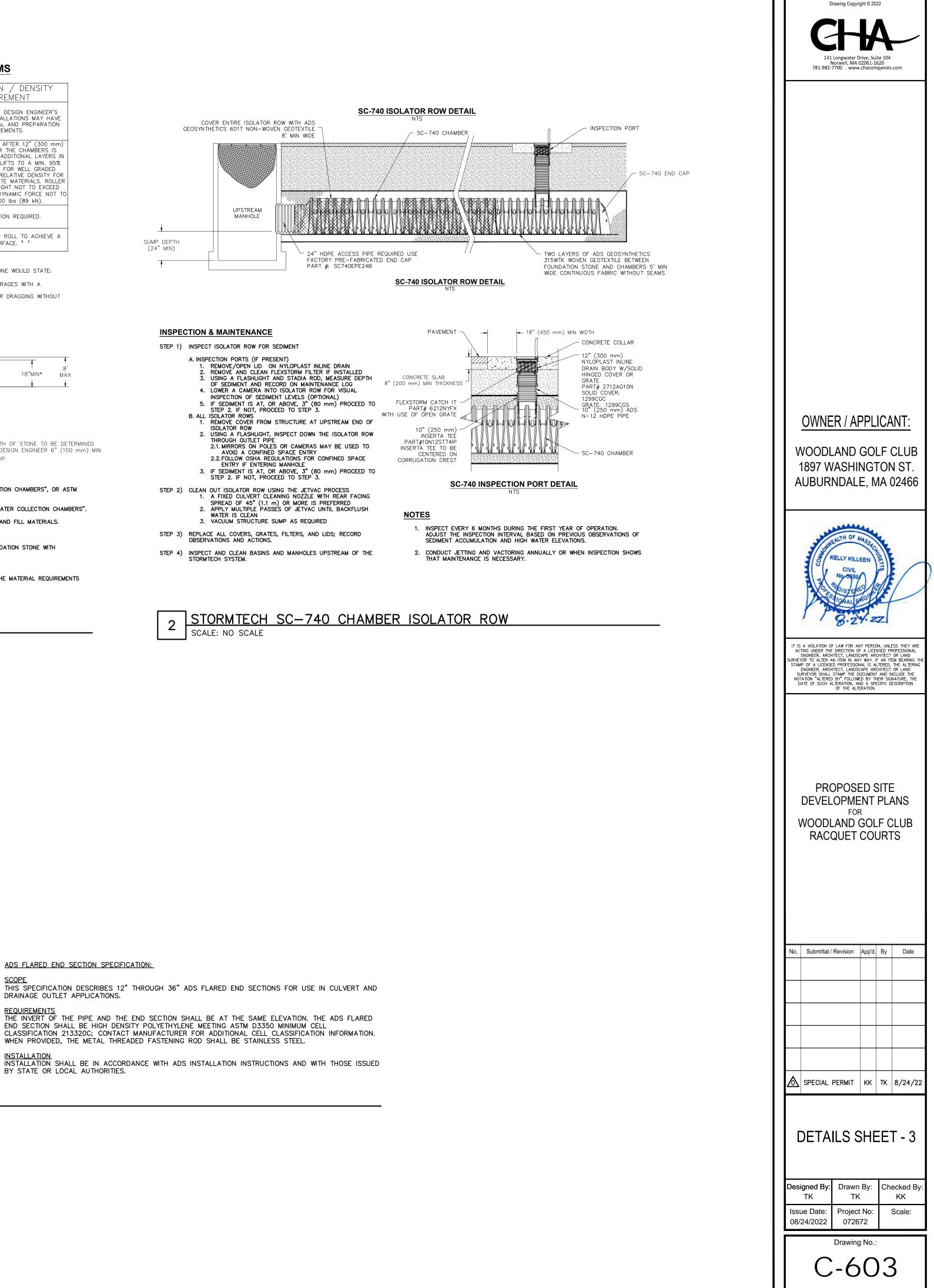


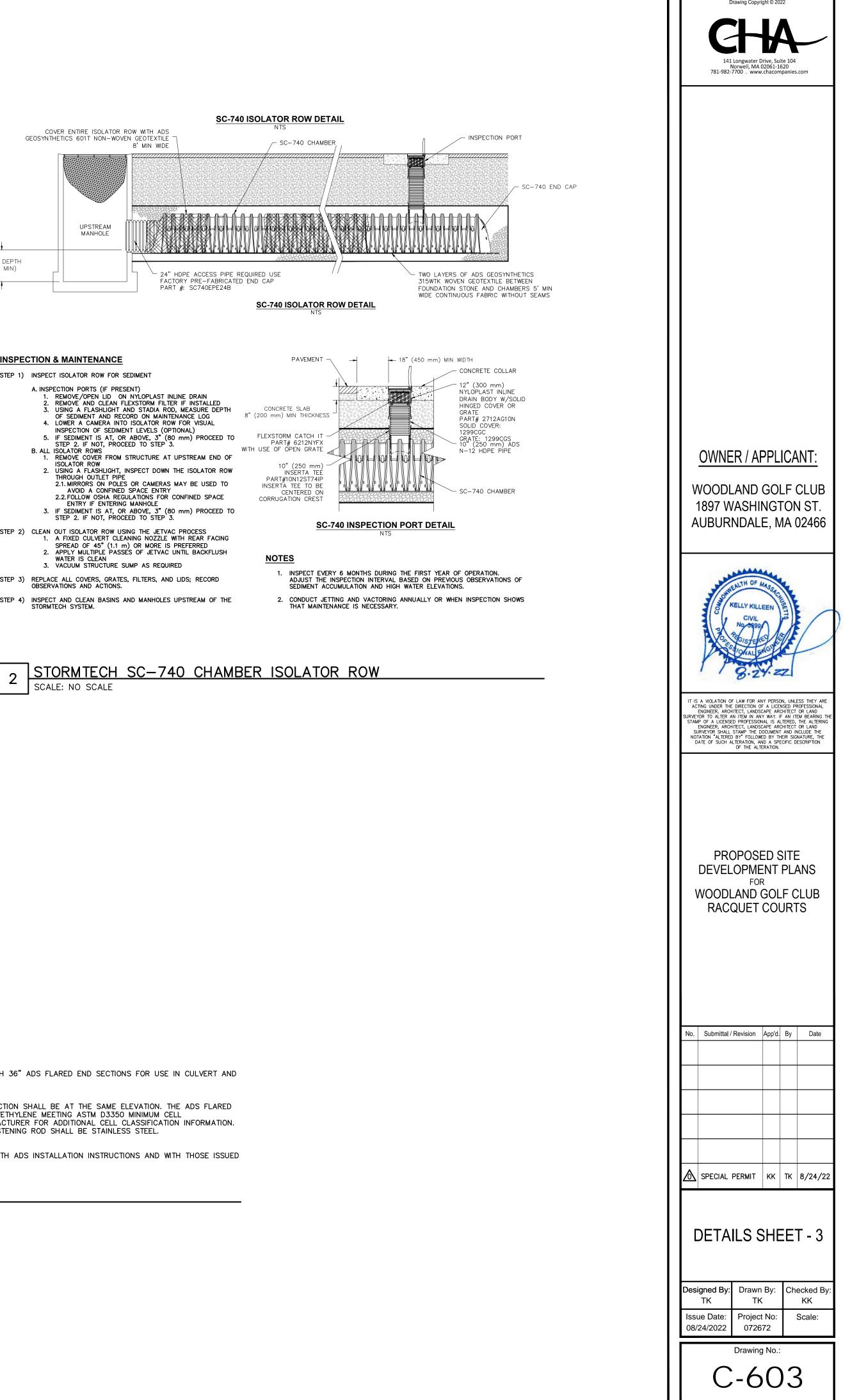


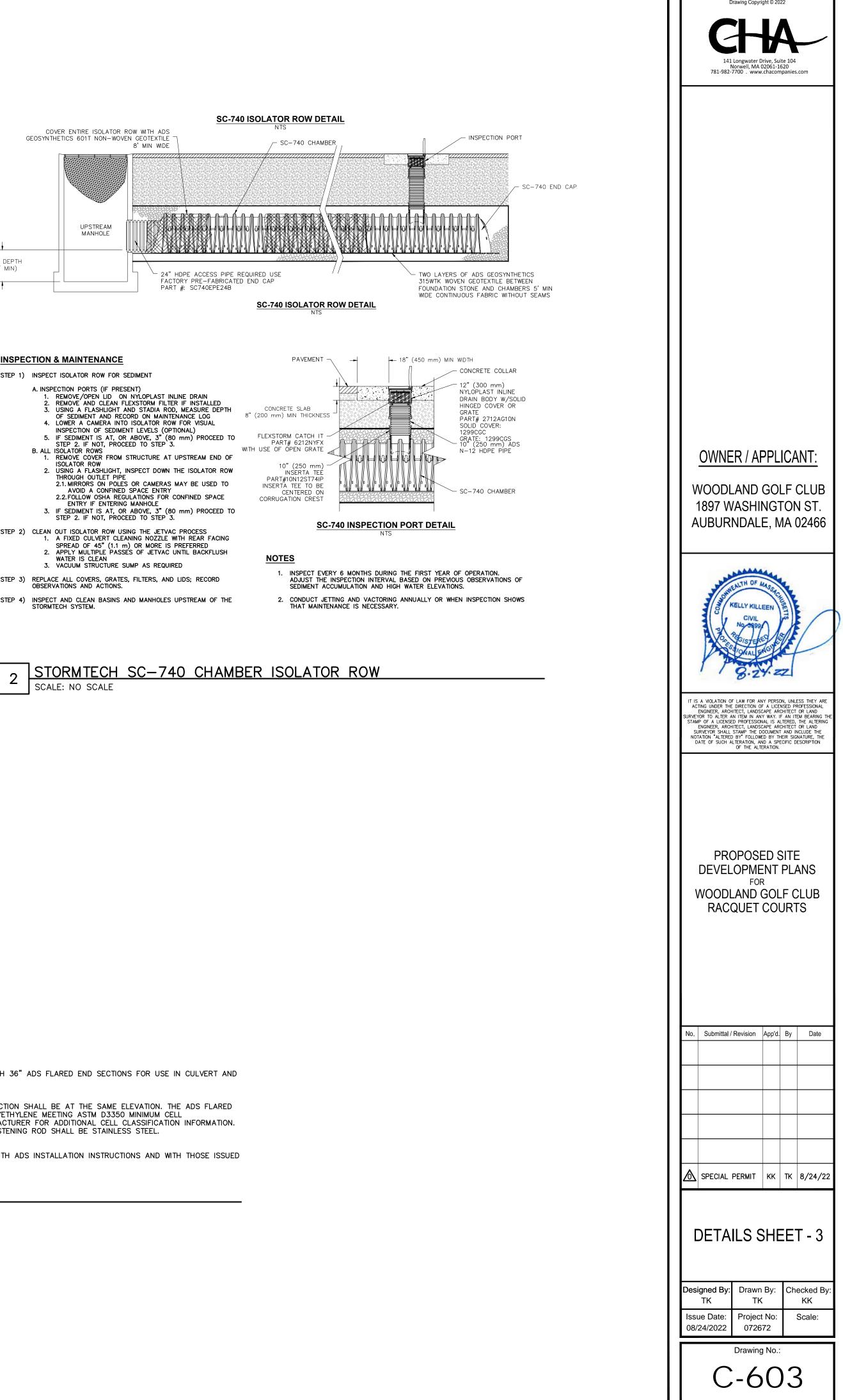


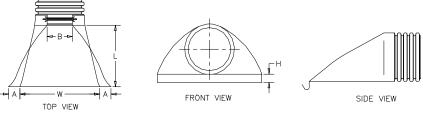
NYLOPLAST - ADS YARD DRAIN BASIN SCALE: NO SCALE

ON	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
LAYER 'D' IE 'C' LAYER PAVEMENT OR OVE. NOTE Y BE PART OF	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
E LAYER 'C' E EMBEDMENT 50 mm) ABOVE IOTE THAT A PART OF	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 Ibs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 Ibs (89 kN).
OUNDING THE TION STONE ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M431 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
W CHAMBERS THE FOOT	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M431 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ² ³

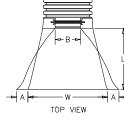








PIPE DIAMETER, (inches)							
DIAMETER 12 15 18 24 30 36							
A	6.5	6.5	7.5	7.5	7.5	7.5	
B (max)	10.0	10.0	15.0	18.0	22.0	25.0	
н	6.5	6.5	6.5	6.5	8.6	8.6	
L	25.0	25.0	32.0	36.0	58.0	58.0	
w	29.0	29.0	35.0	45.0	63.0	63.0	



ı 5 [']

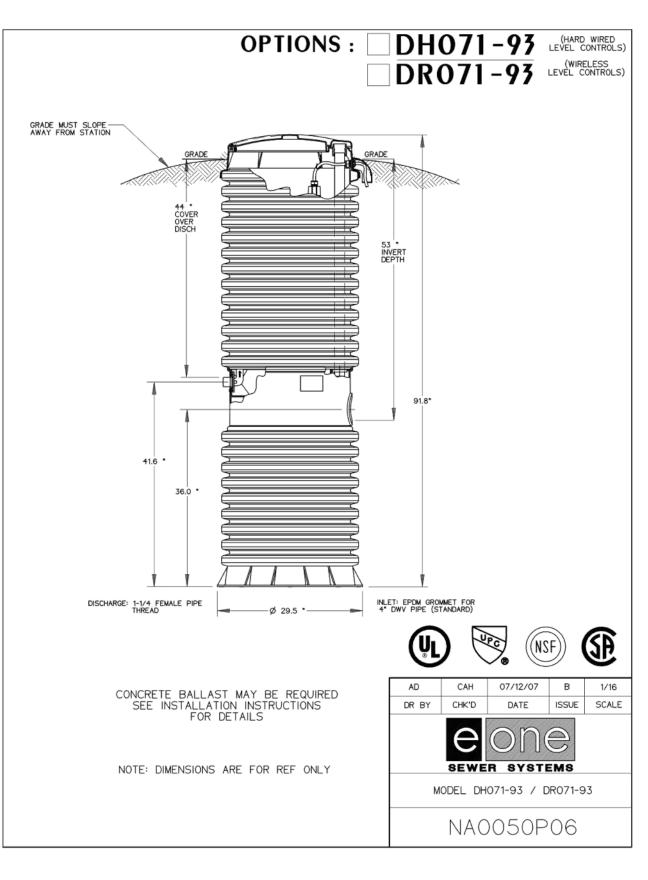
ADS HDPE FLARED END SECTION SCALE: NO SCALE

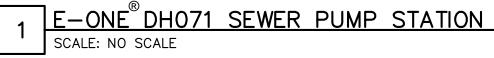
ADS FLARED END SECTION SPECIFICATION:

DRAINAGE OUTLET APPLICATIONS.

REQUIREMENTS THE INVERT OF THE PIPE AND THE END SECTION SHALL BE AT THE SAME ELEVATION. THE ADS FLARED END SECTION SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350 MINIMUM CELL CLASSIFICATION 213320C; CONTACT MANUFACTURER FOR ADDITIONAL CELL CLASSIFICATION INFORMATION. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.

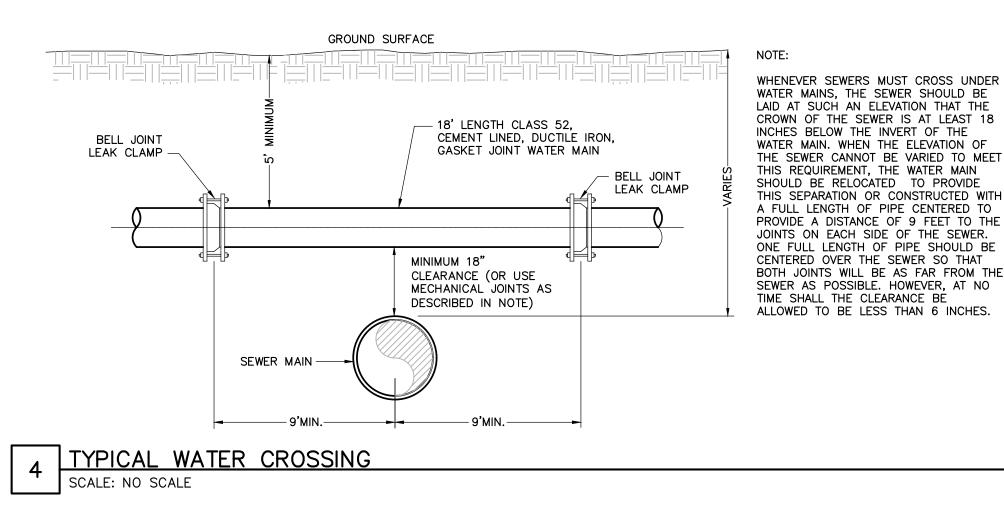
BY STATE OR LOCAL AUTHORITIES.



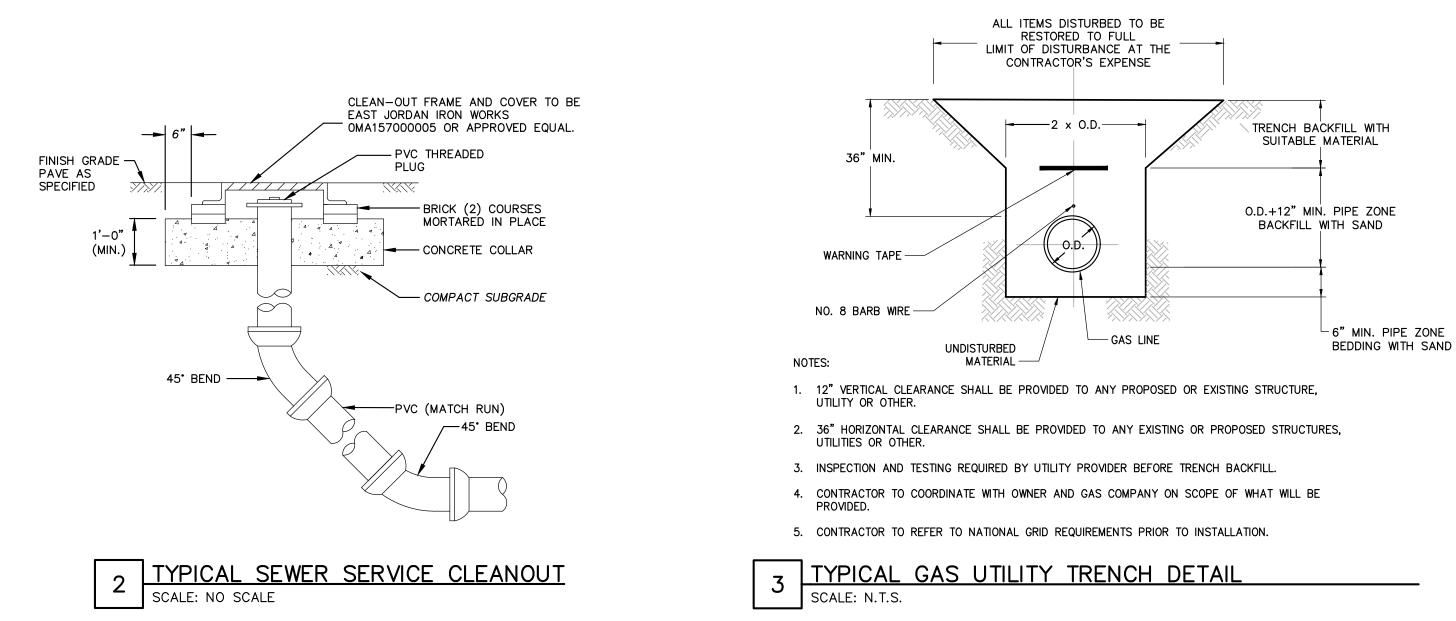


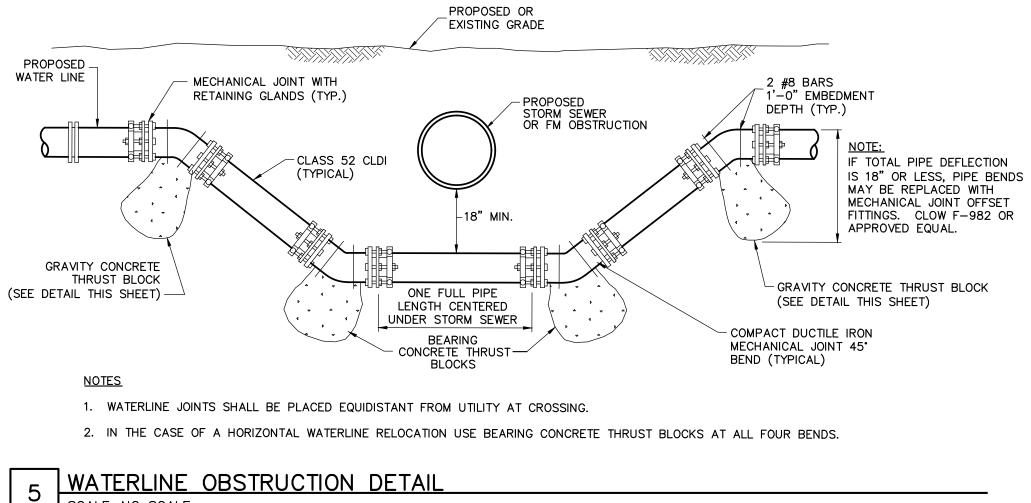
NOTES:

- CONTRACTOR SHALL PROVIDE SIGNED & SEALED BUOYANCY CALCULATIONS TO CHA. CALCULATIONS SHALL ASSUME SEASONAL HIGH GROUNDWATER ELEVATION FOR GROUNDWATER DEPTH WITH A 1.15 FACTOR OF SAFETY APPLIED TO THE UPLIFT.
- 2. CONTRACTOR SHALL PROVIDE BALLAST, AS NECESSARY, PENDING THE BUOYANCY CALCULATIONS.

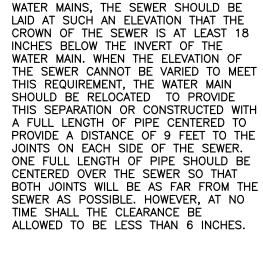


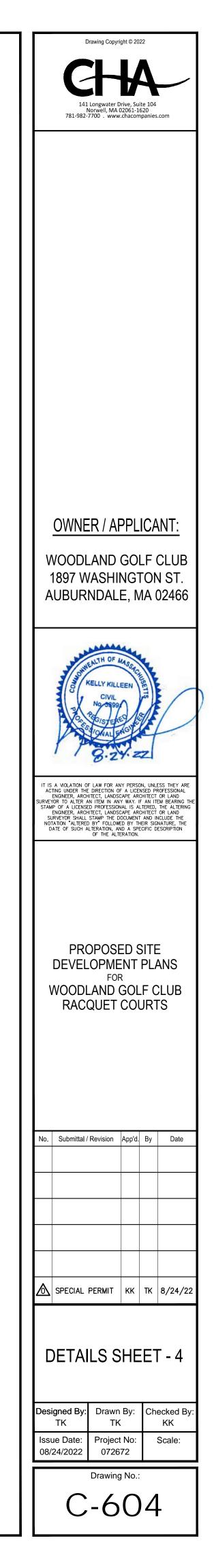


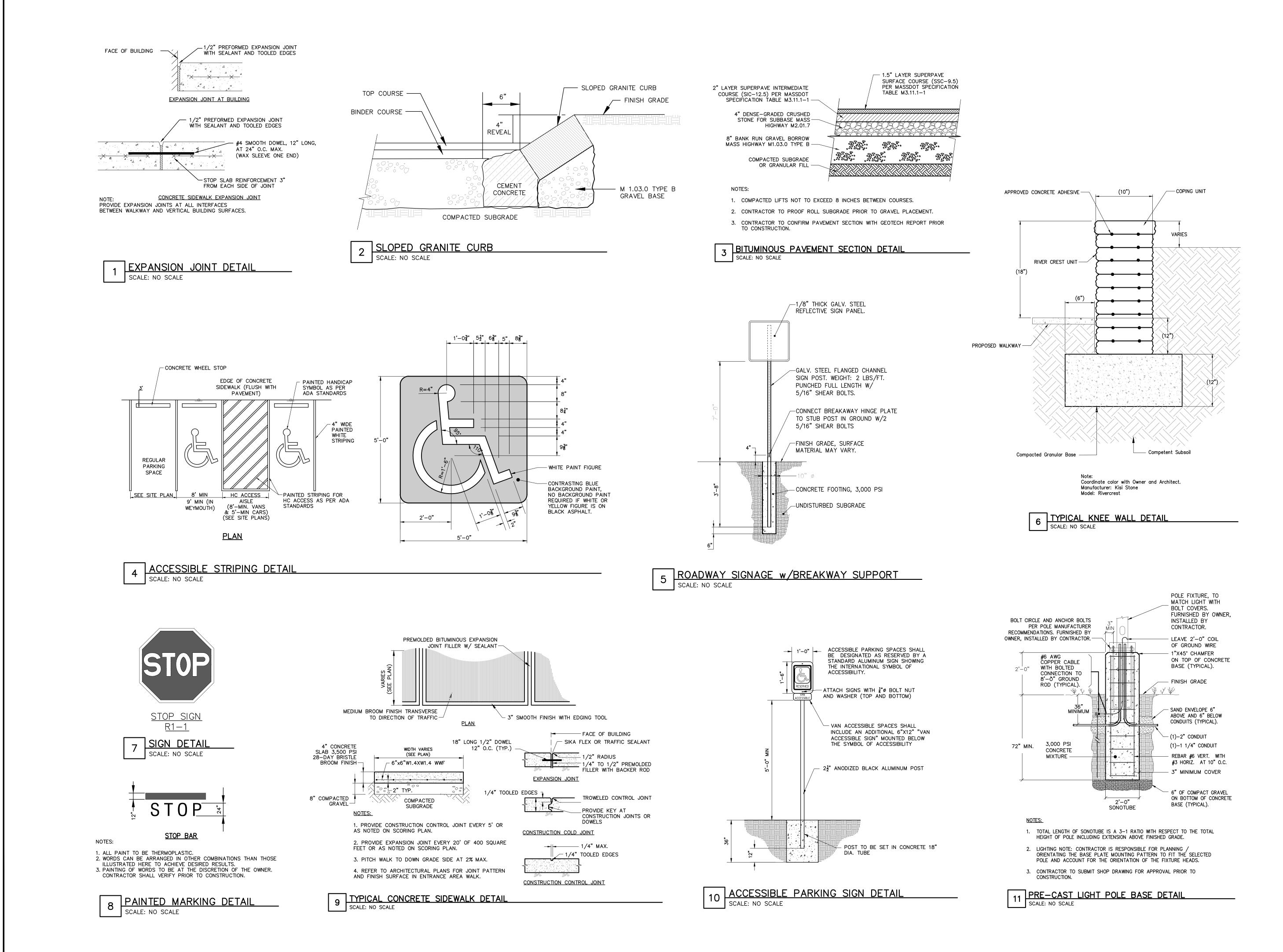


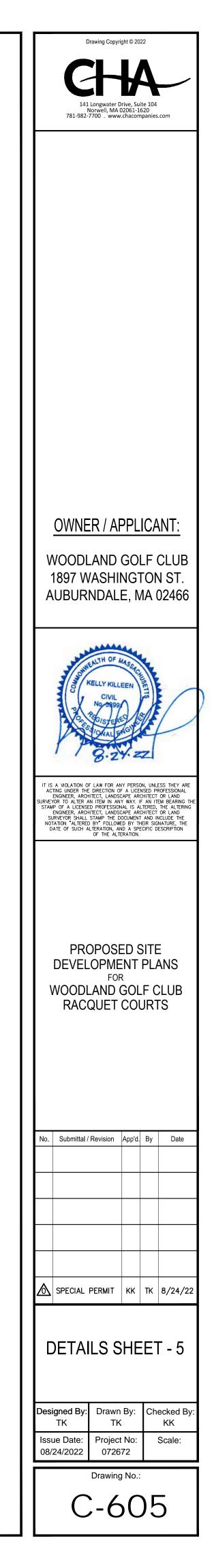


WATERLINE OBSTRUCTION DETAIL SCALE: NO SCALE









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SPILL

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Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Description	Lum. Lumens	Lum. Watts	Total Watts
÷	8	PB1	Single	ZNM-30L-CT-50 @ 18' MTG. HT.	32960	232	1856
-E-	1	PK1	Single	MRM-LED-18L-SIL-5W-50 @ 20' MTG. HT.	19138	150	150
	4	РК2	TWIN 180	MRM-LED-18L-SIL-5W-50 @ 20' MTG. HT.	19138	150	1200
÷	24	PL1	SINGLE	ZNM-18L-CT-50 @ 18' MTG. HT.	26393	176	4224

Label	CalcType	Units	Avg	Max	Min	Max/Min
PARKING	Illuminance	Fc	3.75	7.3	0.9	8.11
PICKLEBALL 1	Illuminance	Fc	51.07	69	34	2.03
PICKLEBALL 2	Illuminance	Fc	51.43	69	36	1.92
PLATFORM 1	Illuminance	Fc	47.10	62	32	1.94
PLATFORM 2	Illuminance	Fc	47.76	63	32	1.97
PLATFORM 3	Illuminance	Fc	48.05	63	33	1.91
PLATFORM 4	Illuminance	Fc	46.95	62	32	1.94
SPILL	Illuminance	Fc	0.33	9.1	0.0	N.A.

8/11/2022 Filename: WOODLAND6.AGI



The light levels shown are maintained using a .94 light loss factor (LLF). Light loss factors are used to adjust the light output of a luminaire operating in a controlled laboratory environment to the output obtained under actual field conditions. The LLF used in these calculations includes both recoverable and non-recoverable factors. Recoverable factors include luminaire dirt depreciation (LDD). Non-recoverable factors include optical system variations, and depreciation in initial luminaire lumen output. The use of the light loss factor shown requires making certain assumptions about the lighting system, the specific application, and the maintenance of the system over time. Therefore, actual light levels measured in the field may vary from the calculated values, especially in regards to individual location measurements.

Calculations use a LED Maintained Lamp Lumen factor based upon 50,000 hours of life, derived from IES TM21-11.

Based on the information provided, all dimensions and luminaire Locations shown represent recommended positions. The engineer and / or architect must determine applicability of the layout to existing or future field conditions.

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SPECIAL PERMIT KK TK 8/24/22							
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