MALDEN WOODS

WORCESTER, MASSACHUSETTS

APRIL 19, 2018

DEFINITIVE SUBDIVISION PLAN AMENDMENT & DEFINITIVE SITE PLAN
NOTICE OF INTENT

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	NOTES & LEGEND SHEET
3–4	EXISTING CONDITIONS PLANS
5–6	LOT LAYOUT PLANS
7–8	LOT BEARING AND DISTANCE
9–10	CONSTRUCTION PLANS
11–13	PLAN & PROFILE SHEETS/EROSION SHEETS
14–19	DETAIL SHEETS
20–23	PHASED SEDIMENT & EROSION CONTROL
24	EASEMENT SHEET
25	LIGHTING SHEET

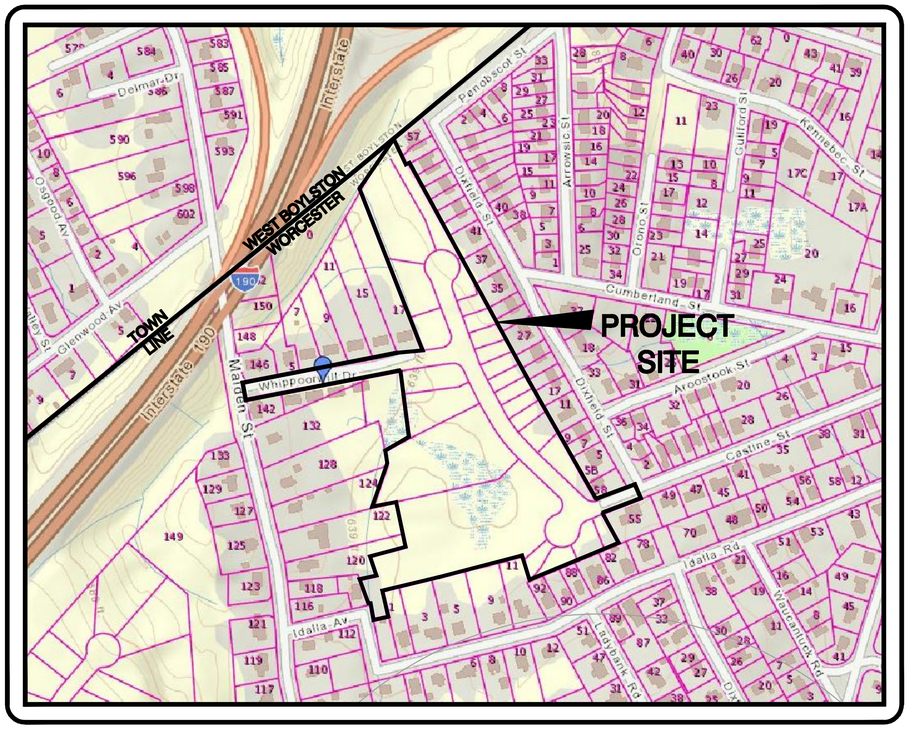
LOT AND USE SUMMARY

TOTAL LOT AREA: 10.29 ACRES ±
ZONING DISTRICT: RESIDENCE, LIMITED–7 (RL–7)

PROPOSED USE: SUBDIVISION WITH A TOTAL OF 30
SINGLE–FAMILY SEMI–DETACHED DWELLING LOTS

LEGEND

- PROPERTY LINE/ROW
- PROPOSED STORMCEPTOR
- PROPOSED SEWER MANHOLE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED WATER VALVE
- S — PROPOSED SEWER LINE
- W — PROPOSED WATER LINE
- D — PROPOSED DRAIN LINE
- EOP — EDGE OF PAVEMENT/CURB LINE
- 572 — EXISTING 2' CONTOUR
- 570 — EXISTING 10' CONTOUR
- 570 — PROPOSED CONTOUR
- BORDERING VEGETATED WETLANDS
- BORDERING VEGETATED WETLANDS BOUNDARY (BVW)
- TPW — TEST PIT LOCATION (WETLAND)
- TPU — TEST PIT LOCATION (UPLAND)
- PROPOSED STREET LIGHT
- WH — PROPOSED CITY OF WORCESTER HIGHWAY BOUND
- EXISTING CITY OF WORCESTER HIGHWAY BOUND FOUND
- HYDRANT
- WF–A19 — WETLAND FLAG
- TP#D — TEST PIT
- 15' WETLAND BUFFER
- 30' WETLAND BUFFER
- 50' WETLAND BUFFER
- 100' WETLAND BUFFER
- SIDEWALK
- N 55°48'30" E 100' — DRAINAGE EASEMENT
- E/T/C — ELEC/TELEPHONE/CABLE LINE
- LIMIT OF WORK
- HAYBALE LINE
- STREET SIGNS
- WETLAND REPLICATION
- TREELINE
- GUARDRAIL



LOCUS PLAN

SCALE: 1"=200'

LOT INFORMATION:
WORCESTER ASSESSORS MAP BLOCK LOTS
32–011–0001A–1B TO 7A–7B
32–011–00008 TO 00013
32–011–0014A–14B TO 15A–15B

DEED REFERENCES:
DEED BOOK 51283, PAGE 361

PLAN REFERENCE:
PLAN BOOK 538, PLAN 34
PLAN BOOK 849, PLAN 77

NOT FOR CONSTRUCTION

THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

WAIVERS

SECTION IX – DESIGN STANDARDS:
C.9 TO UNDERGROUND ALL UTILITIES WITHIN WHIPPOORWILL DRIVE.
E.1 TO EXCEED THE MAXIMUM CENTERLINE GRADE FOR WHIPPOORWILL DRIVE;
E.4 TO EXCEED MAXIMUM GRADES FOR THE PROPOSED LEVELING AREA OF WHIPPOORWILL DRIVE AT MALDEN STREET.
H.2 TO PROVIDE SECURITY BARS ON OPEN PIPES IN EXCESS OF 18 INCHES IN DIAMETER
SECTION X – REQUIRED IMPROVEMENTS:
D.5 TO DECREASE THE REQUIRED PAVEMENT WIDTH FROM 30 FEET TO 28 FEET.
E.1 TO PROVIDE CATCH BASINS EVERY 300 FEET ON WHIPPOORWILL DRIVE.
F.1 TO PROVIDE SIDEWALKS ON BOTH SIDES OF ANY PROPOSED WAY (ALONG THE SOUTHERLY SIDE OF WHIPPORWILL DRIVE AND ALONG THE WESTERLY SIDE OF DANIELLE'S WAY FROM LOT 13A TO LOT 12B).
F.1 TO COMPLY WITH THE TYPICAL CROSS–SECTION RELATING TO THE PROPOSED SIDEWALK WIDTH AND LANDSCAPE STRIP ORIENTATION, FOR WHIPPORWILL DRIVE.
SECTION VI.H–G – PLAN REQUIREMENTS:
G.12 TO SHOW THE LOCATIONS AND OUTLINES OF ALL EXSTING BUILDINGS AND SITE FEATURES SUCH AS STONE WALLS, FENCES, LARGE TREES (12" CALIPER) OR WOODED AREAS, ROCK RIDGES AND OUTCROPPINGS, SWAMPS/ WETLANDS AND WATER BODIES WITHIN OR ADJACENT TO THE PROPOSED SUBDIVISION.
G. 6. 1. TO SHOW ALL CONSTRUCTION PLAN REQUIREMENTS – INCLUDING BOUNDS/ MONUMENTS, PROPOSED UTILITIES, OR PROPOSED FURNISHINGS (I.E. HYDRANTS, STREET LIGHTS, FENCES, ETC.) – ON THE EROSION AND SEDIMENT CONTROL PLAN.
REQUIREMENT TO LABEL TREES IN EXCESS OF 9" ON THE PLANS
SECTION VI.I.2. – PLANNING BOARD DECISION
B. TO RETROACTIVELY WAIVE THE AUTOMATIC RECESSION DATE AND SET A NEW SUNSET DATE OF AUGUST 26, 2025.

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

I CERTIFY THAT 20 DAYS HAVE ELAPSED SINCE PLANNING BOARD APPROVAL AND THAT NO APPEAL HAS BEEN FILED IN THIS OFFICE.

DATE CITY CLERK, WORCESTER, MA

CITY OF WORCESTER PLANNING BOARD DATE:

ENDORSED BY A MAJORITY OF THE WORCESTER PLANNING BOARD:

PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/7/19	CITY COMMENTS	LLW
4	4/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

COMMONWEALTH OF MASSACHUSETTS — HOSSEIN HAGHANIZADEH — CIVIL — NO. 42529 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — DANIEL J TIVNAN — NO. 40047 — REGISTERED PROFESSIONAL LAND SURVEYOR

OWNER/APPLICANT:

WHIPPOOR, LLC
10 UNION STREET, SUITE 3B
NATICK, MA 01760

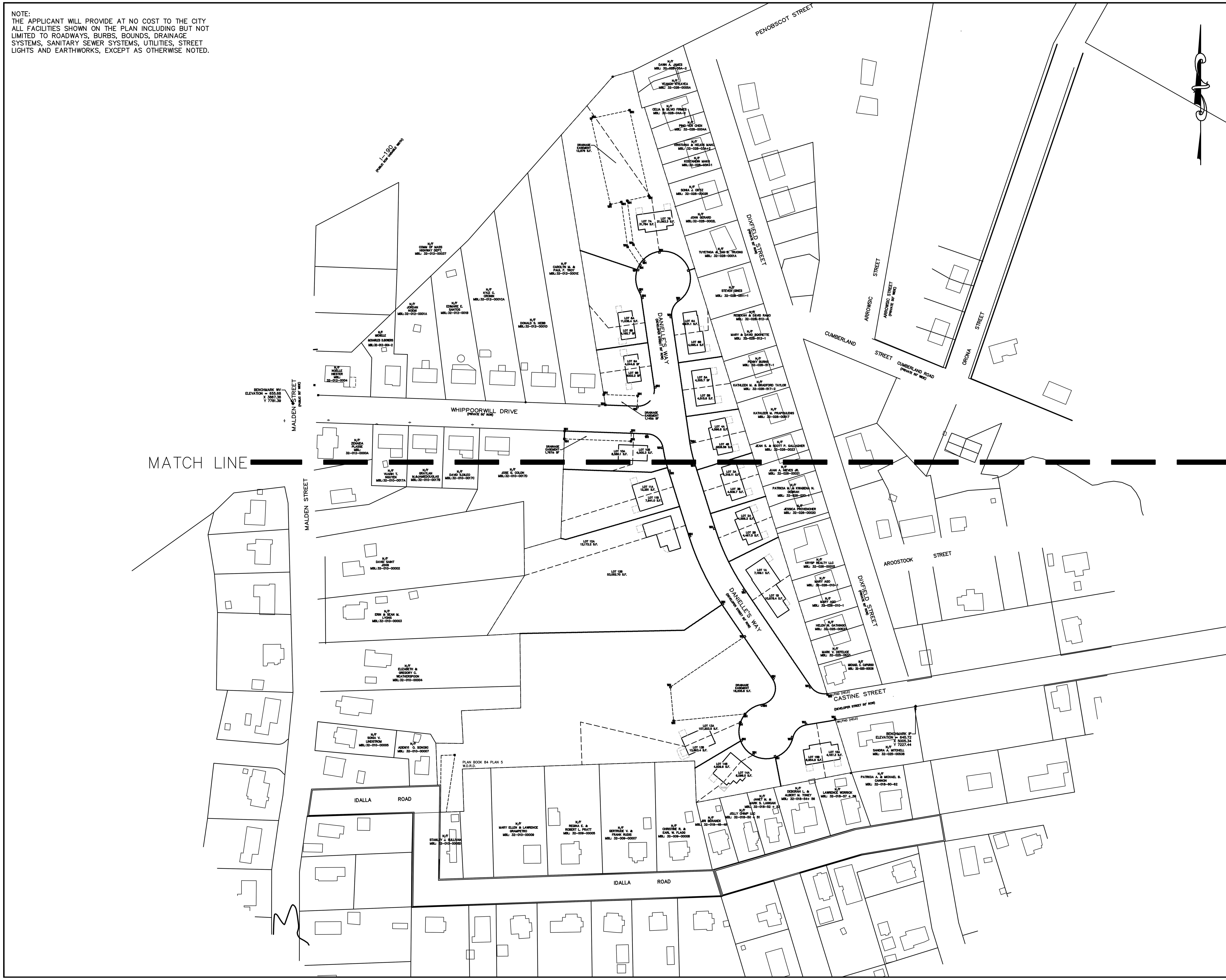
ENGINEER/SURVEYOR:

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610–1723
PHONE: (508) 757–4944 FAX: (508) 752–8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

JOB NUMBER: 5956
DWG NUMBER: 5004

SHEET NUMBER 1 OF 35

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.



80 0 80 160 240

HORIZONTAL SCALE 1"=80'

NOT FOR CONSTRUCTION

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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS HOSSEIN HAGHANIZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

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EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT KEY PLAN

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD: PS
SCALE: 1"=80'	CAD: STF	FLD. BK: 639–124
ZONE: RL–7	REV'D: HH	DWG: MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER 2 OF 35
DWG NUMBER: 5004		

GENERAL NOTES

1. ALL REQUIRED PERMITS SHALL BE SECURED PRIOR TO COMMENCING WORK.
2. A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF WORCESTER'S DEPARTMENT OF PUBLIC WORKS & PARKS' DIVISION OF ENGINEERING SHALL BE HELD PRIOR TO ANY CONSTRUCTION.
3. ALL WORK SHALL CONFORM TO THE CITY OF WORCESTER SUBDIVISION RULES AND REGULATIONS, ZONING ORDINANCE, PLANNING BOARD DECISION AND CONDITIONS OF APPROVAL, CONSERVATION COMMISSION ORDER OF CONDITIONS, AND TO THE STANDARDS CONTAINED IN THE CITY OF WORCESTER, DEPARTMENT OF PUBLIC WORKS & PARKS, ENGINEERING DIVISION, CONSTRUCTION MANAGEMENT SECTION, STANDARD SPECIFICATIONS AND DETAILS, MOST RECENT ADDITION, AS APPLICABLE.
4. CONSTRUCTION OPERATIONS SHALL BE LIMITED TO MONDAY THROUGH SATURDAY BETWEEN THE HOURS OF 7:00 AM AND 7:00 PM. THERE SHALL BE NO WORK ON SUNDAYS OR HOLIDAYS. A SIGN APPROVED BY THE CITY ENGINEERING DEPARTMENT SHALL BE POSTED AT THE CONSTRUCTION ENTRANCE.
5. DURING PHASES 1&2 CONSTRUCTION VEHICLES SHALL ACCESS THE SITE VIA CASTINE STREET AND SHALL NOT USE WHIPPOORWILL DRIVE.
6. THE CONTRACTOR SELECTED FOR THIS PROJECT SHALL BE APPROVED TO WORK IN THE CITY OF WORCESTER WITH CERTIFICATION TO WORK IN AREAS WHERE THE ASIAN LONG HORN BEETLE HAS BEEN IDENTIFIED. TREE AND STUMP REMOVAL SHALL BE IN ACCORDANCE WITH THE ASIAN LONGHORNED BEETLE PROGRAM. NEW TREE OR SHRUB PLANTINGS SHALL BE ASIAN LONGHORN BEETLE AND EMERALD ASH BORER RESISTANT.
7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY AND "DIG SAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION IS TO BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
8. ANY WORK IN AN EXISTING CITY ROAD WILL REQUIRE A ROAD-OPENING PERMIT FROM THE CITY HIGHWAY DEPARTMENT.
9. ALL PROPOSED UNDERGROUND MATERIALS AND STRUCTURES SHALL BE CAPABLE OF SUPPORTING H-20 WHEEL LOADINGS.
10. ANY MINOR MODIFICATION (AS DETERMINED BY THE CITY AND/OR OWNER) TO THE INFORMATION SHOWN ON THE APPROVED PLANS SHALL BE SUBMITTED TO THE CITY AS A MINOR PLAN REVISION FOR APPROVAL PRIOR TO THE WORK BEING PERFORMED.
11. CONTRACTOR SHALL REFER TO BUILDING PLANS FOR THE EXACT DIMENSIONS AND LOCATIONS OF BUILDING APPURTENANCES AND UTILITY ENTRANCE LOCATIONS.
12. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A LICENSED SURVEYOR TO LAY OUT THE SITE CONSTRUCTION. THE SURVEYOR SHALL CERTIFY THAT ALL LOCATIONS ARE AS PER PLAN.
13. THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF AS-BUILT LOCATIONS OF ALL UNDERGROUND AND ABOVE GROUND UTILITIES. THE CONTRACTOR SHALL PROVIDE THE CITY AND H. S. & T. GROUP, INC. WITH COMPLETE AS-BUILT PLANS UPON COMPLETION OF THE PROJECT.
14. ELEVATIONS SHOWN IN THE DRAWINGS ARE REFERENCED TO THE NAD-83 DATUM.
15. THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY, ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, CURBS, BOUNDS, DRAINAGE SYSTEM, SANITARY SEWER SYSTEM, UTILITIES, STREET LIGHTS, STREET TREES AND EARTHWORK, EXCEPT AS NOTED.
16. NO ROCK CRUSHING OR GRINDING ACTIVITIES SHALL BE PERMITTED ON-SITE. CONTRACTOR SHALL TAKE STEPS TO LIMIT UNNECESSARY NOISE AND COMPLY WITH THE CITY OF WORCESTER'S GENERAL REVISED ORDINANCE RELATIVE TO NOISE CONTROL.
17. WETLAND RESOURCES WERE DELINEATED ON FEBRUARY 6, 2017 BY ECOTEC, INC. THE "B" SERIES FLAGS ARE OFF-SITE AND THEIR LOCATIONS ARE BASED ON A PREVIOUS DELINEATION.

LAYOUT AND MATERIALS NOTES

PROPOSED PAVED AREAS AND EMERGENCY ACCESS NOTES:

1. THE CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS THROUGHOUT CONSTRUCTION. ALL WORK SHALL BE COORDINATED WITH THE OWNER, CITY POLICE DEPARTMENT AND CITY FIRE DEPARTMENT.

TRAFFIC CONTROL NOTES:

1. CURBING SHALL BE 6" BITUMINOUS BERM.
2. LIMITS OF PROPOSED PAVEMENT SHALL BE CURBED UNLESS NOTED, DETAILED, OR SPECIFIED OTHERWISE IN THE PLANS.
3. STREET SIGNS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LAYOUT NOTES:

1. DIMENSIONS SHOWN ARE TO THE FACE OF THE CURB OR THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL PLACE A MINIMUM OF 6 INCHES OF LOAM AND GRASS SEED ON ALL DISTURBED AREAS NOT RECEIVING IMPROVEMENTS.

GRADING & DRAINAGE NOTES

1. ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
2. THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC STREETS AND WORK AREAS.
3. ALL PROPOSED PAVEMENT AREAS SHALL BE PITCHED AS SHOWN ON THE DRAWINGS. IF NOT OTHERWISE SHOWN, PROPOSED PAVEMENT AREAS SHALL BE PITCHED A MINIMUM OF 1% (1/8" PER FOOT) TO PROVIDE POSITIVE DRAINAGE.
4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
5. ALL GRADING IS TO BE SMOOTH AND CONTINUOUS WHERE PROPOSED PAVEMENT MEETS EXISTING PAVEMENTS. EDGES ARE TO BE SAW CUT. THE PAVEMENT JOINTS ARE TO BE EMULSION OILED AND SANDED.
6. IT IS RECOMMENDED THAT THE PROPOSED FILL FOR THE ROADWAY AND PROPOSED LOTS BE PROVIDED BY LOCAL SOURCES. THE FILL SHALL MEET ALL WORCESTER DPW STANDARDS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.
8. THE FILL MATERIAL SHALL BE COMPACTED IN LIFTS NOT EXCEEDING 8 INCHES LOOSE THICKNESS. THE FILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY PER ASTM D-1557. FILL MATERIAL SHALL BE PLACED WITH A MOISTURE CONTENT WITHIN 2% OF OPTIMUM MOISTURE CONTENT FOR COMPACTION PURPOSES. ADHERENCE TO THESE STANDARDS AND STRICT QUALITY CONTROL IS REQUIRED DURING THE CONSTRUCTION OF THE BASIN.

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE METHODS AND MATERIALS SHOWN ON THESE DRAWINGS ARE MINIMUM REQUIREMENTS FOR EROSION AND SEDIMENTATION CONTROL. ACTUAL SITE CONDITIONS, SEASONAL OR CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS AS DIRECTED BY THE ENGINEER OR CITY OF WORCESTER AGENT.
2. AFTER EROSION AND SEDIMENTATION CONTROLS ARE IN PLACE AND INSPECTED BY THE CITY, THE CONTRACTOR MAY STRIP SOILS AS REQUIRED. ALL STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL DEVICES THAT SHALL INCLUDE A MINIMUM OF A SILT FENCE WITH HAYBALE SUPPORT. OTHER METHODS MAY INCLUDE STOCKPILE COVERS, MULCHING OR OTHER METHODS THAT PREVENT EROSIVE CONDITIONS.
3. ALL DISTURBED SOILS NOT SUBJECT TO CONSTRUCTION SHALL BE IMMEDIATELY STABILIZED BY MULCHING OR TEMPORARY SEEDING.
4. ALL PROPOSED SLOPES (EXCLUDING ANY RIPRAP SLOPES) STEEPER THAN 3:1 SHALL BE STABILIZED WITH A CURLEX EROSION CONTROL MATTING BY AMERICAN EXCELSIOR COMPANY (OR ENGINEER APPROVED EQUAL) AND PROTECTED FROM EROSION. ADDITIONALLY, THESE AREAS ARE TO BE HYDROSEEDED.
5. DURING BUILDING AND ROADWAY CONSTRUCTION, ALL SITE RUNOFF SHALL BE DIRECTED TOWARD TEMPORARY SEDIMENT BASINS BY MEANS OF TEMPORARY SWALES, DITCHES AND/OR WATER BARS, AS NECESSARY. NO RUNOFF SHALL BE ALLOWED TO EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
6. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ONSITE AT ALL TIMES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE.
7. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL NOT BE REMOVED UNTIL ALL DISTURBED SURFACES HAVE BEEN FULLY STABILIZED WITH VEGETATION.
8. THE CONSTRUCTION ENTRANCE SHALL BE LOCATED AS SHOWN ON THE PLANS, OR AS FIELD DIRECTED BY THE ENGINEER.
9. CONTRACTOR SHALL CONTROL AIRBORNE DUST WITH USE OF SPRAYED WATER AS REQUIRED TO MINIMIZE IMPACT ON NEIGHBORING PROPERTIES.
10. THE CONTRACTOR SHALL STRIP TOPSOIL AND STOCKPILE ON-SITE FOR REUSE. SOIL STOCKPILES SHALL BE NO HIGHER THAN 8 FEET. STOCKPILES SHALL BE ENCLOSED BY HAYBALES AND SILT FENCE TO PREVENT TRAVEL OF SEDIMENT.
11. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

UTILITY NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS NECESSARY FOR THE WORK.
2. ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 5 FEET OF COVER AND A MAXIMUM OF 7 FEET OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE. WATER LINES MAY BE INSTALLED WITH LESS THAN 5 FEET OF COVER TO AVOID CONFLICTS. HOWEVER, ALL WATER LINES SHALL BE INSULATED IN AREAS WHERE THERE IS LESS THAN 4 FEET OF COVER.
3. GENERALLY, WATER MAIN FITTINGS IDENTIFIED ON THESE DRAWINGS ARE SHOWN FOR INSTALLATION LOCATION PURPOSES. THE CONTRACTOR SHALL NOTE THAT NOT ALL FITTINGS ARE NOTED, SHOWN OR INDICATED.
4. ALL WATER MAIN FITTINGS, TEES, HYDRANTS, ETC. SHALL BE RESTRAINED WITH FORMED CONCRETE THRUST BLOCKS.
5. DOMESTIC WATER SERVICES SHALL BE INSTALLED WITH APPROPRIATELY SIZED GATE, BOX AND TEE FITTINGS.
6. ALL WATER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL CONFORM TO THE CITY OF WORCESTER REQUIREMENTS.
7. PRESSURE AND LEAKAGE TESTING, DISINFECTION AND FLUSHING SHALL BE IN ACCORDANCE WITH ALL LOCAL MUNICIPAL STANDARDS AND REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS IN CONNECTION WITH UTILITY TESTS, FLUSHING AND INSPECTION AS REQUIRED BY THE LOCAL MUNICIPALITY.
8. THE PRIMARY WATER METER (AND BACKFLOW PREVENTER, IF REQUIRED) SHALL BE LOCATED AT THE POINT WHERE THE WATER LINE ENTERS THE BUILDING UNLESS OTHERWISE NOTED OR DETAILED ON THE DRAWINGS.
9. A MINIMUM OF 12 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER MAINS CROSS STORM DRAIN LINES.
10. WHERE SANITARY SEWERS CROSS WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER MAIN. IF THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR CONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. IF MECHANICAL JOINT PIPE IS NOT USED, THEN BOTH THE WATER MAIN AND SANITARY SEWER SHALL BE ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET FROM THE CROSSING POINT OF THE PIPES AS MEASURED NORMALLY FROM ALL POINTS ALONG THE PIPE.
11. EXACT LOCATION OF UTILITY STUBS FOR BUILDINGS CONNECTIONS SHALL BE VERIFIED WITH THE BUILDING DRAWINGS. SERVICE STUBS TO THE BUILDINGS SHALL BE INSTALLED TO A POINT 10 FEET FROM THE BUILDING WALL UNLESS OTHERWISE NOTED OR DETAILED.
12. ALL WATER AND SEWER CONSTRUCTION SHALL BE INSPECTED BY THE CITY OF WORCESTER BEFORE BEING BACKFILLED. THE CITY SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 48 HOURS PRIOR TO THE REQUIRED INSPECTION.
13. ANY WORK WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF WORCESTER REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN A STREET OPENING PERMIT PRIOR TO ANY CONSTRUCTION WITHIN THE CITY RIGHT-OF-WAY.
14. ALL UNDERGROUND CONDUITS SHALL BE INSTALLED WITH TRACER TAPE.

CONSTRUCTION SEQUENCE

THE CONSTRUCTION SEQUENCE PROVIDES THE DEVELOPER AND THE CONTRACTOR WITH AN ORDER OF CONSTRUCTION THAT WILL MINIMIZE EROSION AND THE TRANSPORT OF SEDIMENTS. THE INDIVIDUAL OBJECTIVES OF THE CONSTRUCTION TECHNIQUES DESCRIBED HEREIN SHOULD BE CONSIDERED AN INTEGRAL COMPONENT OF THE PROJECT DESIGN. THE CONSTRUCTION SEQUENCE IS NOT INTENDED TO PRESCRIBE DEFINITIVE CONSTRUCTION METHODS AND SHOULD NOT BE INTERPRETED AS A CONSTRUCTION SPECIFICATION DOCUMENT. RATHER, THE CONTRACTOR SHALL USE THE CONSTRUCTION SEQUENCE AND TECHNIQUES DESCRIBED AS A GENERAL GUIDE. THE CONTRACTOR SHALL MODIFY THE SUGGESTED METHODS AND PROCEDURES AS REQUIRED TO BEST SUIT THE SEASONAL, ATMOSPHERIC, CONSTRUCTION AND SITE SPECIFIC PHYSICAL CONSTRAINTS OF THE PROJECT FOR THE PURPOSE OF MINIMIZING THE ENVIRONMENTAL IMPACT OF THE CONSTRUCTION.

1. CLEARING:
   - EROSION CONTROL DEVICES SHALL BE IN PLACE BEFORE CLEARING COMMENCES.
   - VEHICLES USED IN THE WOOD CLEARING PROCESS SHOULD NOT TRAVEL THROUGH RUNNING WATER.
   - THE MOVEMENT OF CONSTRUCTION VEHICLES SHOULD BE LIMITED, AS MUCH AS POSSIBLE, TO THE AREA OF THE DEVELOPMENT.
   - TREES SHOULD BE FELLED DIRECTLY DOWN OR UP SLOPE TO PREVENT THE DIVERSION AND CONCENTRATION OF STORMWATER RUNOFF AROUND THE TRUNKS.
   - WHEEL RUTS SHOULD BE FILLED IN AND GRADED TO PREVENT CONCENTRATION OF STORMWATER RUNOFF.

CONSTRUCTION SEQUENCE con't

- VEHICLE TRACKS LEADING DOWNHILL SHOULD BE BLOCKED DURING PERIODS OF INTENSE PRECIPITATION BY HAYBALES, DIKES OR SILT FENCES, WHICH SHOULD BE CONSTRUCTED TO ENTRAP THE SEDIMENT.
- BRUSH AND BRANCHES SHOULD BE MULCHED AND STOCKPILED ONSITE FOR USE AS TEMPORARY EROSION CONTROL.
- INSTALL TEMPORARY EROSION CONTROL DEVICES AS NECESSARY TO PREVENT TRANSPORT OF SEDIMENT INTO ANY RESOURCE AREAS DURING INITIAL STAGES OF CONSTRUCTION.
- CLEAR ONLY TREES THAT ARE WITHIN THE LIMITS OF THE ROADWAY CONSTRUCTION, DETENTION BASIN AND OTHER SITE IMPROVEMENTS.
- STABILIZE ALL EXPOSED SURFACES THAT WILL NOT BE UNDER IMMEDIATE CONSTRUCTION.

2. GRUBBING, STRIPPING AND GRADING:
   - EROSION CONTROL DEVICES SHALL BE IN PLACE BEFORE GRADING COMMENCES.
   - STRIPPING SHOULD BE DONE IN A MANNER WHICH WILL NOT CONCENTRATE RUNOFF. IF PRECIPITATION IS EXPECTED, EARTHEN BERMS SHOULD BE CONSTRUCTED AROUND THE AREA BEING STRIPPED, WITH SILT FENCE OR HAYBALE CHECKDAMS LOCATED IN AN ARC AT THE LOW POINT OF THE BERM.
   - IF PRECIPITATION IS ANTICIPATED, HAYBALES, CHECKDAMS AND/OR SILT FENCE SHOULD BE USED AS NECESSARY TO PREVENT EROSION AND SEDIMENT TRANSPORT. THE EROSION CONTROL MATERIALS REQUIRED SHOULD BE STORED ON-SITE AT ALL TIMES.
   - DUST SHOULD CONTROLLED BY SPRINKLING EXPOSED SOIL WITH AN APPROPRIATE AMOUNT OF WATER.

3 MAINTENANCE OF DISTURBED SURFACES:
   - INSTALL EROSION CONTROL DEVICES AS NECESSARY TO PREVENT SEDIMENT TRANSPORT INTO RESOURCE AREAS AND OFF SITE.
   - PLACE A RING OF HAYBALES WITH SILT FENCE AROUND ALL STOCKPILES.
   - STABILIZE ALL DISTURBED SURFACES THAT WILL NOT BE UNDER IMMEDIATE CONSTRUCTION.
   - PAVEMENT DEMOLITION DEBRIS SHALL BE STORED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
   - RUNOFF SHOULD BE DIVERTED FROM DISTURBED SIDE SLOPES IN BOTH CUT AND FILL.
   - MULCHING OR GEOTEXTILES, OR A COMBINATION OF BOTH, MAY BE USED FOR TEMPORARY STABILIZATION.
   - ADDITIONAL HAYBALE CHECKDAMS OR SILT FENCES SHOULD BE SET WHERE NECESSARY TO TRAP PRODUCTS OF EROSION AND SHALL BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION PROCESS.

4. LOAMING AND SEEDING:
   - LOAM SHOULD NOT BE PLACED UNLESS IT IS TO BE SEEDED AND MULCHED DIRECTLY THEREAFTER.
   - ALL DISTURBED AREAS SHOULD HAVE A MINIMUM OF 6 INCHES OF LOAM PLACED BEFORE BEING SEEDED AND MULCHED.
   - CONSIDERATION SHOULD BE GIVEN TO HYDROMULCHING, ESPECIALLY ON SLOPES IN EXCESS OF 3 TO 1.
   - SLOPES GRADED IN EXCESS OF 3 TO 1 SHOULD BE COVERED WITH PROTECTIVE FABRIC OF A GRADE RELATIVE TO THE SEVERITY OF THE SLOPE, OR WITH RIPRAP.
   - LOAMED AND SEEDED SLOPES SHOULD BE PROTECTED FROM WASHOUT BY MULCHING OR OTHER ACCEPTABLE SLOPE PROTECTION UNTIL VEGETATION BEGINS TO GROW.

5. STORMWATER COLLECTION SYSTEM INSTALLATION:
   - THE STORMWATER DRAINAGE SYSTEM SHOULD BE INSTALLED FROM THE DOWNSTREAM END UP AND IN A MANNER THAT WILL NOT ALLOW RUNOFF FROM DISTURBED AREAS TO ENTER PIPES.
   - EXCAVATIONS FOR THE DRAINAGE SYSTEM SHOULD NOT BE LEFT OPEN OVERNIGHT WHEN RAINFALL IS EXPECTED OVERNIGHT. IF LEFT OPEN UNDER OTHER CIRCUMSTANCES, PIPE ENDS SHOULD BE CLOSED BY A STAKED BOARD OR BY AN EQUIVALENT METHOD.
   - ALL CATCH BASIN OPENINGS SHOULD BE COVERED BY PLYWOOD PLACED BETWEEN THE GRATE AND THE FRAME OR PROTECTED FROM SEDIMENT BY INSTALLING A SEDIMENT BASKET AND SILT FENCE SURROUNDING THE CATCH BASIN GRATE.

6. ROADWAY SUBBASE CONSTRUCTION:
   - INSTALL TEMPORARY CULVERTS, DIVERSION SWALES AND ADDITIONAL EROSION CONTROL DEVICES AS REQUIRED BY INDIVIDUAL CONSTRUCTION AREA CONSTRAINTS TO DIRECT POTENTIAL RUNOFF TOWARD DIVERSION SWALES AND TEMPORARY SEDIMENT BASIN AREAS DESIGNATED FOR THE CURRENT CONSTRUCTION PHASE.
   - COMPACT GRAVEL AS WORK PROGRESSES TO CONTROL EROSION POTENTIAL.
   - APPLY WATER TO CONTROL AIR SUSPENSION OF DUST.
   - AVOID CREATING AN EROSIVE CONDITION DUE TO OVER WATERING.

OPERATION AND MAINTENANCE PLAN

THIS LONG-TERM OPERATION AND MAINTENANCE PLAN OUTLINES THE EFFORTS NECESSARY SO THAT THE STORMWATER COLLECTION AND TREATMENT SYSTEM OF THIS SITE OPERATES IN ACCORDANCE WITH THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION STORMWATER MANAGEMENT POLICY (MSMP) AND AS DESIGNED AND APPROVED. IN THE EVENT THAT THE SYSTEM PERFORMANCE BECOMES INADEQUATE, ADJUSTMENTS IN THE PLAN MAY BECOME NECESSARY TO IMPROVE THE PERFORMANCE OF THE SYSTEM.

IT IS NOTED THAT THE FOLLOWING RESTRICTIONS ON THE USE OF THIS PROPERTY ARE RECOMMENDED, FOR THE PROTECTION OF GROUNDWATER:

- USE OF SALT ON ROAD AND SIDEWALK IS TO BE MINIMIZED. UNDER ANY CONDITIONS WHERE SAND OR OTHER NON-TOXIC MATERIALS ARE SUITABLE, THEY ARE TO BE USED INSTEAD OF SALT.
- USE OF PESTICIDES, HERBICIDES AND FERTILIZERS SHOULD BE RESTRICTED.
- PET WASTE SHOULD BE COLLECTED AND DISPOSED OF PROPERLY.
- PROPER STORAGE, USE AND DISPOSAL OF HOUSEHOLD HAZARDOUS CHEMICALS, TIRES, YARD WASTE, PAINT AND SOLVENTS, AUTOMOBILE FLUIDS AND PROPANE TANKS IS ENCOURAGED.

STORMWATER OWNERSHIP AND OPERATION RESPONSIBILITIES

DURING CONSTRUCTION:
CONSTRUCTION, MAINTENANCE, OVERSIGHT AND PROPER OPERATION OF THE BASIN AND THE APPURTENANT STORMWATER MANAGEMENT SYSTEM, AND TEMPORARY EROSION AND SEDIMENTATION CONTROLS THROUGHOUT THE CONSTRUCTION PERIOD SHALL BE THE RESPONSIBILITY OF THE OWNER CONTRACTOR. UNTIL ACCEPTED BY THE CITY, THE OWNER SHALL PROVIDE THE PLANNING BOARD WITH AN ANNUAL WRITTEN REPORT OF INSPECTIONS PERFORMED.

POST CONSTRUCTION:
THE CITY OF WORCESTER WILL BE RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE OF THE DRAINAGE NETWORK AND FACILITIES UPON ACCEPTANCE OF THE ROAD AS A PUBLIC WAY.

SCHEDULE OF INSPECTION AND MAINTENANCE TASKS:

ON-SITE DRAINAGE AREAS:
DISTURBED AREAS THAT DRAIN INTO THE STORMWATER COLLECTION SYSTEM MUST BE INSPECTED TO VERIFY THAT SOIL SURFACES ARE STABLE AND THAT EROSION OF SOILS INTO THE COLLECTION SYSTEM IS NOT OCCURRING. IN THE EVENT THAT EROSION OF ONSITE SOILS IS OCCURRING, THE SOILS MUST BE STABILIZED AGAINST FURTHER EROSION. PERMANENTLY FINISH THE SURFACE AGAINST EROSION BY PLACING STABLE VEGETATION SUCH AS LOAM AND GRASS SEED, OR BY ARMORING THE SURFACE AGAINST EROSION WITH FILTER FABRIC BLANKET OR OTHER EFFECTIVE METHOD.

ASPHALT SURFACES:
INSPECT ASPHALT SURFACES FOR ACCUMULATION OF SAND, LITTER, ERODED SOILS OR OTHER DELETERIOUS MATERIALS. VERIFY THAT NO SPILLING OF HAZARDOUS MATERIALS, SUCH AS FUEL OIL, MOTOR OILS OR OTHER MATERIAL HAS OCCURRED. PICK UP ALL LITTER, JUNK, TRASH OR ANY OTHER DELETERIOUS MATERIALS LEFT ON THE SURFACE. UPON DETECTING ACCUMULATION OF SAND, SEDIMENT OR OTHER MATERIALS, THE ASPHALT SURFACE MUST BE SWEPT TO REMOVE ALL SUCH MATERIALS. ALL SWEEPINGS COLLECTED MUST BE DISPOSED OF IN ACCORDANCE WITH CURRENT MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION STANDARDS FOR SUCH WASTE DISPOSAL. ANY MATERIAL DEPOSITS DEEMED TO BE HAZARDOUS MUST BE REMOVED AND DISPOSED OF BY A LICENSED CONTRACTOR.

DEEP SUMP CATCH BASINS:
INSPECT UNITS 4 TIMES PER YEAR. CLEAN UNITS 4 TIMES PER YEAR AND WHENEVER THE DEPTH OF DEPOSITS IS GREATER THAN OR EQUAL TO ONE HALF THE DEPTH FROM THE BOTTOM OF THE INVERT OF THE LOWEST PIPE IN THE CATCH BASIN. REGULAR MAINTENANCE IS ESSENTIAL. DEEP SUMP CATCH BASINS REMAIN EFFECTIVE AT REMOVING POLLUTANTS ONLY IF THEY ARE CLEANED OUT FREQUENTLY. CLEANING MAY BE PERFORMED USING CLAMSHELL BUCKETS OR VACUUM TRUCKS.

WATER QUALITY UNITS:
MAINTENANCE OF THE WATER QUALITY UNITS SHALL BE PERFORMED USING VACUUM TRUCKS. NO ENTRY INTO THE WATER QUALITY UNIT IS REQUIRED FOR MAINTENANCE (IN MOST CASES). THE NEED FOR MAINTENANCE FOR THE WATER QUALITY UNIT SHALL BE DETERMINED BY INSPECTING THE UNIT FROM THE SURFACE. THE DEPTH OF OIL IN THE WATER QUATLITY UNIT SHALL BE DETERMINED BY INSERTING A DIPSTICK IN THE OIL INSPECTION/CLEANOUT PORT.

SIMILARLY, THE DEPTH OF SEDIMENT IN THE WATER QUALITY UNIT SHALL BE MEASURED FROM THE SURFACE WITHOUT ENTRY INTO THE WATER QUALITY UNIT VIA A DIPSTICK TUBE EQUIPPED WITH A BALL VALVE. THE TUBE SHALL BE INSERTED THROUGH THE RISER PIPE. MAINTENANCE SHOULD BE PERFORMED ONCE THE SEDIMENT DEPTH EXCEEDS 8-INCHES IN THE WATER QUALITY UNIT.

ALTHOUGH ANNUAL SERVICING IS RECOMMENDED, THE FREQUENCY OF MAINTENANCE MAY NEED TO BE INCREASED OR REDUCED BASED ON LOCAL CONDITIONS (I.E. IF THE WATER QUALITY UNIT IS FILLING UP WITH SEDIMENT MORE QUICKLY THAN PROJECTED, MAINTENANCE MAY BE REQUIRED SEMI-ANNUALLY).

OIL SHOULD BE REMOVED THROUGH THE OIL INSPECTION/CLEANOUT PORT IN THE WATER QUALITY UNIT AND SEDIMENT SHALL BE REMOVED THROUGH THE RISER PIPE. ALTERNATIVELY, OIL MAY BE REMOVED FROM THE 24 INCH OPENING IN THE WATER QUALITY UNIT IF WATER IS REMOVED FROM THE LOWER CHAMBER OF THE UNIT TO LOWER THE OIL LEVEL BELOW THE DROP PIPES IN THE WATER QUALITY UNIT.

THE FOLLOWING PROCEDURES SHOULD BE TAKEN WHEN CLEANING OUT THE WATER QUALITY UNIT:
1. CHECK FOR OIL THROUGH THE OIL CLEANOUT PORT.
2. REMOVE ANY OIL SEPARATELY USING A SMALL PORTABLE PUMP.
3. DECANT THE WATER FROM THE UNIT TO A SEPARATE CONTAINMENT TANK.
4. REMOVE THE SLUDGE FROM THE BOTTOM OF THE WATER QUALITY UNIT USING A VACUUM TRUCK.
5. REFILL THE WATER QUALITY WITH WATER WHEN REQUIRED BY THE CITY OF WORCESTER.

INFILTRATION/DETENTION BASIN:

CONDUCT PREVENTATIVE MAINTENANCE TWICE PER YEAR. INSPECT TO ENSURE PROPER FUNCTIONING AFTER EVERY MAJOR STORM DURING THE FIRST 3 MONTHS OF OPERATION AND TWICE A YEAR THEREAFTER. TWICE A YEAR, MOW THE SIDE SLOPES AND BASIN BOTTOM IF GRASSED FLOOR; RAKE IF STONE BOTTOM. REMOVE TRASH AND DEBRIS. REMOVE GRASS CLIPPINGS AND ACCUMULATED ORGANIC MATTER TWICE A YEAR. THE INSPECTION REQUIRES INSPECTING THE PRE-TREATMENT STORMWATER BEST MANAGEMENT PRACTICES IN ACCORDANCE WITH THE MINIMAL REQUIREMENTS SPECIFIED FOR THOSE PRACTICES AND AFTER EVERY MAJOR STORM EVENT. A MAJOR STORM EVENT IS DEFINED AS A STORM THAT IS EQUAL TO OR GREATER THAN THE 2-YEAR, 24-HOUR STORM (2.9 INCHES IN A 24-HOUR PERIOD). ONCE THE BASIN IS IN USE, INSPECT IT AFTER EVERY MAJOR STORM FOR THE FIRST FEW MONTHS TO ENSURE IT IS STABILIZED AND FUNCTIONING PROPERLY AND IF NECESSARY TAKE CORRECTIVE ACTION. NOTE HOW LONG WATER REMAINS STANDING IN THE BASIN AFTER A STORM. STANDING WATER WITHIN THE BASIN 48 TO 72 HOURS AFTER A STORM INDICATES THAT THE INFILTRATION CAPABILITY MAY HAVE BEEN OVERESTIMATED. IF THE PONDING IN THE BASIN IS DUE TO CLOGGING, IMMEDIATELY ADDRESS THE REASONS FOR THE CLOGGING (SUCH AS UPLAND SEDIMENT EROSION, EXCESSIVE COMPACTION OF SOILS OR LOW SPOTS). USE DEEP TILLING TO BREAK UP CLOGGED SURFACES, AND REVEGETATE IMMEDIATELY. REMOVE SEDIMENT FROM THE BASIN AS NECESSARY, BUT WAIT UNTIL THE FLOOR OF THE BASIN IS THOROUGHLY DRY. USE LIGHT EQUIPMENT TO REMOVE THE TOP LAYER SO AS TO NOT COMPACT THE UNDERLYING SOIL. DEEPLY TILL THE REMAINING SOIL, AND REVEGETATE AS SOON AS POSSIBLE. INSPECT AND CLEAN PRETREATMENT DEVICES ASSOCIATED WITH BASINS THEREAFTER AND INSPECT THE INFILTRATION BASIN AT LEAST TWICE PER YEAR. IMPORTANT ITEMS TO CHECK DURING THE INSPECTION INCLUDE: SIGNS OF DIFFERENTIAL SETTLEMENT, CRACKING, EROSION, LEAKAGE IN THE EMBANKMENTS, TREE GROWTH ON THE EMBANKMENTS, CONDITION OF THE RIPRAP, SEDIMENT ACCUMULATION AND THE HEALTH OF THE GRASS TURF FOR THE BASIN.

SUBDRAIN:
FREQUENCY: BEFORE EACH RAINY SEASON /AFTER HEAVY STORMS;
OBSERVATION:
INSPECT ALL SUBDRAIN CLEANOUTS. ENSURE THAT ALL CLEANOUT CAPS ARE PRESENT. LOOK FOR OBSTRUCTIONS, DEBRIS, TRASH, LEAVES, VEGETATION, ETC. GROWING INSIDE THE SUBDRAIN OR COVERING THE CLEANOUT. INSPECT EACH SUBDRAIN WHERE IT ENTERS THE OUTLET CONTROL STRUCTURE TO SEE WHETHER THE SUBDRAIN PIPE IS DRY, OR IS CLOGGED WITH VEGETATION. ENSURE THAT THE SUBDRAIN IS FLOWING BY TESTING WITH WATER FROM THE CLEANOUT END.
MAINTENANCE ACTIVITY:
REMOVE ANY OBSTRUCTIONS BY HAND (IF NEAR THE CLEANOUT ENTRANCE) OR BY FLUSHING (WITH PRESSURIZED WATER) IF TOO FAR DOWN THE PIPE. REPLACE MISSING CAPS AND SECURE TO PREVENT UNAUTHORIZED REMOVAL OR ACCIDENTAL DISPLACEMENT. SUBDRAIN JETTING – JETTING OF SUBDRAIN MAINS WITH KNOWN MINERALIZATION BUILD UP ON AT LEAST AN ANNUAL BASIS. ROUTINE JETTING OF SUBDRAIN MAINS SHOULD MINIMIZE THE AMOUNT OF MINERAL BUILDUP AND MAINTAIN THE CONVEYANCE CAPABILITY OF THE SUBDRAIN PIPE.

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WORCESTER PLANNING BOARD APPROVED: ____________________

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

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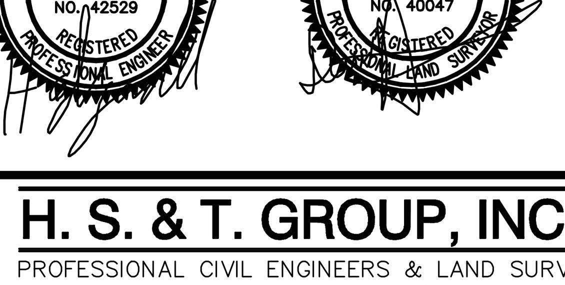
ENDORSED APPROVED DATE: ____________________



H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

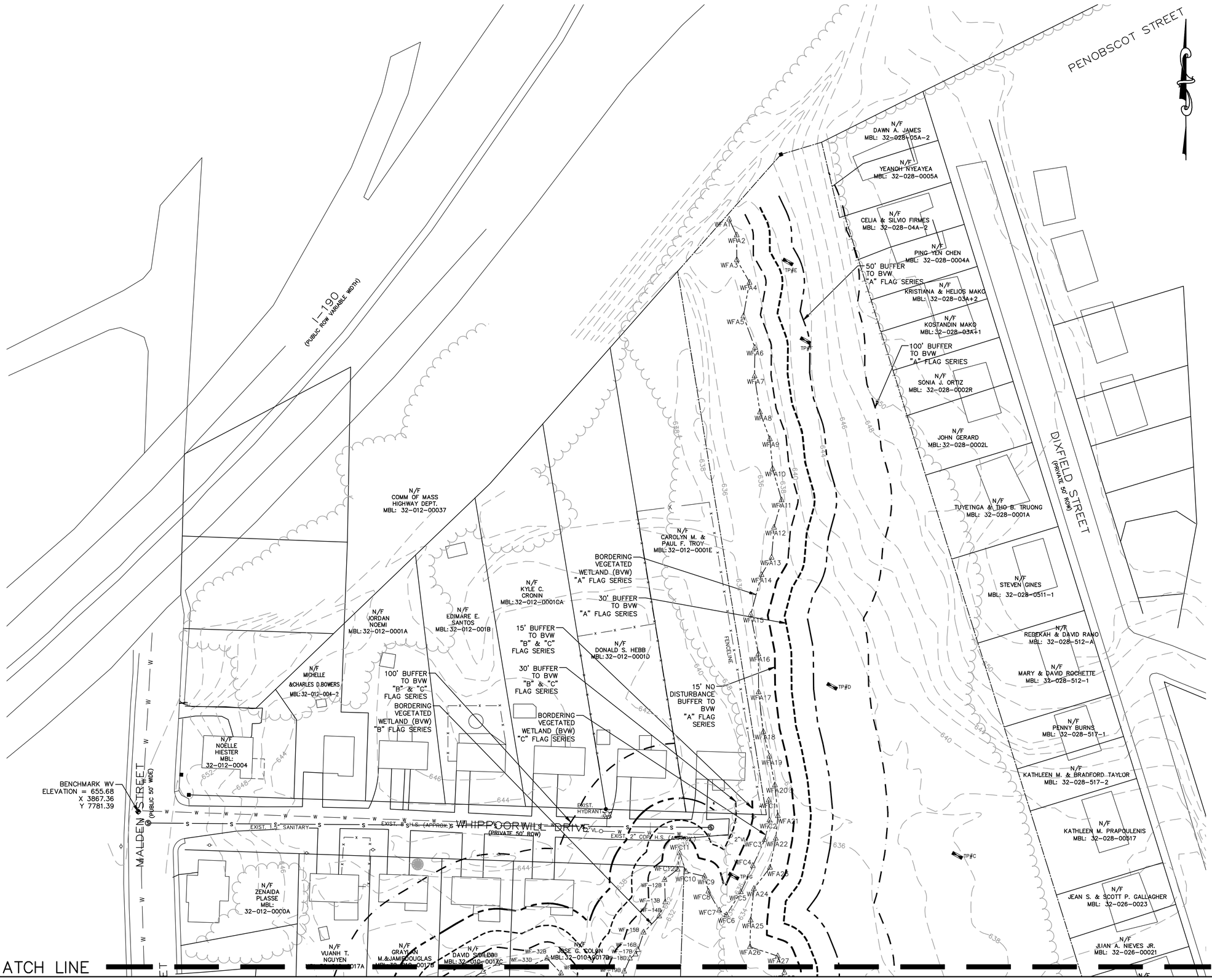
MALDEN WOODS SUBDIVISION AMENDMENT NOTES & LEGEND

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD: PS
SCALE: 1"=40'	CAD: STF	FLD. BK: 639-124
ZONE: RL-7	REV'D: HH	DWG: MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004



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HORIZONTAL SCALE 1"=40'

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WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN HAGHANIZADEH
CIVIL
NO. 42529
REGISTERED
PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. TIVNAN
NO. 40047
REGISTERED
PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
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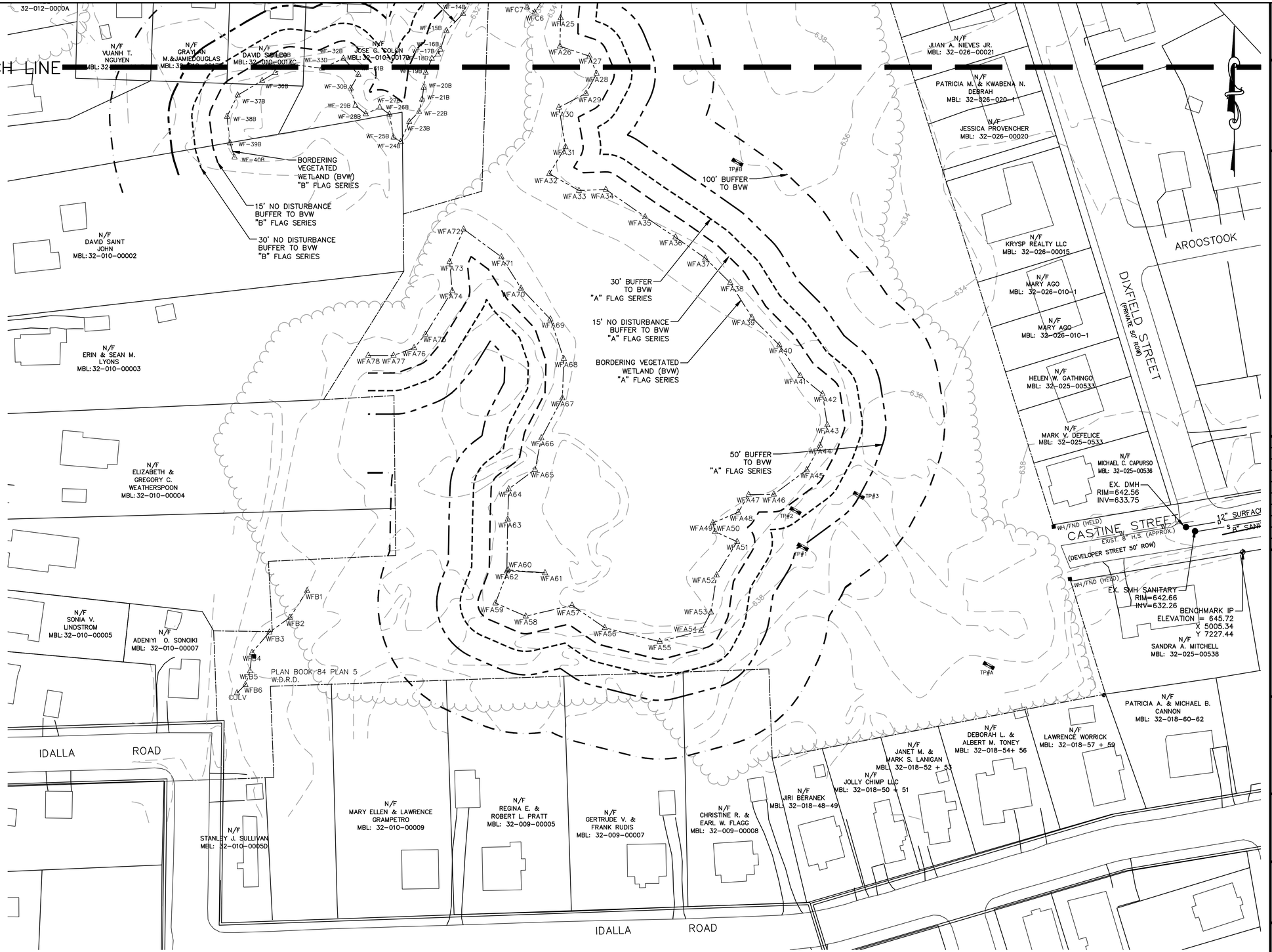
MALDEN WOODS SUBDIVISION AMENDMENT EXISTING CONDITIONS

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	4 OF 35
DWG NUMBER: 5004			



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WORCESTER PLANNING BOARD APPROVED:

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ENDORSED APPROVED DATE:

HOSSEIN HAGHANIZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS

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MALDEN WOODS SUBDIVISION AMENDMENT EXISTING CONDITIONS 2

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
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ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

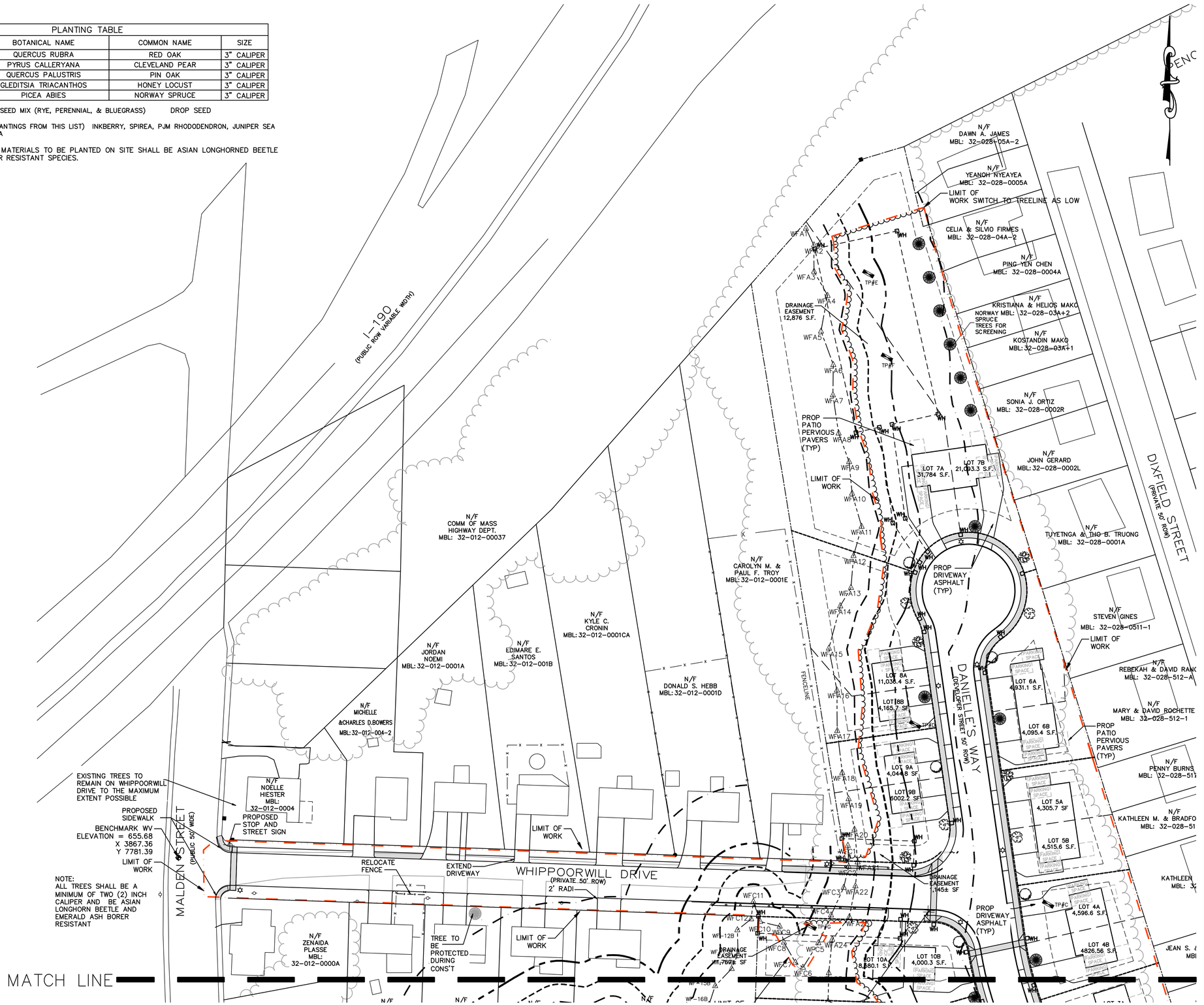
SHEET NUMBER 5 OF 35

PLANTING TABLE				
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
	9	QUERCUS RUBRA	RED OAK	3" CALIPER
	10	PYRUS CALLERYANA	CLEVELAND PEAR	3" CALIPER
	13	QUERCUS PALUSTRIS	PIN OAK	3" CALIPER
	13	GLEDITSIA TRIACANTHOS	HONEY LOCUST	3" CALIPER
	6	PICEA ABIES	NORWAY SPRUCE	3" CALIPER

GRASS MIX CAVVICHIO SEED MIX (RYE, PERENNIAL, & BLUEGRASS) DROP SEED

PLANT LIST (FRONT BED PLANTINGS FROM THIS LIST) INKBERRY, SPIREA, PJM RHODODENDRON, JUNIPER SEA GREEN, AZALEA, HYDRANGEA

NOTE: ALL LANDSCAPING MATERIALS TO BE PLANTED ON SITE SHALL BE ASIAN LONGHORNED BEETLE AND EMERALD ASH BORER RESISTANT SPECIES.



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MALDEN WOODS SUBDIVISION AMENDMENT SITE PLAN SHEET 1

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
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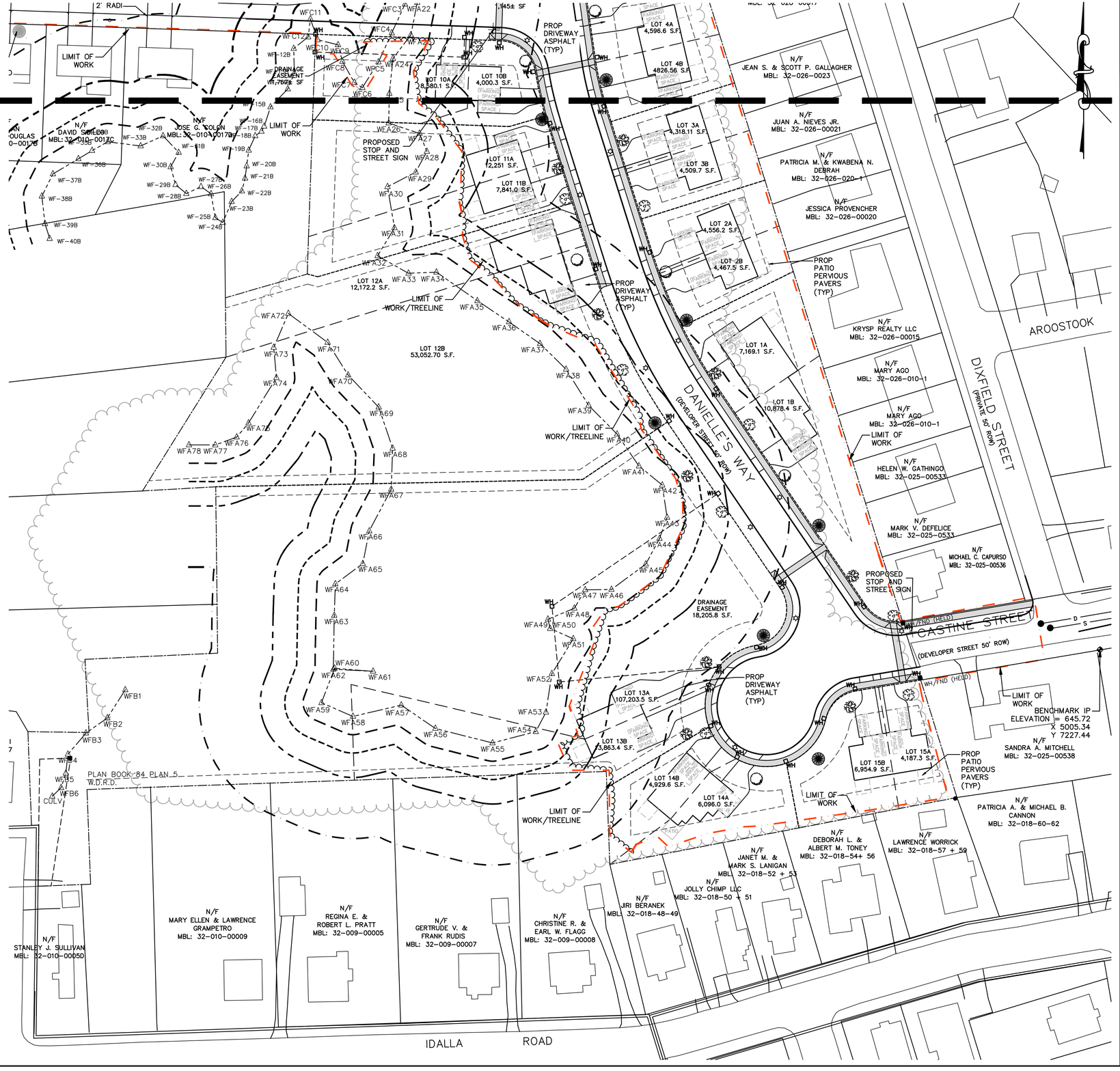
JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 6 OF 35



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MALDEN WOODS SUBDIVISION AMENDMENT
SITE PLAN SHEET 2

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

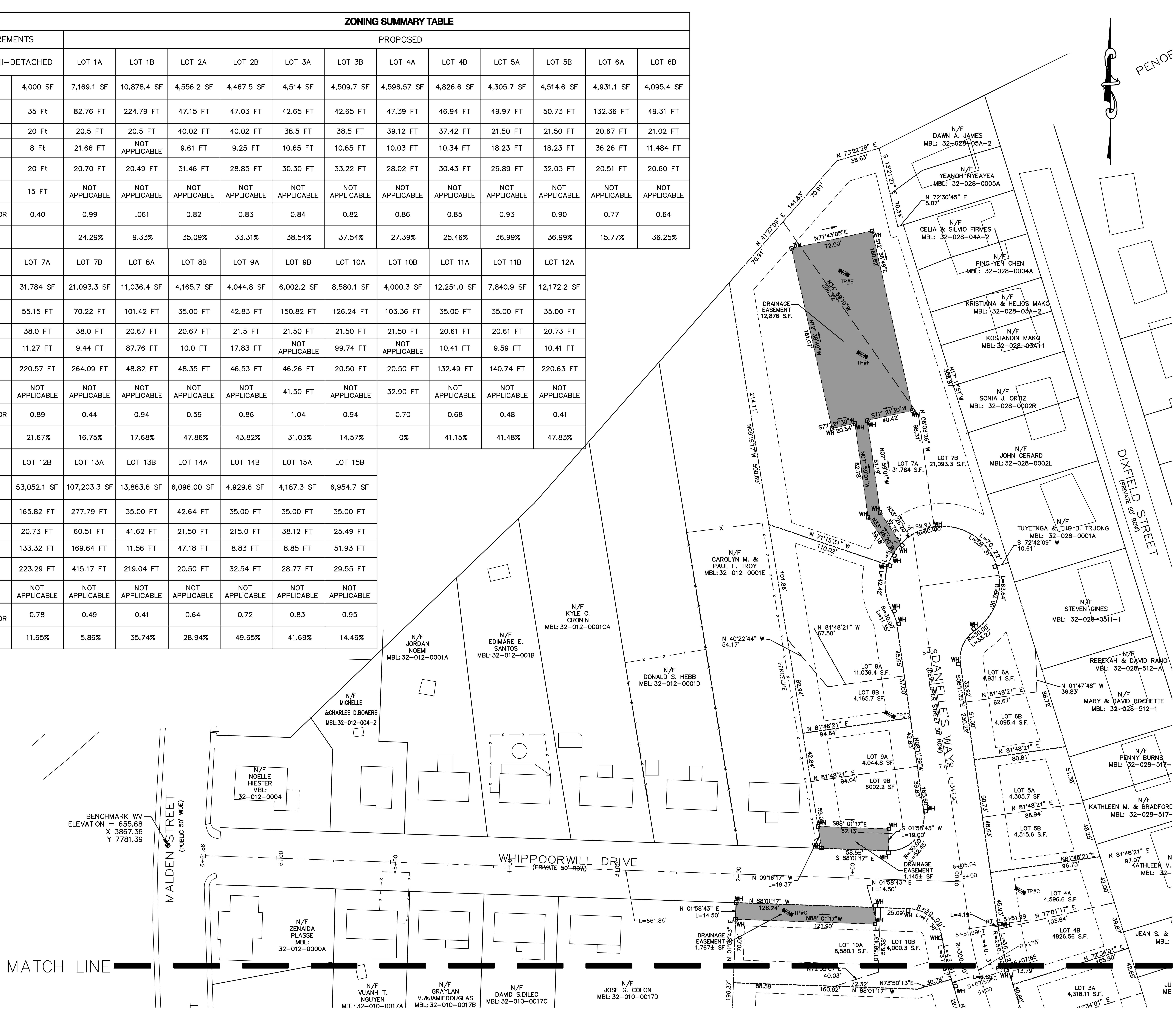
SHEET NUMBER 7 OF 35

ZONING SUMMARY TABLE

ZONING REQUIREMENTS		PROPOSED											
SINGLE FAMILY SEMI-DETACHED		LOT 1A	LOT 1B	LOT 2A	LOT 2B	LOT 3A	LOT 3B	LOT 4A	LOT 4B	LOT 5A	LOT 5B	LOT 6A	LOT 6B
MINIMUM LOT AREA	4,000 SF	7,169.1 SF	10,878.4 SF	4,556.2 SF	4,467.5 SF	4,514 SF	4,509.7 SF	4,596.57 SF	4,826.6 SF	4,305.7 SF	4,514.6 SF	4,931.1 SF	4,095.4 SF
MIN. LOT FRONTAGE	35 Ft	82.76 FT	224.79 FT	47.15 FT	47.03 FT	42.65 FT	42.65 FT	47.39 FT	46.94 FT	49.97 FT	50.73 FT	132.36 FT	49.31 FT
FRONT YARD SETBACK	20 Ft	20.5 FT	20.5 FT	40.02 FT	40.02 FT	38.5 FT	38.5 FT	39.12 FT	37.42 FT	21.50 FT	21.50 FT	20.67 FT	21.02 FT
SIDE YARD SETBACK	8 Ft	21.66 FT	NOT APPLICABLE	9.61 FT	9.25 FT	10.65 FT	10.65 FT	10.03 FT	10.34 FT	18.23 FT	18.23 FT	36.26 FT	11.484 FT
REAR YARD SETBACK	20 Ft	20.70 FT	20.49 FT	31.46 FT	28.85 FT	30.30 FT	33.22 FT	28.02 FT	30.43 FT	26.89 FT	32.03 FT	20.51 FT	20.60 FT
EXTERIOR SIDE YARD SETBACK	15 FT	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
LOT IRREGULARITY FACTOR	0.40	0.99	.061	0.82	0.83	0.84	0.82	0.86	0.85	0.93	0.90	0.77	0.64
% OF FRONT YARD IMPERVIOUS		24.29%	9.33%	35.09%	33.31%	38.54%	37.54%	27.39%	25.46%	36.99%	36.99%	15.77%	36.25%

SINGLE FAMILY SEMI-DETACHED	LOT 7A	LOT 7B	LOT 8A	LOT 8B	LOT 9A	LOT 9B	LOT 10A	LOT 10B	LOT 11A	LOT 11B	LOT 12A
MINIMUM LOT AREA	31,784 SF	21,093.3 SF	11,036.4 SF	4,165.7 SF	4,044.8 SF	6,002.2 SF	8,580.1 SF	4,000.3 SF	12,251.0 SF	7,840.9 SF	12,172.2 SF
MIN. LOT FRONTAGE	55.15 FT	70.22 FT	101.42 FT	35.00 FT	42.83 FT	150.82 FT	126.24 FT	103.36 FT	35.00 FT	35.00 FT	35.00 FT
FRONT YARD SETBACK	38.0 FT	38.0 FT	20.67 FT	20.67 FT	21.5 FT	21.50 FT	21.50 FT	21.50 FT	20.61 FT	20.61 FT	20.73 FT
SIDE YARD SETBACK	11.27 FT	9.44 FT	87.76 FT	10.0 FT	17.83 FT	NOT APPLICABLE	99.74 FT	NOT APPLICABLE	10.41 FT	9.59 FT	10.41 FT
REAR YARD SETBACK	220.57 FT	264.09 FT	48.82 FT	48.35 FT	46.53 FT	46.26 FT	20.50 FT	20.50 FT	132.49 FT	140.74 FT	220.63 FT
EXTERIOR SIDE YARD SETBACK	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	41.50 FT	NOT APPLICABLE	32.90 FT	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
LOT IRREGULARITY FACTOR	0.89	0.44	0.94	0.59	0.86	1.04	0.94	0.70	0.68	0.48	0.41
% OF FRONT YARD IMPERVIOUS	21.67%	16.75%	17.68%	47.86%	43.82%	31.03%	14.57%	0%	41.15%	41.48%	47.83%

SINGLE FAMILY SEMI-DETACHED	LOT 12B	LOT 13A	LOT 13B	LOT 14A	LOT 14B	LOT 15A	LOT 15B
MINIMUM LOT AREA	53,052.1 SF	107,203.3 SF	13,863.6 SF	6,096.00 SF	4,929.6 SF	4,187.3 SF	6,954.7 SF
MIN. LOT FRONTAGE	165.82 FT	277.79 FT	35.00 FT	42.64 FT	35.00 FT	35.00 FT	35.00 FT
FRONT YARD SETBACK	20.73 FT	60.51 FT	41.62 FT	21.50 FT	215.0 FT	38.12 FT	25.49 FT
SIDE YARD SETBACK	133.32 FT	169.64 FT	11.56 FT	47.18 FT	8.83 FT	8.85 FT	51.93 FT
REAR YARD SETBACK	223.29 FT	415.17 FT	219.04 FT	20.50 FT	32.54 FT	28.77 FT	29.55 FT
EXTERIOR SIDE YARD SETBACK	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
LOT IRREGULARITY FACTOR	0.78	0.49	0.41	0.64	0.72	0.83	0.95
% OF FRONT YARD IMPERVIOUS	11.65%	5.86%	35.74%	28.94%	49.65%	41.69%	14.46%



40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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NOTE:
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7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
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4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS HOSSEIN HAGHANIZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

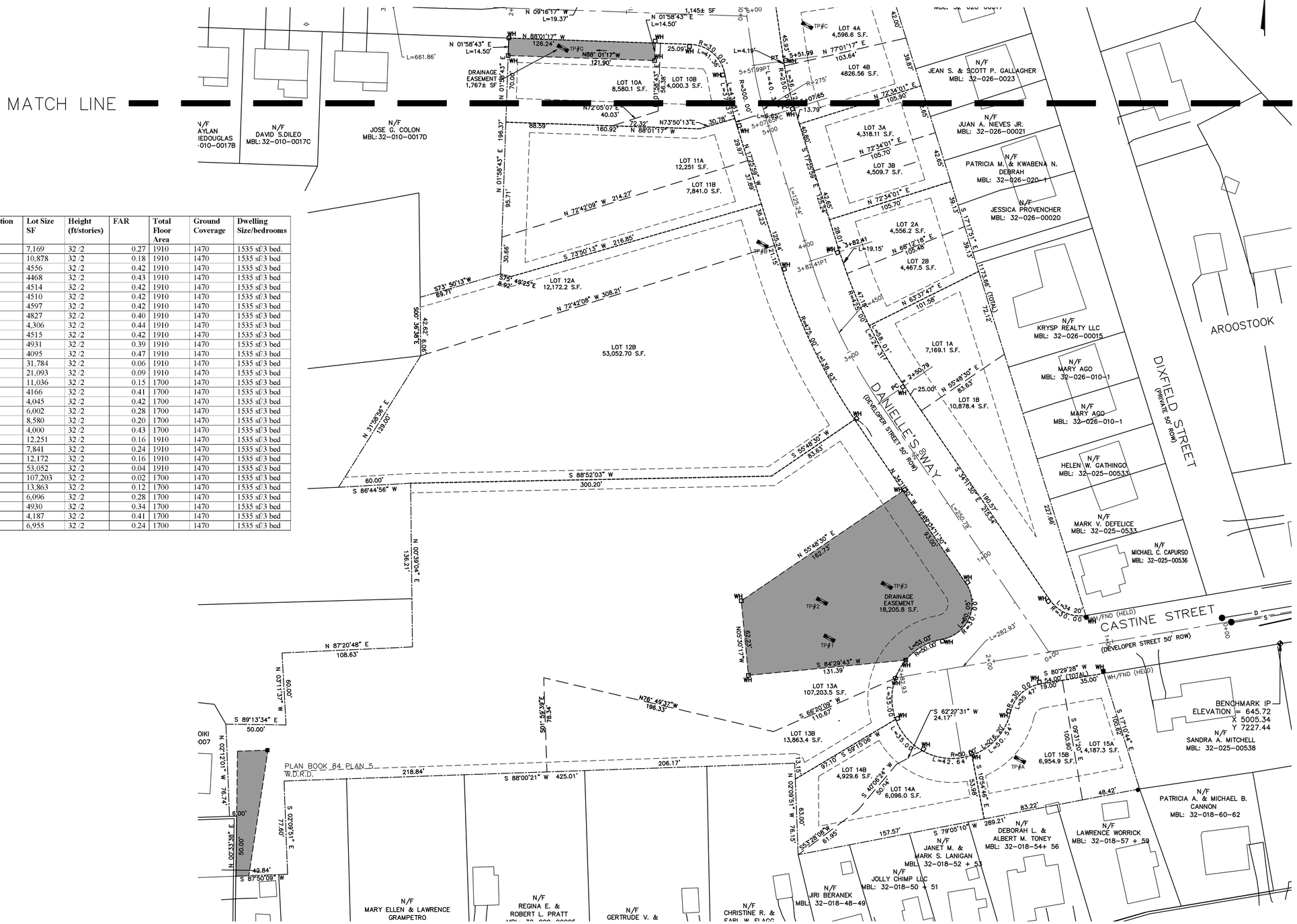
MALDEN WOODS SUBDIVISION AMENDMENT
LOT BEARING AND DISTANCE SHEET 1

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD: PS
SCALE: 1"=40'	CAD: STF	FLD. BK: 639-124
ZONE: RL-7	REV'D: HH	DWG: MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004



Location	Lot Size SF	Height (ft/stories)	FAR	Total Floor Area	Ground Coverage	Dwelling Size/bedrooms
1A	7,169	32 /2	0.27	1910	1470	1535 sf/3 bed.
1B	10,878	32 /2	0.18	1910	1470	1535 sf/3 bed
2A	4556	32 /2	0.42	1910	1470	1535 sf/3 bed
2B	4468	32 /2	0.43	1910	1470	1535 sf/3 bed
3A	4514	32 /2	0.42	1910	1470	1535 sf/3 bed
3B	4510	32 /2	0.42	1910	1470	1535 sf/3 bed
4A	4597	32 /2	0.42	1910	1470	1535 sf/3 bed
4B	4827	32 /2	0.40	1910	1470	1535 sf/3 bed
5A	4,306	32 /2	0.44	1910	1470	1535 sf/3 bed
5B	4515	32 /2	0.42	1910	1470	1535 sf/3 bed
6A	4931	32 /2	0.39	1910	1470	1535 sf/3 bed
6B	4095	32 /2	0.47	1910	1470	1535 sf/3 bed
7A	31,784	32 /2	0.06	1910	1470	1535 sf/3 bed
7B	21,093	32 /2	0.09	1910	1470	1535 sf/3 bed
8A	11,036	32 /2	0.15	1700	1470	1535 sf/3 bed
8B	4166	32 /2	0.41	1700	1470	1535 sf/3 bed
9A	4,045	32 /2	0.42	1700	1470	1535 sf/3 bed
9B	6,002	32 /2	0.28	1700	1470	1535 sf/3 bed
10A	8,580	32 /2	0.20	1700	1470	1535 sf/3 bed
10B	4,000	32 /2	0.43	1700	1470	1535 sf/3 bed
11A	12,251	32 /2	0.16	1910	1470	1535 sf/3 bed
11B	7,841	32 /2	0.24	1910	1470	1535 sf/3 bed
12A	12,172	32 /2	0.16	1910	1470	1535 sf/3 bed
12B	53,052	32 /2	0.04	1910	1470	1535 sf/3 bed
13A	107,203	32 /2	0.02	1700	1470	1535 sf/3 bed
13B	13,863	32 /2	0.12	1700	1470	1535 sf/3 bed
14A	6,096	32 /2	0.28	1700	1470	1535 sf/3 bed
14B	4930	32 /2	0.34	1700	1470	1535 sf/3 bed
15A	4,187	32 /2	0.41	1700	1470	1535 sf/3 bed
15B	6,955	32 /2	0.24	1700	1470	1535 sf/3 bed

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

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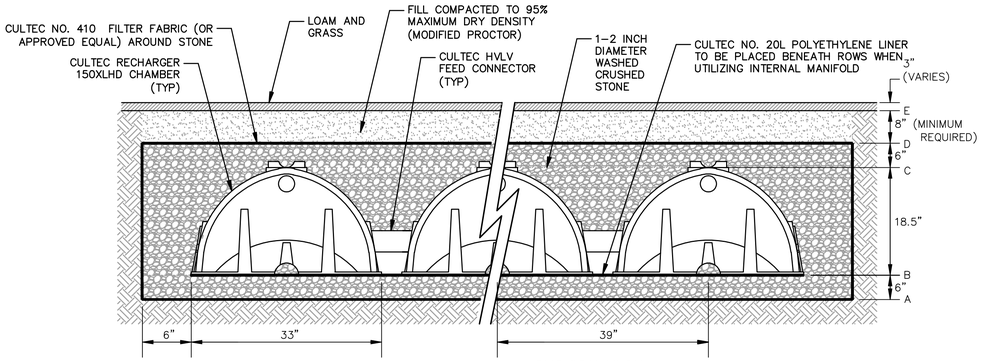
MALDEN WOODS SUBDIVISION AMENDMENT
LOT BEARING AND DISTANCE SHEET 2

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	9 OF 35
DWG NUMBER: 5004			



SECTION VIEW

NOTES:
1. RECHARGER 150XLHD UNIT IS MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT.
2. REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
3. THE CHAMBER HAS BEEN DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
4. ELEVATIONS WILL VARY PER LOCATION.

CULTEC UNIT ELEVATIONS

Unit	6A	6B	5A	5B	4A	4B	3A	3B	2A	2B
A	643.78	643.78	641.78	639.78	639.78	639.78	637.78	636.78	635.78	635.78
B	643.28	643.28	641.28	639.28	639.28	639.28	637.28	636.28	635.28	635.28
C	641.74	641.74	639.74	637.74	637.74	637.74	635.74	634.74	633.74	633.74
D	641.24	641.24	639.24	637.24	637.24	637.24	635.24	634.24	633.24	633.24
E	640.57	640.57	638.57	636.57	636.57	636.57	634.57	633.57	632.57	632.57
PROPOSED GRADE (A)	644.00	644.00	642.00	640.00	642.00	642.00	642.00	642.00	636.00	636.00
EXISTING GRADE	642.00	642.00	640.00	638.00	638.00	638.00	636.00	635.00	634.00	634.00
GROUNDWATER	638.58	638.58	636.58	634.58	634.58	634.58	632.58	631.58	630.58	630.58

Unit	1A	1B	15A	15B	14A	14B	13A	13B	7A	7B
A	635.78	637.78	643.03	639.03	639.03	643.03	637.53	637.53	648.20	652.20
B	635.28	637.28	642.53	638.53	638.53	642.53	637.03	637.03	647.70	651.70
C	633.74	635.74	640.99	636.99	636.99	640.99	635.49	635.49	646.16	650.16
D	633.24	635.24	640.49	636.49	636.49	640.49	634.99	634.99	645.66	649.66
E	632.57	634.57	639.82	635.82	635.82	639.82	634.32	634.32	644.99	648.99
PROPOSED GRADE (A)	636.00	638.00	644.00	642.00	640.00	644.00	641.00	641.00	648.20	652.20
EXISTING GRADE	634.00	636.00	644.00	640.00	640.00	644.00	640.00	640.00	646.00	650.00
GROUNDWATER	630.58	632.58	637.83	633.83	633.83	637.83	632.33	632.33	643.00	647.00

CULTEC RECHARGER 150XLHD CHAMBER SYSTEM

NTS

PERFORMED BY ART ALLEN, ECOTEC.
ON MARCH 21, 2019

TP#C
0 – 4" A STONY FINE SANDY LOAM, 10YR 2/1, VERY FRIABLE
4" – 25" Bw1 STONY FINE SANDY LOAM, 10YR 5/4, LOOSE
25" – 41" Bw2 STONY FINE SANDY LOAM, 7.5YR 4/4, FRIABLE
41" – 60" Cd STONY FINE SANDY LOAM, 2.5Y 5/2, FIRM 10% GRAVEL
GROUNDWATER WEEPING AT 60"
REDOX OBSERVED AT 41"

TP#D
0 – 7" A FINE SANDY LOAM, 10YR 2/1, VERY FRIABLE
7" – 16" Bw STONY FINE SANDY LOAM, 10YR 5/4, VERY FRIABLE
16" – 23" Cg STONY FINE SANDY LOAM, 10YR 5/2, FRIABLE
23" – 44" Cgd STONY FINE SANDY LOAM, 2.5Y 5/1, FIRM 15% GRAVEL
GROUNDWATER WEEPING AT 23"
REDOX OBSERVED AT 16"

TP#E
0 – 5" A FINE SANDY LOAM, 10YR 2/2, VERY FRIABLE
5" – 11" Bw1 STONY FINE SANDY LOAM, 10YR 5/6, VERY FRIABLE
11" – 19" Bw2 STONY FINE SANDY LOAM, 2.5Y 5/4, VERY FRIABLE
19" – 28" Bw3 STONY FINE SANDY LOAM, 7.5YR 5/6, FRIABLE
28" – 41" C STONY FINE SANDY LOAM, 2.5Y 5/3, FRIABLE
41" – 58" Cd STONY FINE SANDY LOAM, 2.5Y 5/2, FIRM 20% GRAVEL
GROUNDWATER WEEPING AT 48"
REDOX OBSERVED AT 41"

TP#F
0 – 6" A FINE SANDY LOAM, 10YR 2/2, VERY FRIABLE
6" – 28" Bw1 FINE SANDY LOAM, 10YR 5/4, VERY FRIABLE
28" – 36" Bw2 STONY FINE SANDY LOAM, 7.5YR 5/6, FRIABLE
36" – 49" C STONY FINE SANDY LOAM, 2.5Y 5/3, FRIABLE 15% GRAVEL
49" – 64" Cd STONY FINE SANDY LOAM, 2.5Y 5/2, FIRM 20% GRAVEL

GROUNDWATER WEEPING AT 55"
REDOX OBSERVED AT 36"

TP#G
0 – 5" A FINE SANDY LOAM, 10YR 2/2, VERY FRIABLE
5" – 16" C1 SANDY LOAM, 10YR 5/4, LOOSE
16" – 18" C2 FINE SANDY LOAM, 7.5YR 5/6, LOOSE, 10% GRAVEL
18" – 26" Ab MUCKY FINE SANDY LOAM, 2.5Y 5/3, VERY FRIABLE
26" – 30" Bgb SILT LOAM, 2.5Y 5/2, FRIABLE 20% GRAVEL

FREE GROUNDWATER AT 26"
REDOX OBSERVED AT 18"

PERFORMED BY PATRICK BURKE, H.S.&T GROUP, INC.
ON JUNE 12, 2017

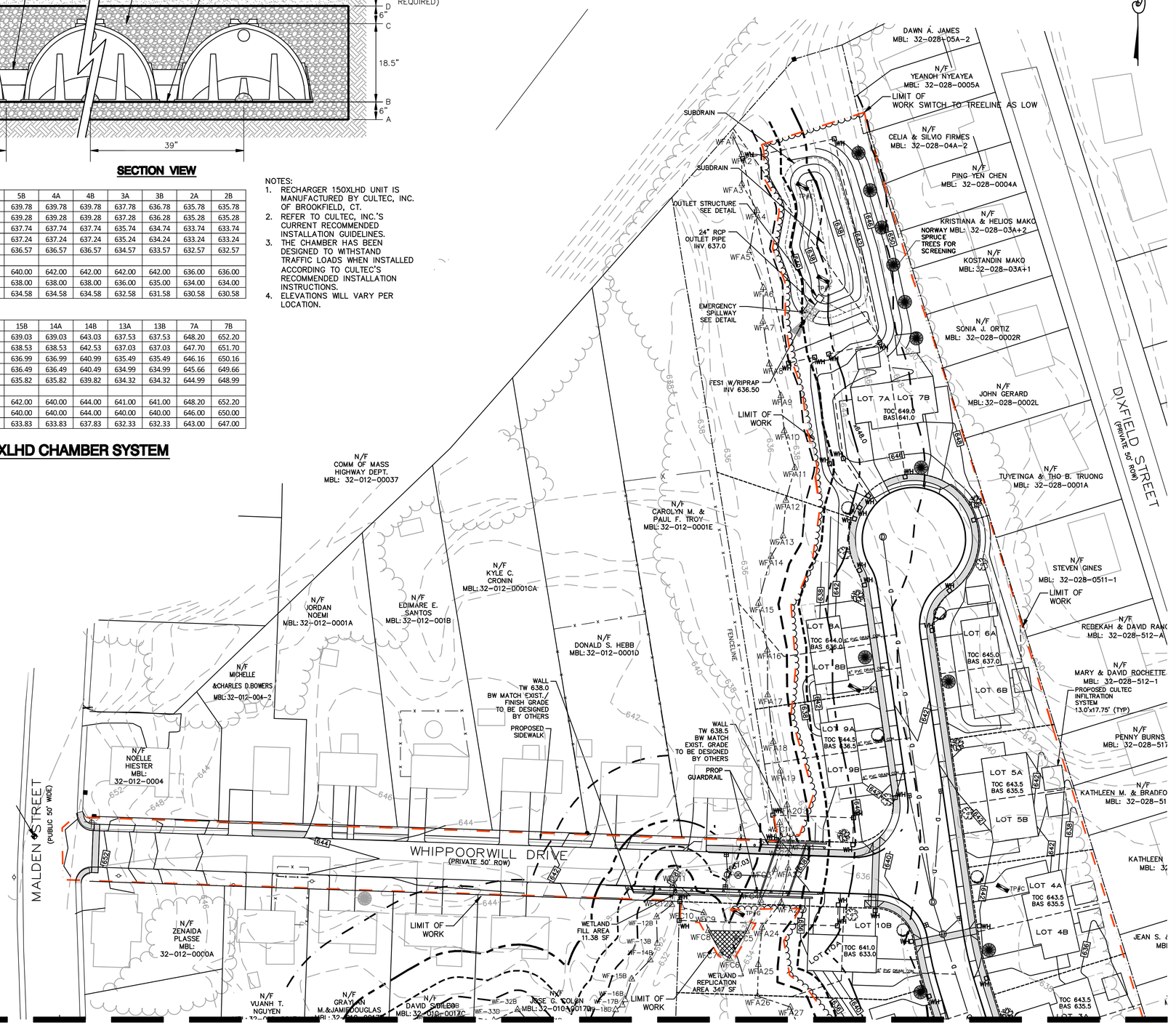
TP#1
0 – 4" Ap FINE SANDY LOAM, 10YR 3/2, FRIABLE
4" – 19" Bw FINE SANDY LOAM, 10YR 6/4, FRIABLE
19" – 100" C SAND, 2.5Y 3/4, COARSE, SINGLE GRAIN, 25% GRAVEL
GROUNDWATER WEEPING AT 92"
REDOX OBSERVED AT 88"

TP#2
0 – 5" Ap FINE SANDY LOAM, 10YR 3/2, FRIABLE
5" – 18" Bw FINE SANDY LOAM, 10YR 6/4, FRIABLE
18" – 52" C1 SAND, 2.5Y 3/4, COARSE, SINGLE GRAIN, 25% GRAVEL
52" – 90" C2 SAND, 2.5Y 8/1, COARSE, SINGLE GRAIN, 25% GRAVEL
GROUNDWATER WEEPING AT 52"
REDOX OBSERVED AT 42

TP#3
0 – 4" Ap FINE SANDY LOAM, 10YR 3/2, FRIABLE
4" – 19" Bw FINE SANDY LOAM, 10YR 6/4, FRIABLE
19" – 100" C SAND, 2.5Y 3/4, COARSE, SINGLE GRAIN, 25% GRAVEL
GROUNDWATER WEEPING AT 87"
REDOX OBSERVED AT 78"

GENERAL NOTES

1. REFER TO EROSION CONTROL SHEETS FOR PHASED SEDIMENT AND EROSION CONTROL PLAN.



40 0 40 80 120

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COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL SURVEYOR

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MALDEN WOODS SUBDIVISION AMENDMENT GRADING AND DRAINAGE PLAN 1

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	10 OF 35
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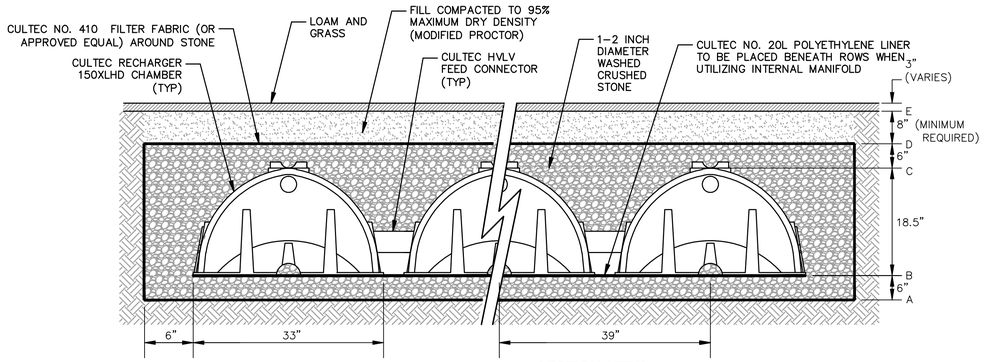

SECTION VIEW

CULTEC RECHARGER 150XLHD CHAMBER SYSTEM

NTS

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CULTEC UNIT ELEVATIONS

Unit	6A	6B	5A	5B	4A	4B	3A	3B	2A	2B
A	643.78	643.78	641.78	639.78	639.78	639.78	637.78	636.78	635.78	635.78
B	643.28	643.28	641.28	639.28	639.28	639.28	637.28	636.28	635.28	635.28
C	641.74	641.74	639.74	637.74	637.74	637.74	635.74	634.74	633.74	633.74
D	641.24	641.24	639.24	637.24	637.24	637.24	635.24	634.24	633.24	633.24
E	640.57	640.57	638.57	636.57	636.57	636.57	634.57	633.57	632.57	632.57
PROPOSED GRADE (A)	644.00	644.00	642.00	640.00	642.00	642.00	642.00	642.00	636.00	636.00
EXISTING GRADE	642.00	642.00	640.00	638.00	638.00	638.00	636.00	635.00	634.00	634.00
GROUNDWATER	638.58	638.58	636.58	634.58	634.58	634.58	632.58	631.58	630.58	630.58

Unit	1A	1B	15A	15B	14A	14B	13A	13B	7A	7B
A	635.78	637.78	643.03	639.03	639.03	643.03	637.53	637.53	648.20	652.20
B	635.28	637.28	642.53	638.53	638.53	642.53	637.03	637.03	647.70	651.70
C	633.74	635.74	640.99	636.99	636.99	640.99	635.49	635.49	646.16	650.16
D	633.24	635.24	640.49	636.49	636.49	640.49	634.99	634.99	645.66	649.66
E	632.57	634.57	639.82	635.82	635.82	639.82	634.32	634.32	644.99	648.99
PROPOSED GRADE (A)	636.00	638.00	644.00	642.00	640.00	644.00	641.00	641.00	648.20	652.20
EXISTING GRADE	634.00	636.00	644.00	640.00	640.00	644.00	640.00	640.00	646.00	650.00
GROUNDWATER	630.58	632.58	637.83	633.83	633.83	637.83	632.33	632.33	643.00	647.00

SOIL LOGS

PERFORMED BY PATRICK BURKE, H.S.&T GROUP, INC.
ON JUNE 12, 2017

TP#1
- 0 – 4" Ap FINE SANDY LOAM, 10YR 3/2, FRIABLE
- 4" – 19" Bw FINE SANDY LOAM, 10YR 6/4, FRIABLE
- 19" – 100" C SAND, 2.5Y 3/4, COARSE, SINGLE GRAIN, 25% GRAVEL
- GROUNDWATER WEEPING AT 92"
- REDOX OBSERVED AT 88"

TP#2
- 0 – 5" Ap FINE SANDY LOAM, 10YR 3/2, FRIABLE
- 5" – 18" Bw FINE SANDY LOAM, 10YR 6/4, FRIABLE
- 18" – 52" C1 SAND, 2.5Y 3/4, COARSE, SINGLE GRAIN, 25% GRAVEL
- 52" – 90" C2 SAND, 2.5Y 8/1, COARSE, SINGLE GRAIN, 25% GRAVEL
- GROUNDWATER WEEPING AT 52"
- REDOX OBSERVED AT 42

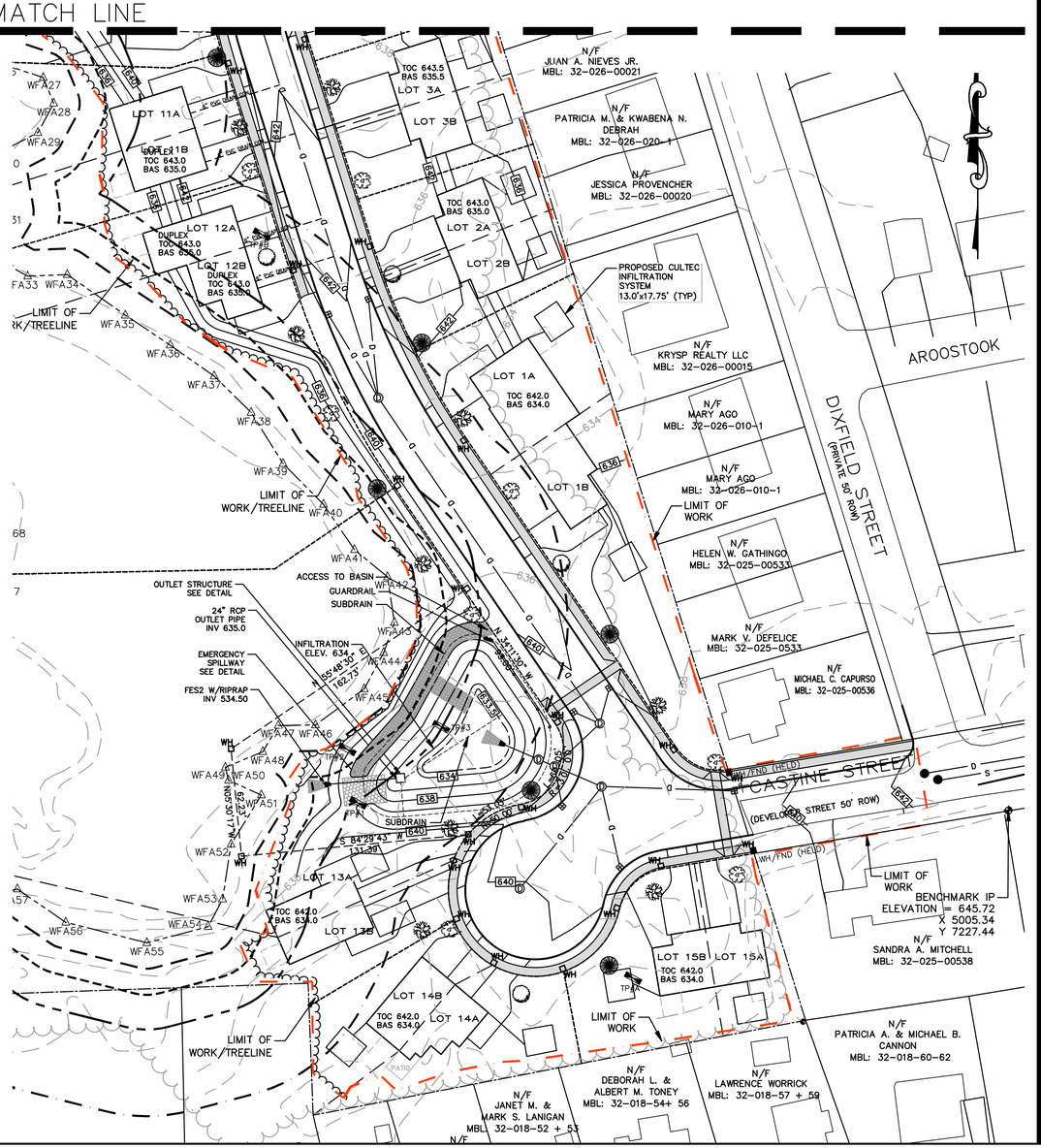
TP#3
- 0 – 4" Ap FINE SANDY LOAM, 10YR 3/2, FRIABLE
- 4" – 19" Bw FINE SANDY LOAM, 10YR 6/4, FRIABLE
- 19" – 100" C SAND, 2.5Y 3/4, COARSE, SINGLE GRAIN, 25% GRAVEL
- GROUNDWATER WEEPING AT 87"
- REDOX OBSERVED AT 78"

PERFORMED BY ART ALLEN, ECOTEC.
ON MARCH 21, 2019

TP#A
- 0 – 6" A GRAVELY SANDY LOAM, 10YR 3/3, VERY FRIABLE
- 6" – 21" Bw1 GRAVELLY COBBLY FINE SANDY LOAM, 10YR 5/6, VERY FRIABLE
- 21" – 36" Bw2 GRAVELLY LOAMY SAND, 7.5YR 4/6, VERY LOOSE
- 36" – 74" 2C1 GRAVELLY COARSE SAND, 2.5Y 5/4, LOOSE
- 74" – 93" 2C2 COARSE SAND, 2.5Y 5/2, LOOSE 15% GRAVEL
- GROUNDWATER WEEPING AT 78"
- REDOX OBSERVED AT 74"

TP#B
- 0 – 10" A GRAVELY FINE SANDY LOAM, 10YR 2/2, VERY FRIABLE
- 10" – 28" Bw GRAVELY FINE SANDY LOAM, 10YR 5/6, FRIABLE
- 28" – 47" Bg STONY FINE SANDY LOAM, 10YR 5/1, LOOSE
- 47" – 60" Cgd STONY SILT LOAM, 2.5Y 5/2, FIRM 10% GRAVEL
- GROUNDWATER WEEPING AT 55"
- REDOX OBSERVED AT 28"

MATCH LINE



NOT FOR CONSTRUCTION

THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

GENERAL NOTES

1. REFER TO EROSION CONTROL SHEETS FOR PHASED SEDIMENT AND EROSION CONTROL PLAN.

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS HOSSEIN HAGHANIZADEH CIVIL NO. 45529 REGISTERED PROFESSIONAL ENGINEER

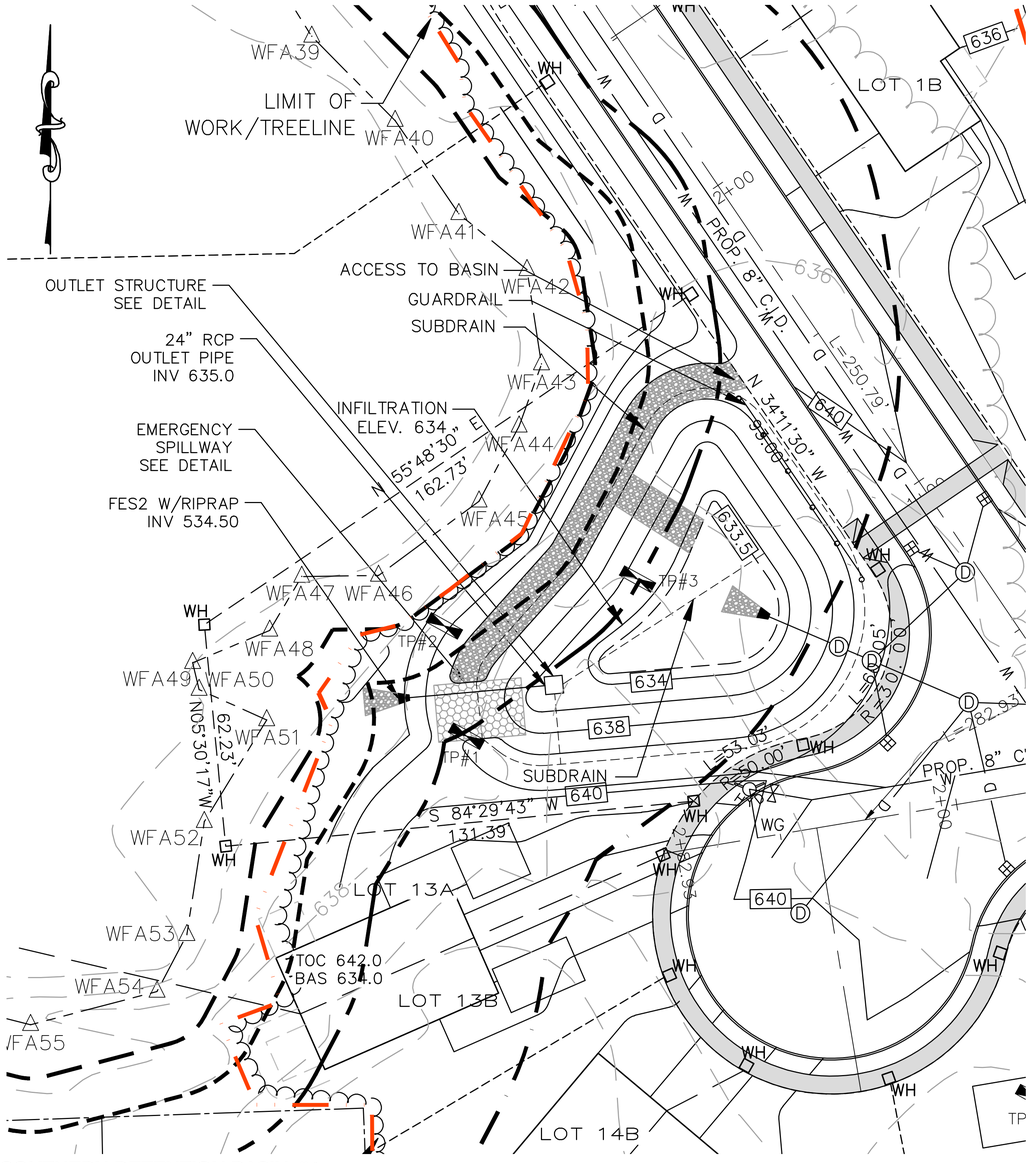
COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

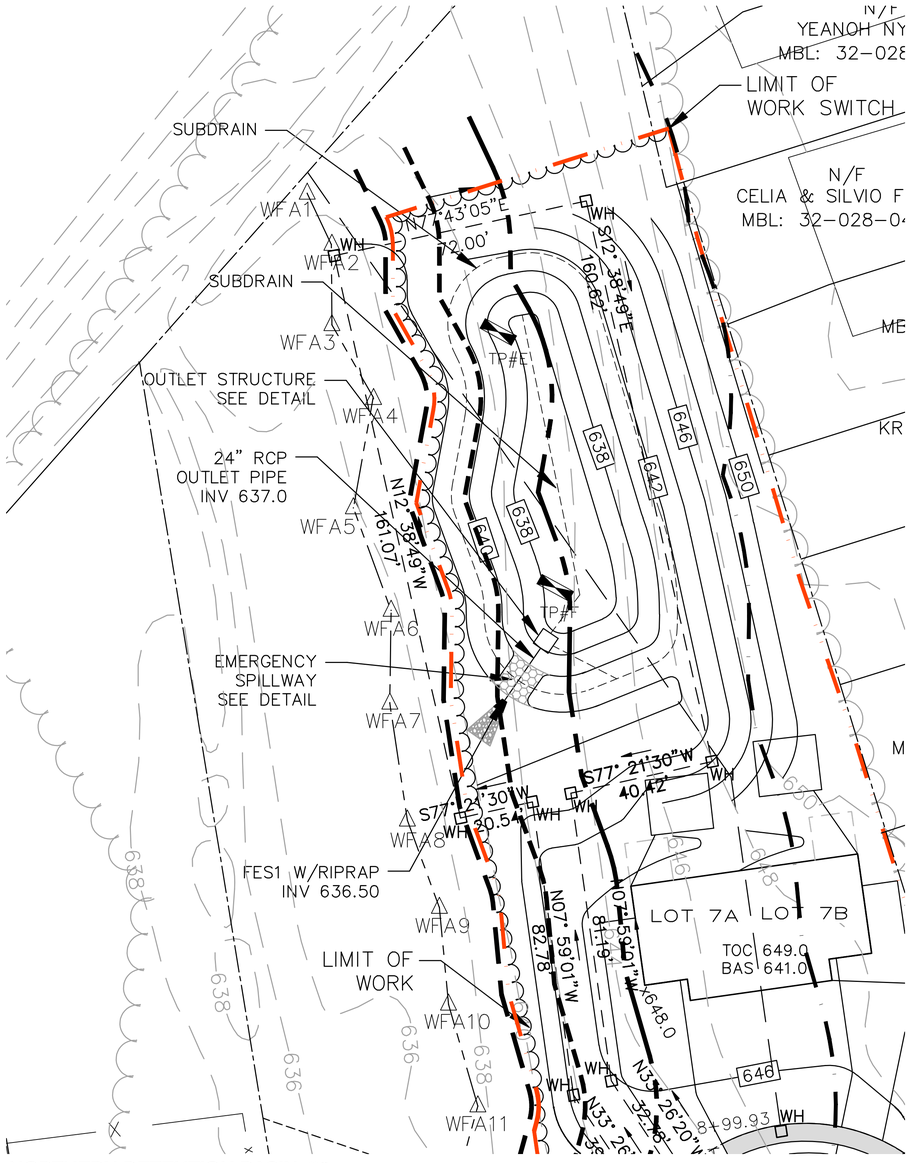
MALDEN WOODS SUBDIVISION AMENDMENT
GRADING AND DRAINAGE PLAN 2

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	11 OF 35
DWG NUMBER: 5004			



SOUTHERN DETENTION BASIN #1
NTS



NORTHERN DETENTION BASIN #2
NTS

20 0 20 40 60

HORIZONTAL SCALE 1"=20'

NOT FOR CONSTRUCTION

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GENERAL NOTES

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NOTE:
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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS HOSSEIN HAGHANIZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN JR. NO. 40047 REGISTERED PROFESSIONAL SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT DETENTION BASINS

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

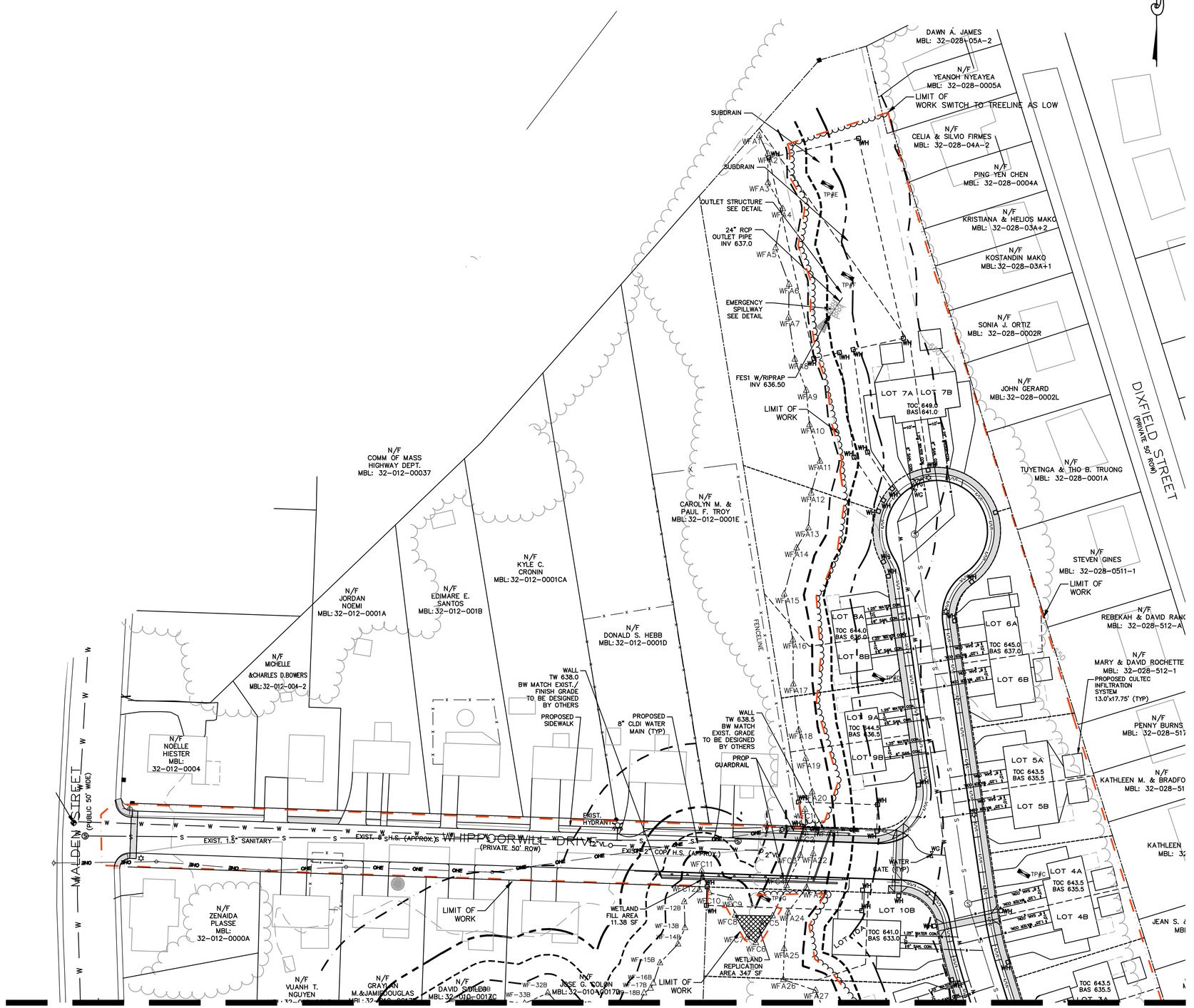
DATE: 04/19/2018	COMP'D: DJT	FIELD: PS
SCALE: 1"=20'	CAD: STF	FLD. BK: 639-124
ZONE: RL-7	REV'D: HH	DWG: MALDENWOODSSUBAMEND

JOB NUMBER: 5956
DWG NUMBER: 5004

SHEET NUMBER 12 OF 35

GENERAL NOTES

1. REFER TO EROSION CONTROL SHEETS FOR PHASED SEDIMENT AND EROSION CONTROL PLAN.



40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN
MAGHANIZADEH
CIVIL
NO. 42529
REGISTERED
PROFESSIONAL ENGINEER

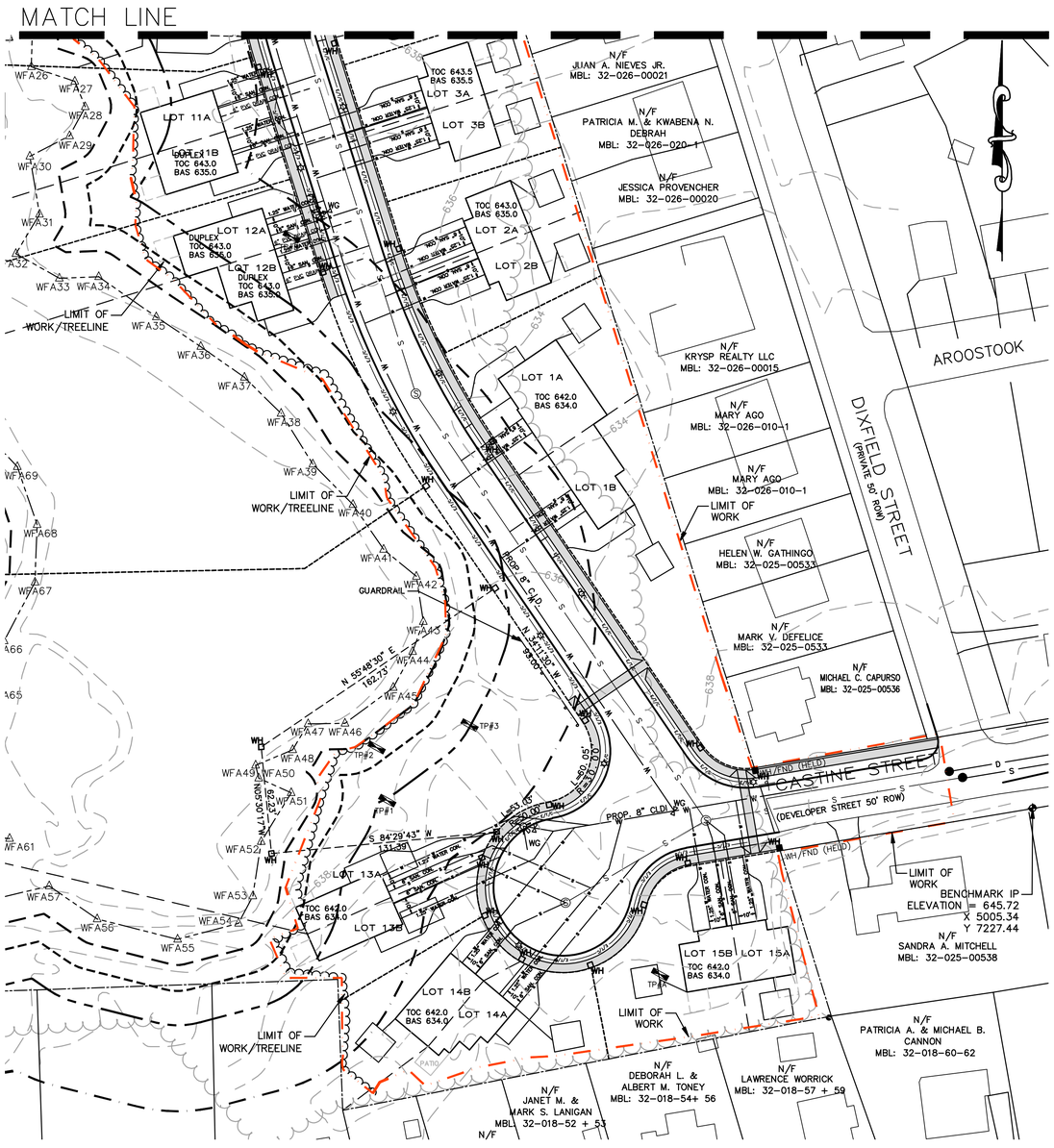
COMMONWEALTH OF MASSACHUSETTS
DANIEL
J.
TIVNAN
NO. 40047
REGISTERED
PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT UTILITY PLAN 1

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	13 OF 35
DWG NUMBER: 5004			



40	0	40	80	120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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GENERAL NOTES

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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN HAGHANIZADEH
CIVIL
NO. 42529
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. TIVNAN
NO. 40047
REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT
UTILITY PLAN 2

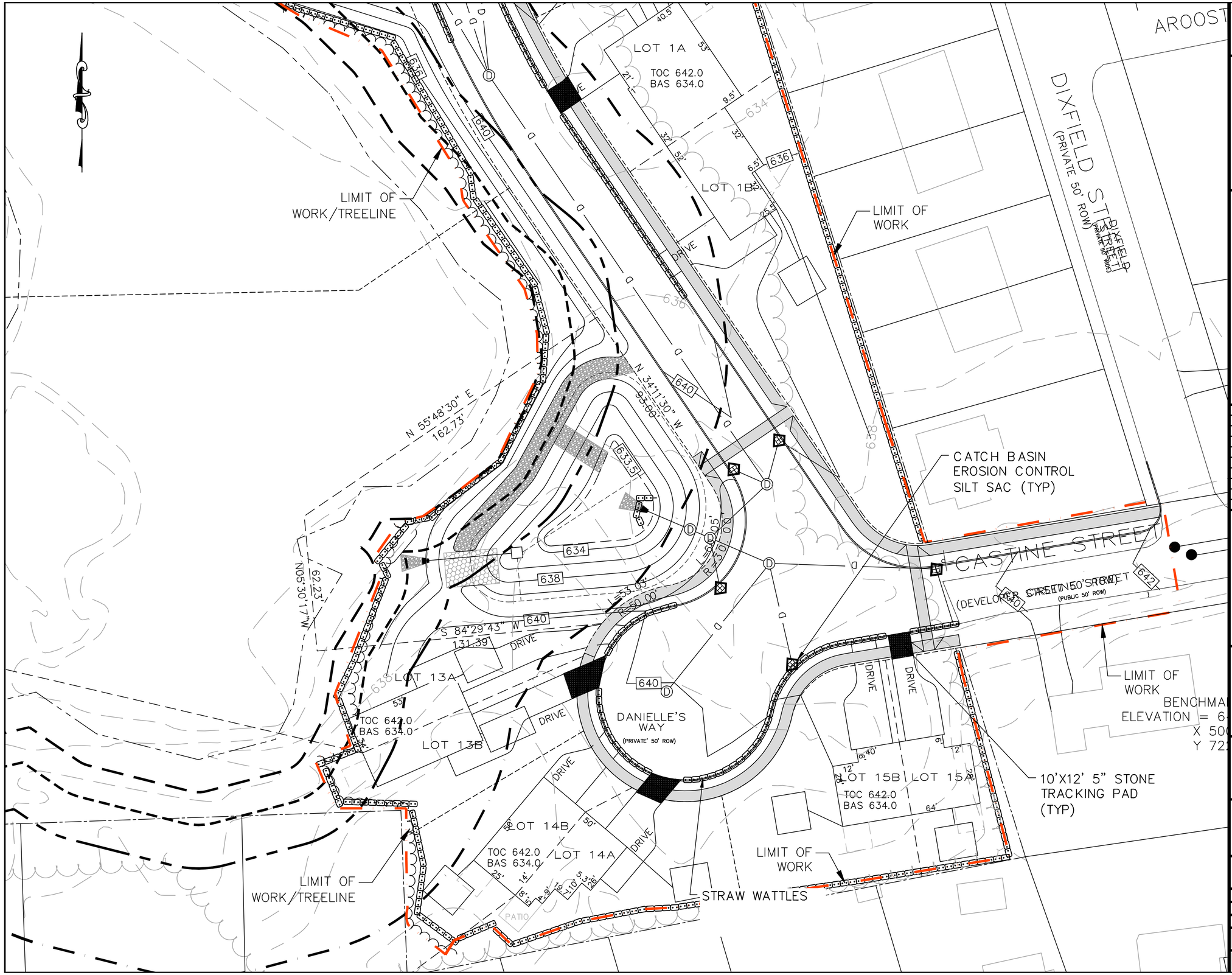
APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 14 OF 35



20 0 20 40 60

HORIZONTAL SCALE 1"=20'

NOT FOR CONSTRUCTION

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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN HAGHANIZADEH
CIVIL
NO. 42529
REGISTERED PROFESSIONAL ENGINEER

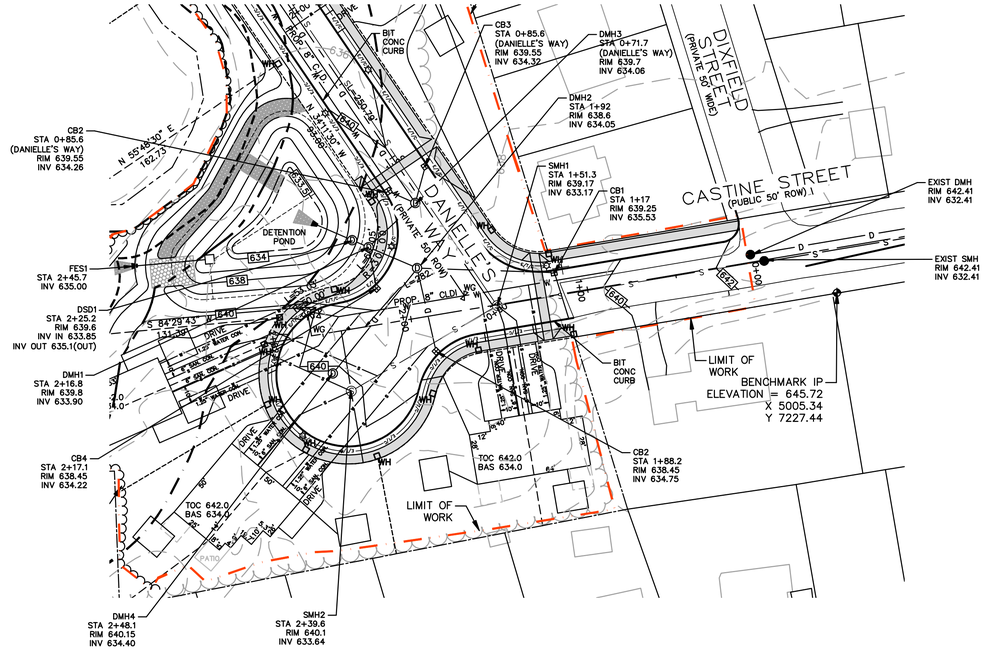
COMMONWEALTH OF MASSACHUSETTS
DANIEL J. TIVNAN
NO. 40047
REGISTERED PROFESSIONAL SURVEYOR

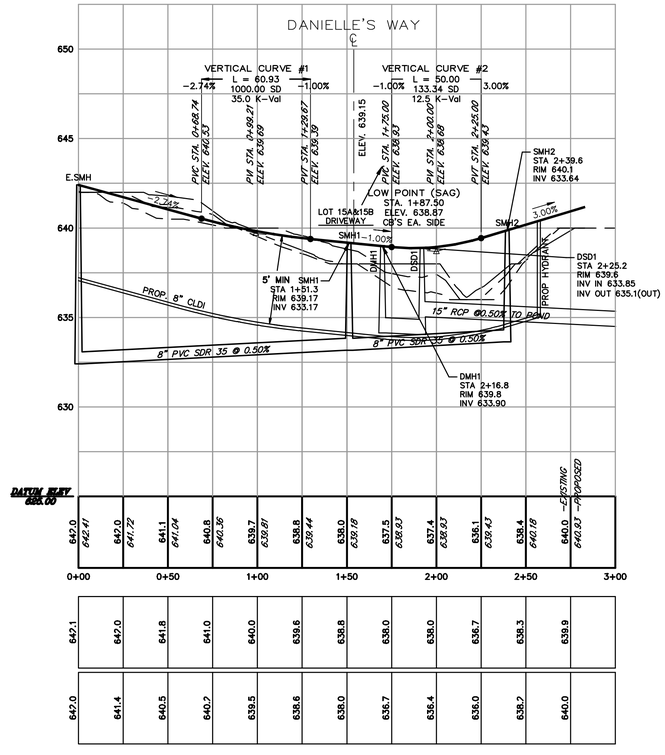
H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT
EROSION CASTINE STREET

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=20'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	15 OF 35
DWG NUMBER: 5004			





PROFILE ALONG CASTINE STREET

VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1" = 40'

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

4 0 4 8 12

VERTICAL SCALE 1"=4'

NOT FOR CONSTRUCTION

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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN HAGHANIZADEH
CIVIL
NO. 42529
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. TIVNAN
NO. 40047
SURVEYOR
REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610–1723
PHONE: (508) 757–4944 FAX: (508) 752–8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

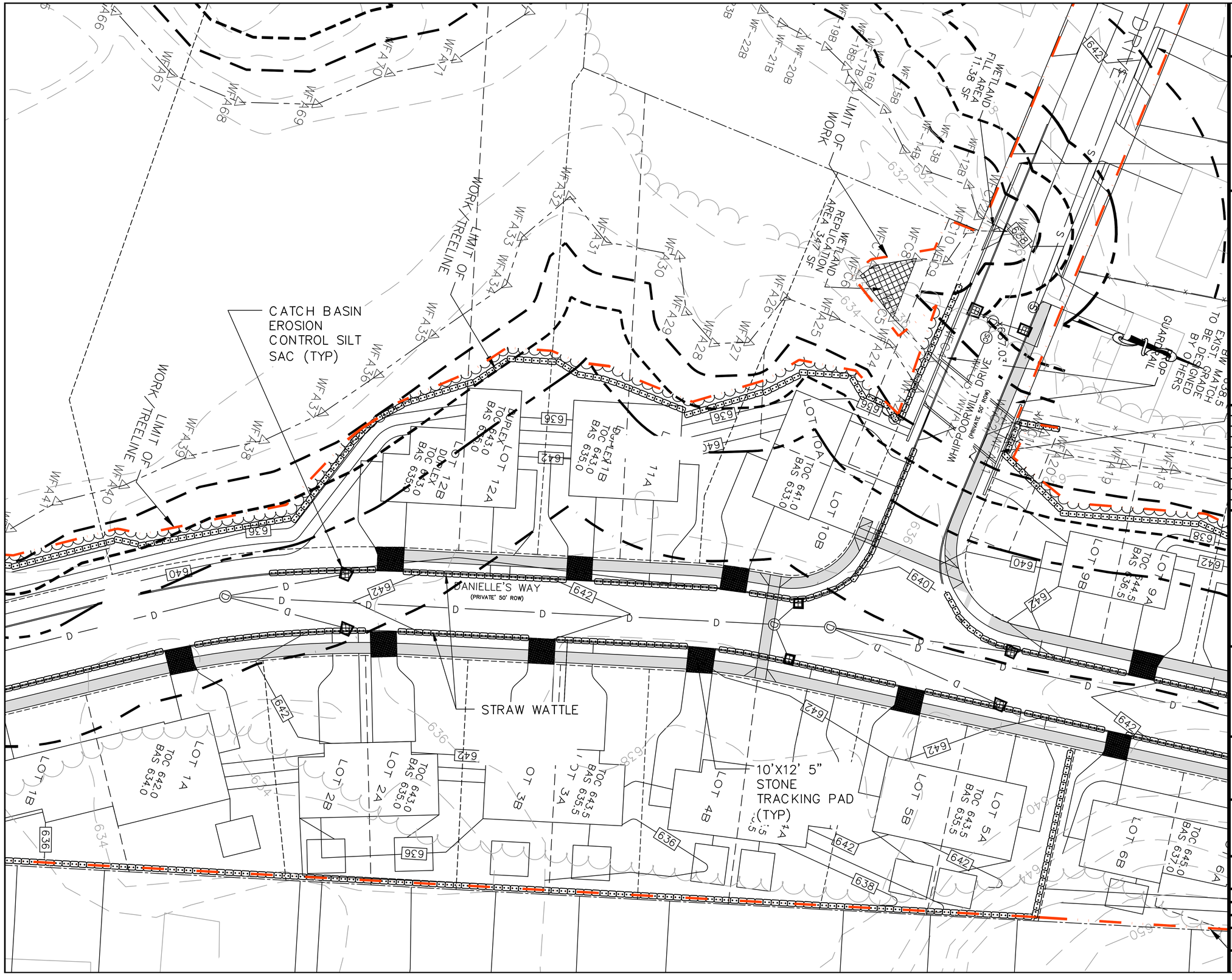
MALDEN WOODS SUBDIVISION AMENDMENT
PLAN & PROFILE CASTINE STREET

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639–124
ZONE: RL–7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956
DWG NUMBER: 5004

SHEET NUMBER
16 OF 35



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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT EROSION DANIELLE'S WAY

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=20'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	17 OF 35
DWG NUMBER: 5004			

HORIZONTAL SCALE 1"=20'

NOT FOR CONSTRUCTION

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PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

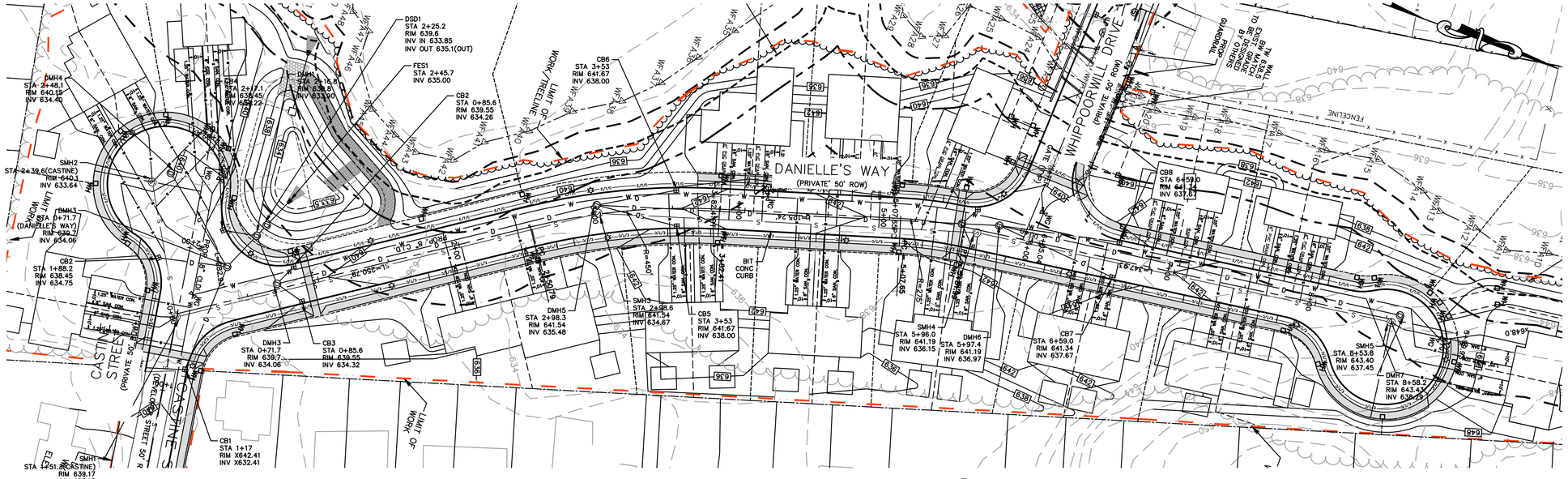
ENDORSED APPROVED DATE:

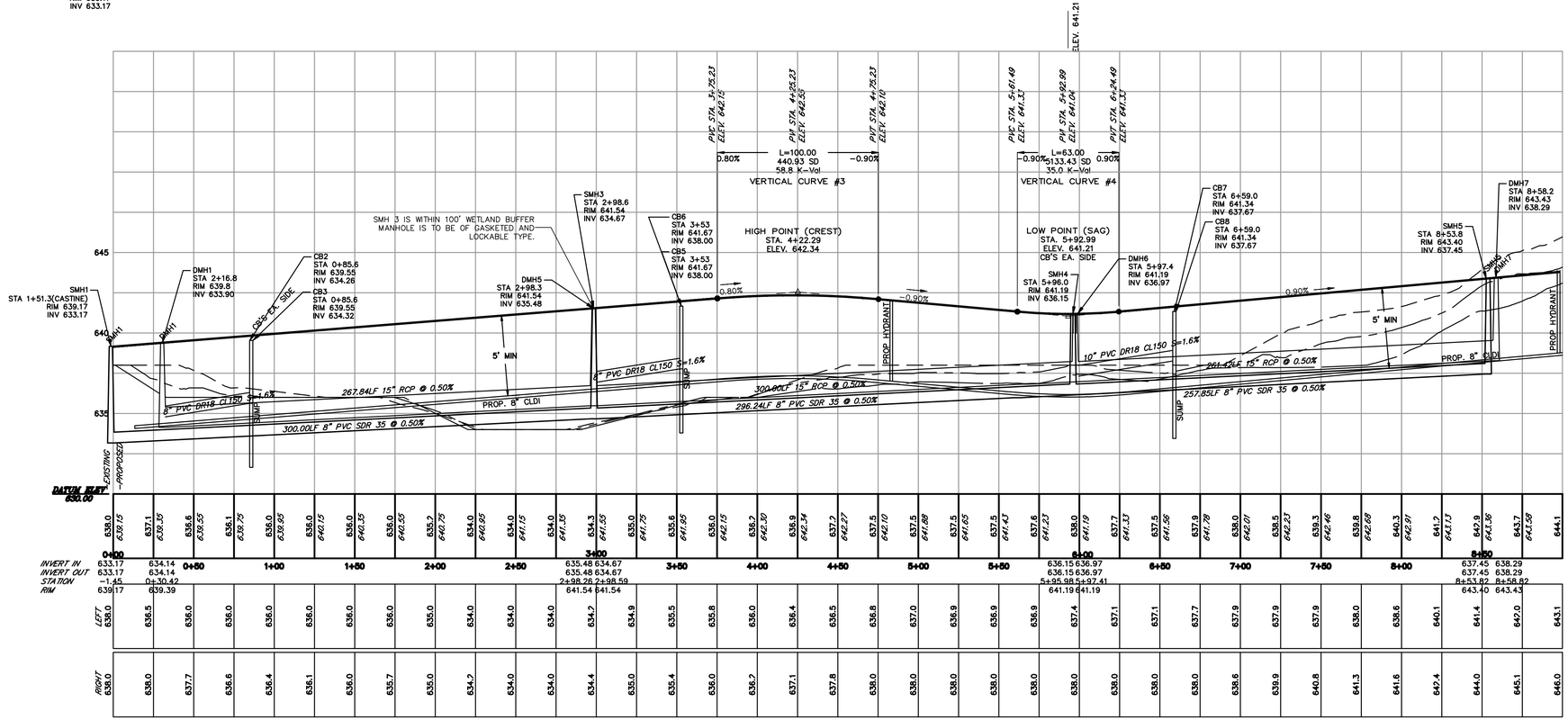
H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT EROSION DANIELLE'S WAY

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=20'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	18 OF 35
DWG NUMBER: 5004			





PROFILE ALONG DANIELLE'S WAY

VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1" = 40'

40 0 40 80 120
HORIZONTAL SCALE 1"=40'

4 0 4 8 12
VERTICAL SCALE 1"=4'

NOT FOR CONSTRUCTION

THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
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2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS — ROSSEN MAGHAKIAN — CIVIL — NO. 42529 — REGISTERED PROFESSIONAL ENGINEER

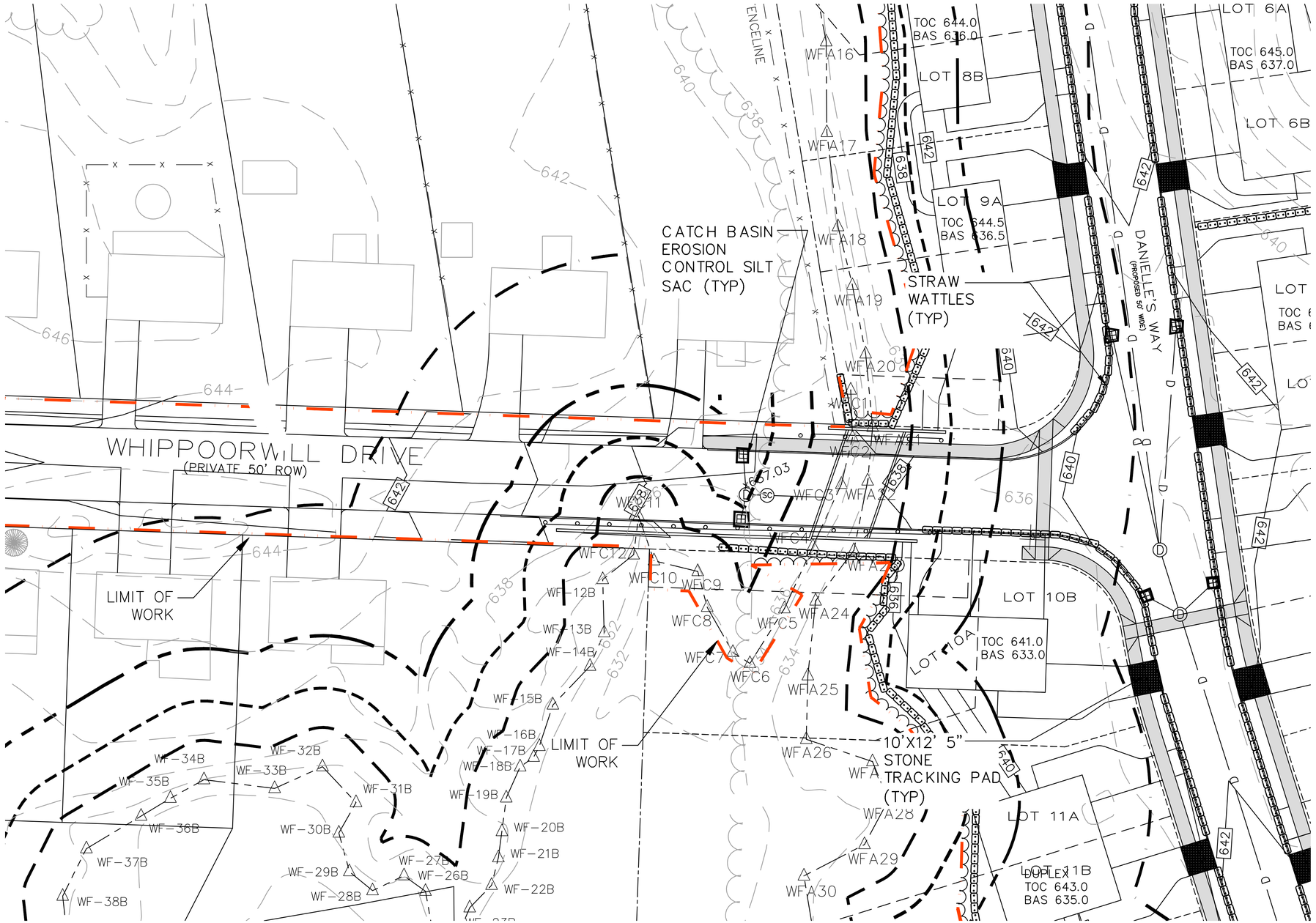
COMMONWEALTH OF MASSACHUSETTS — DANIEL J. TRIVERI — NO. 49047 — REGISTERED LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT
PLAN & PROFILE DANIELLE'S WAY

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	19 OF 35
DWG NUMBER: 5004			



20 0 20 40 60

HORIZONTAL SCALE 1"=20'

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2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

HOSSEIN HAGHANIZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR
COMMONWEALTH OF MASSACHUSETTS

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT EROSION WHIPPOORWILL DRIVE

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=20'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	20 OF 35
DWG NUMBER: 5004			

20 0 20 40 60

HORIZONTAL SCALE 1"=20'

NOT FOR CONSTRUCTION

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7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS HOSSEIN HAGHANZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
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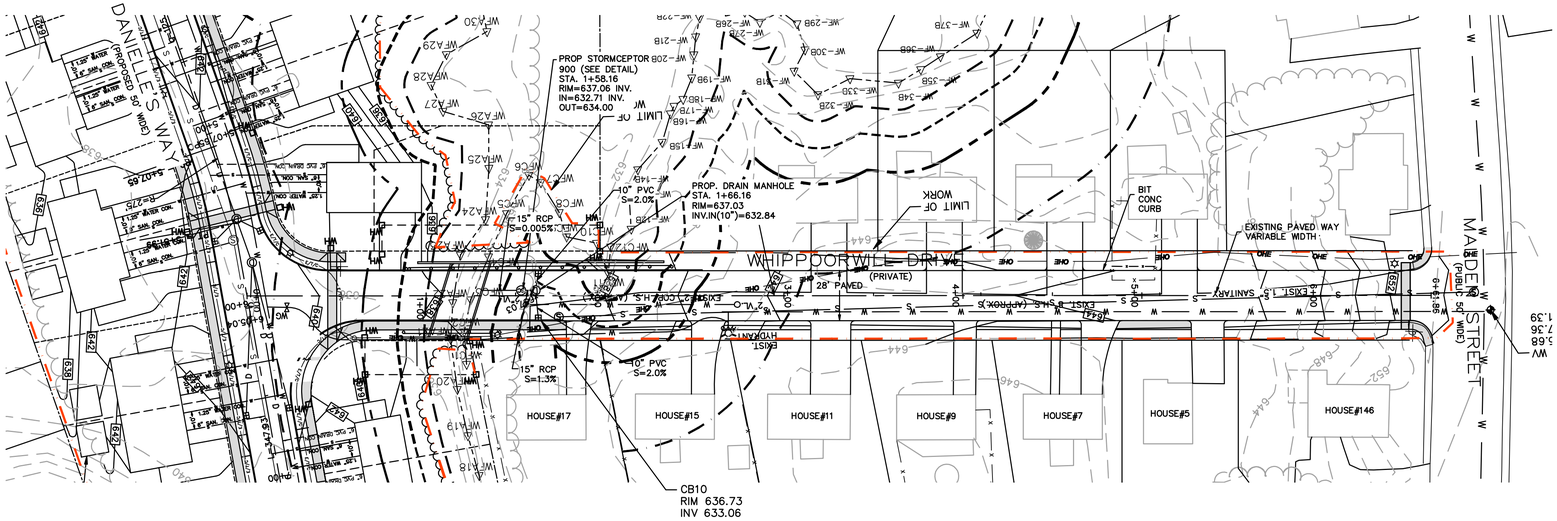
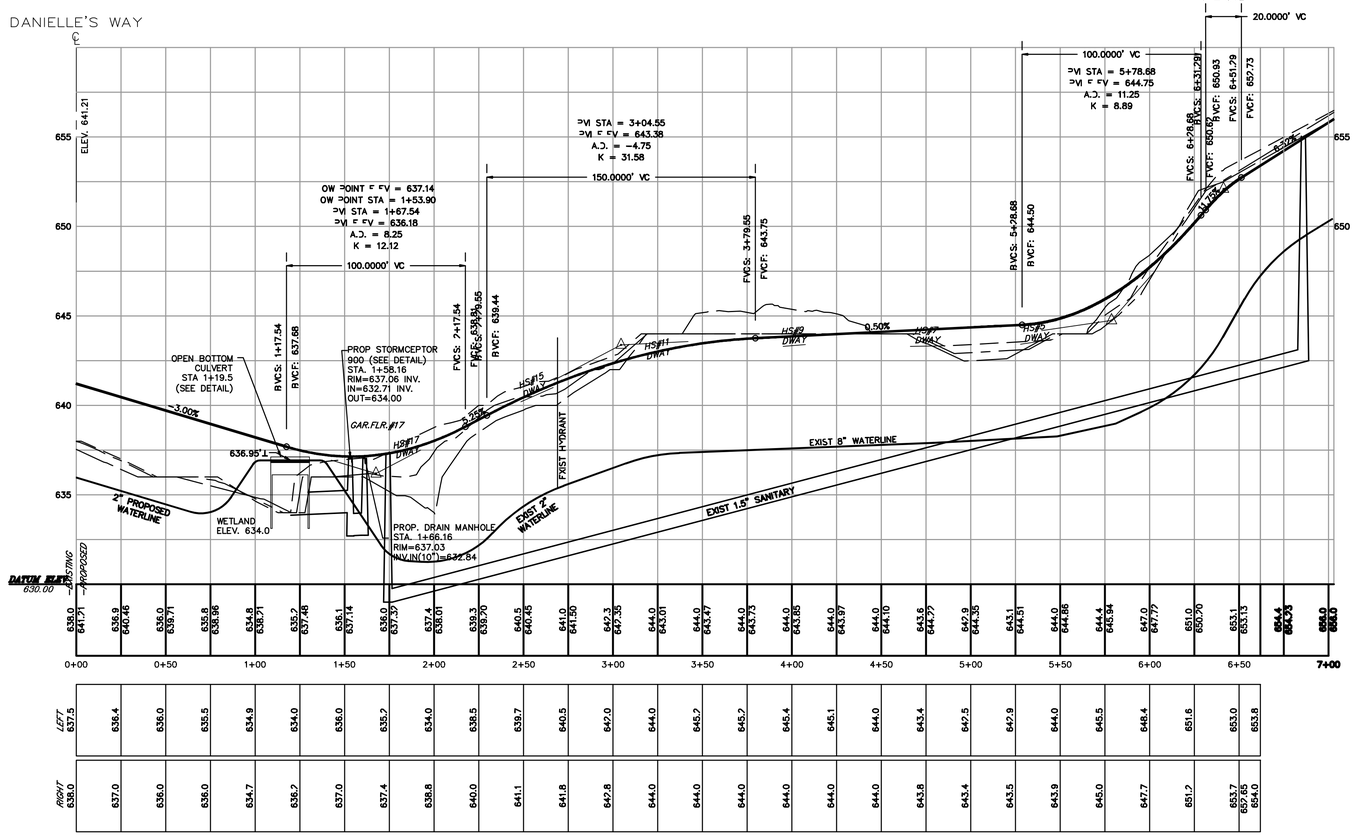
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT EROSION WHIPPOORWILL DRIVE

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=20'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	21 OF 35
DWG NUMBER: 5004			





PROFILE ALONG WHIPPOORWILL DRIVE

VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1" = 40'

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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6	3/27/2020	CITY COMMENTS	LLW
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2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN HAGHANIZADEH
CIVIL
NO. 42529
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. TIVNAN
NO. 40047
REGISTERED PROFESSIONAL SURVEYOR

H. S. & T. GROUP, INC.
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EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

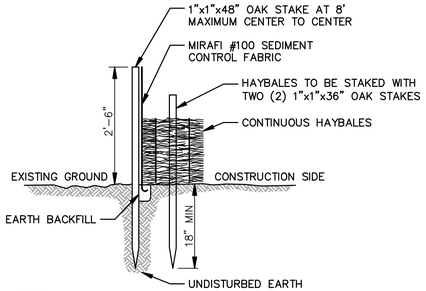
MALDEN WOODS SUBDIVISION AMENDMENT PLAN & PROFILE WHIPPOORWILL DRIVE

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956
DWG NUMBER: 5004

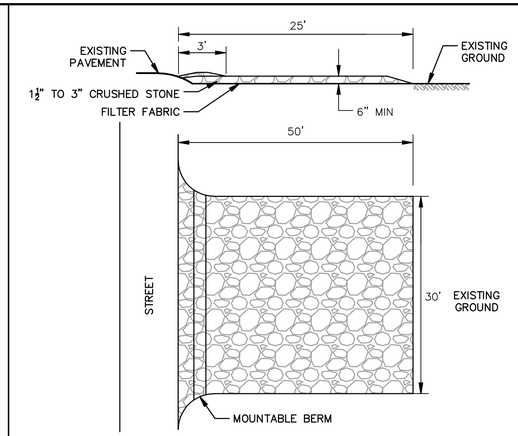
SHEET NUMBER 22 OF 35



NOTES:
1. HAYBALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. HAYBALES SHALL BE SECURELY ANCHORED IN PLACE BY TWO (2) 1"x1"x36" OAK STAKES DRIVEN THROUGH THE HAYBALES. THE FIRST STAKE IN EACH HAYBALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID HAYBALE TO FORCE HAYBALES TOGETHER.
3. HAYBALES SHALL BE TWINE BOUND.
4. INSPECTION OF THE HAYBALES SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. HAYBALES SHALL BE REMOVED AND REPLACED WHEN THEY BECOME FILLED WITH SEDIMENT AND BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. HAYBALES SHALL BE REMOVED WHEN THE PROJECT IS COMPLETED.

SILT FENCE WITH HAYBALES DETAIL

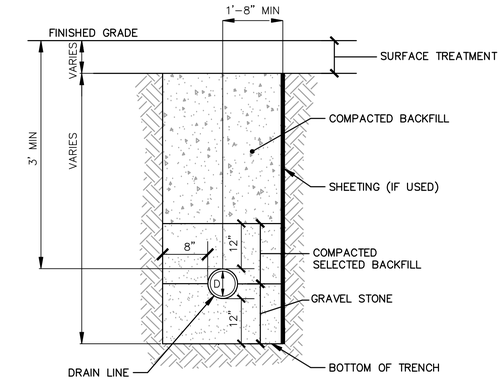
NTS



NOTE:
THE MOUNTABLE BERM SHALL BE USED TO ASSIST REMOVAL OF MUD FROM THE TIRES OF VEHICLES LEAVING THE SITE DURING CONSTRUCTION.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

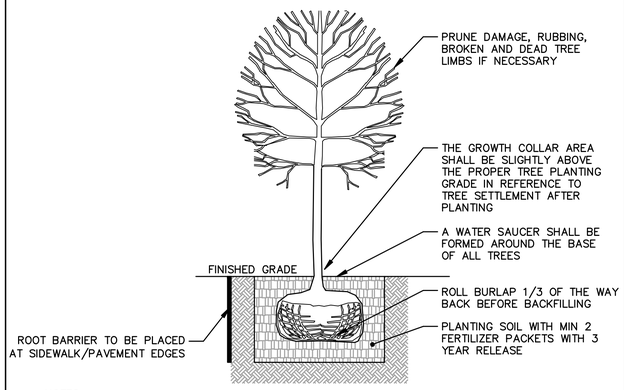
NTS



NOTES:
1. THE PROPOSED DRAIN LINE SHALL MAINTAIN A MINIMUM SEPARATION OF 12" TO BEDROCK IN ALL DIRECTIONS.
2. THE TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA STANDARDS AND OTHER APPLICABLE STANDARDS.

STORM DRAIN TRENCH DETAIL

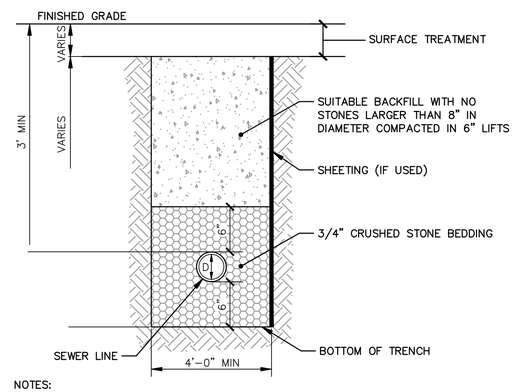
NTS



NOTES:
1. ALL TREES AND SHRUBS TO BE PLANTED SHALL BE ASIAN LONGHORNED BEATLE RESISTANT.
2. TREES SHALL BE A MINIMUM OF 3½" IN DIAMETER.
3. THE CONTRACTOR IS TO LOCATE AND/OR PLACE ALL UNDERGROUND UTILITIES BEFORE DIGGING TREE PLANTING PITS.
4. NO TREE STAKES NOR TREE WRAP IS REQUIRED.
5. THE TREE ROOT BALL SHALL BE SET ON COMPACTED SOIL AREA TO REDUCE SETTLEMENT OF THE TREE.

TREE PLANTING DETAIL

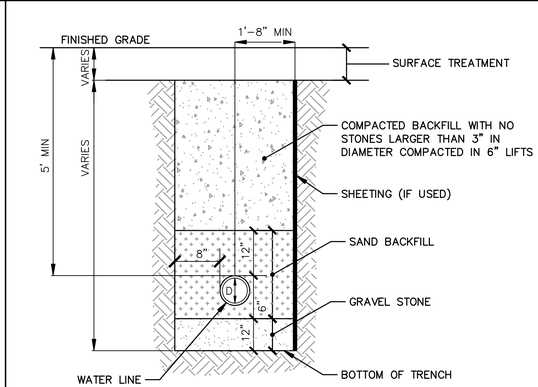
NTS



NOTES:
1. THE PROPOSED SEWER LINE SHALL MAINTAIN A MINIMUM SEPARATION OF 6" TO BEDROCK IN ALL DIRECTIONS.
2. THE TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA STANDARDS AND OTHER APPLICABLE STANDARDS.

SEWER TRENCH DETAIL

NTS

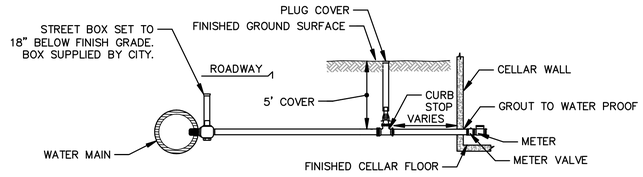


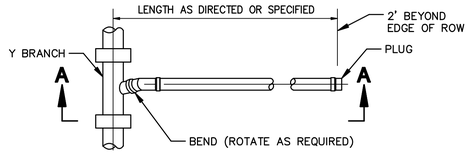
NOTES:
1. THE PROPOSED WATER LINE SHALL MAINTAIN A MINIMUM SEPARATION OF 12" TO BEDROCK IN ALL DIRECTIONS.
2. THE TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA STANDARDS AND OTHER APPLICABLE STANDARDS.

WATER MAIN TRENCH DETAIL

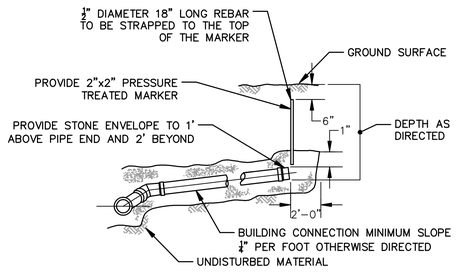
NTS

NOTE:
ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF WORCESTER DEPARTMENT OF PUBLIC WORKS AND ENGINEERING STANDARDS.





PLAN

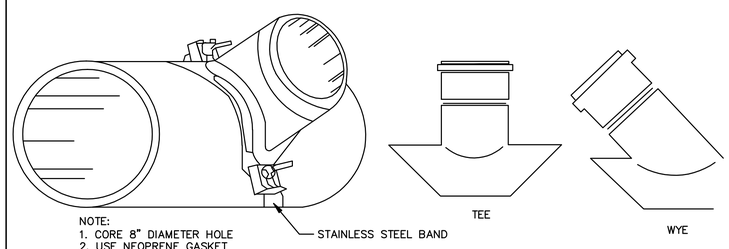


SECTION A-A

NOTES:
1. FITTINGS AND VALVES SHALL BE MANUFACTURED BY FORD OR APPROVED EQUAL.
   CORPORATION: FORD FB1000 WITH TEE HEAD ADAPTER (CC THREADxCOMP)
   BALL VALVE CURB STOP: FORD B44 FULL PORT (COMPxCOMP).
2. SERVICE SADDLES SHALL BE USED FOR WATERMAINS SMALLER THAN 16 INCHES IN DIAMETER. SADDLES SHALL BE DOUBLE STRAP EQUAL TO ROCKWELL 313.
3. SAND SHALL BE USED FOR BACKFILLING FROM A POINT 6 INCHES BELOW THE PIPE TO A POINT 12 INCHES ABOVE THE PIPE. THE REMAINING BACKFILL SHALL HAVE NO STONES GREATER THAN 3 INCHES IN THEIR LARGEST DIMENSION. BEFORE ANY EXCAVATION IS DONE AND ANY PIPE IS INSTALLED, PERMITS SHALL BE OBTAINED FROM THE MANAGEMENT SERVICES OFFICE AT 20 EAST WORCESTER STREET AND THE WATER ENGINEERING OFFICE AT 18 EAST WORCESTER STREET. ALL PAVING SHALL CONFORM TO CITY OF WORCESTER DPW STANDARDS.
4. SERVICES SHALL BE FLUSHED BEFORE ACTIVATING TO AVOID METER CLOGGING.
5. MAIN VALVES ARE TO BE OPERATED BY THE CITY ONLY. COSTS INCURRED IN SHUTTING DOWN MAINS DUE TO NEGLIGENCE OF THE CONTRACTOR, AS DETERMINED BY THE FIELD INSPECTOR, SHALL BE PAID BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL INFORM THE OWNER AND THE CITY WIRE INSPECTOR OF PROPER GROUNDING REQUIREMENTS PURSUANT TO M.G.L. CHAPTER 165, SECTION 1C.
7. THE WATER SERVICE SHALL BE A MINIMUM OF 10 HORIZONTAL FEET FROM THE SEWER SERVICE.
8. THE CONTRACTOR SHALL FURNISH AND COMPLETELY INSTALL THE WATER SERVICE FROM CORPORATION TO METER VALVES WITH NEW MATERIALS.
9. UPON INSTALLATION OF THE SERVICE BOX, THE CONTRACTOR SHALL OPERATE THE VALVE TO THE SATISFACTION OF THE FIELD INSPECTOR PRIOR TO ACCEPTANCE OF THE JOB.

TYPICAL PERMANENT SERVICE CONNECTION DETAIL

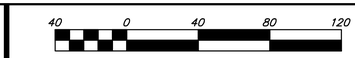
NTS



NOTE:
1. CORE 8" DIAMETER HOLE
2. USE NEOPRENE GASKET

WYE & TEE SADDLE FOR 6" LATERAL SEWER CONNECTIONS DETAIL

NTS



NOT FOR CONSTRUCTION

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NOTE:
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PLAN REVISIONS:

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3	11/17/19	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW

WORCESTER CONSERVATION COMMISSION APPROVED:

BEING A MAJORITY OF THE WORCESTER CONSERVATION COMMISSION:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS — HOSSEIN HAGHANIZADEH — CIVIL — NO. 42529 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — DANIEL J. TIWAN — NO. 40047 — REGISTERED PROFESSIONAL SURVEYOR

H. S. & T. GROUP, INC.
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PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT DETAIL SHEET

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 11/1/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	23 OF 35
DWG NUMBER: 5004			

NOTE:
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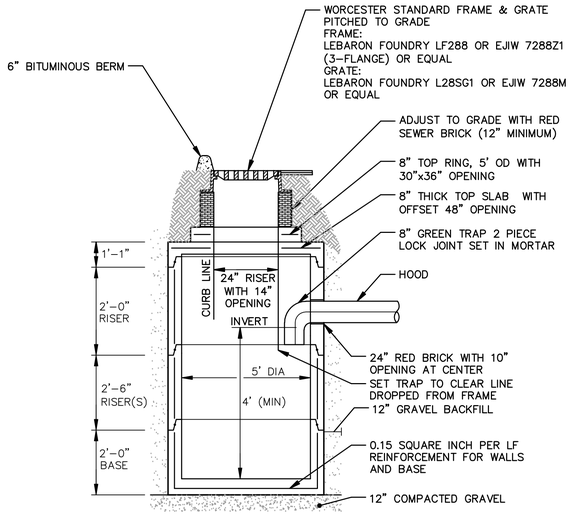
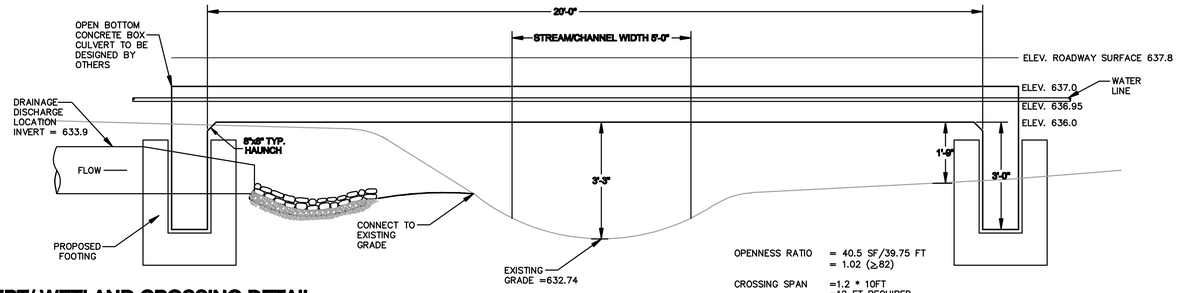
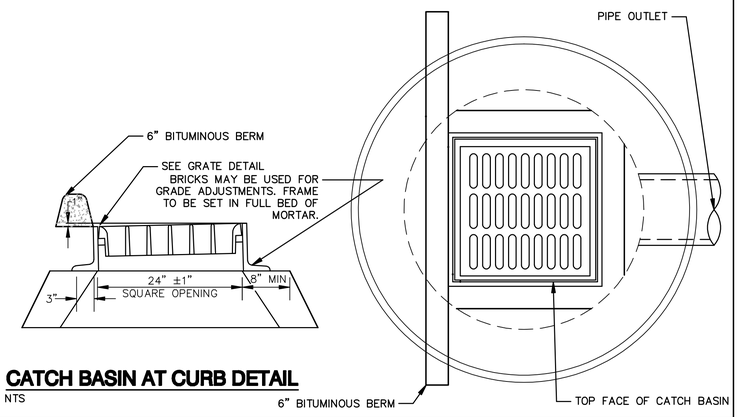


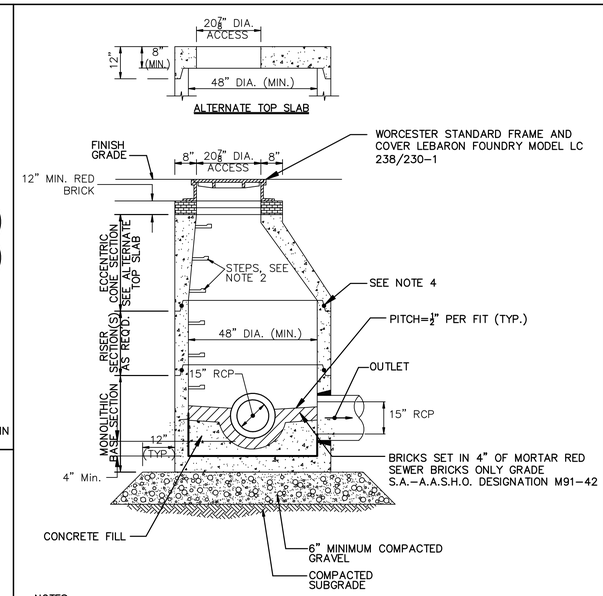
PRECAST CATCH BASIN DETAIL
NTS



CULVERT/ WETLAND CROSSING DETAIL
NTS

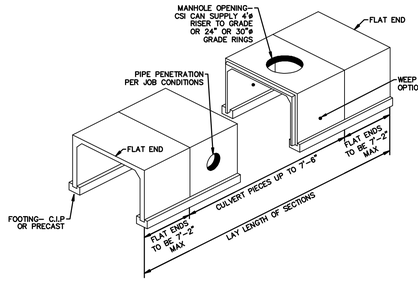


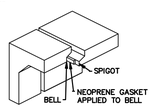
CATCH BASIN AT CURB DETAIL
NTS



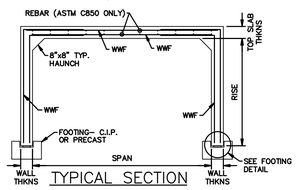
NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. "D" RING JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.

DRAIN MANHOLE
NTS

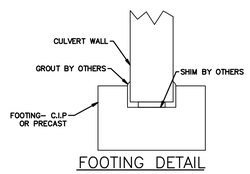




JOINT DETAIL

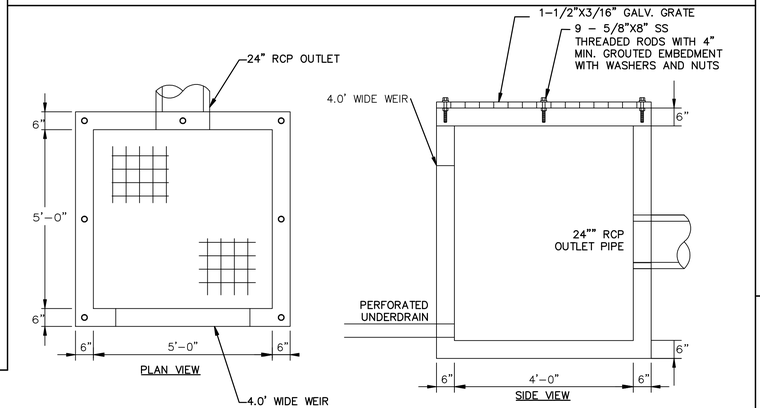


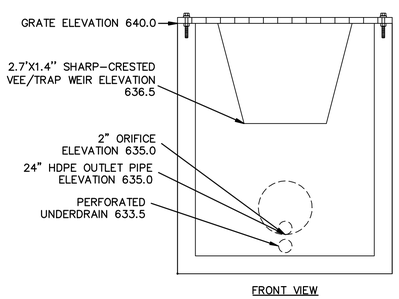
TYPICAL SECTION



FOOTING DETAIL

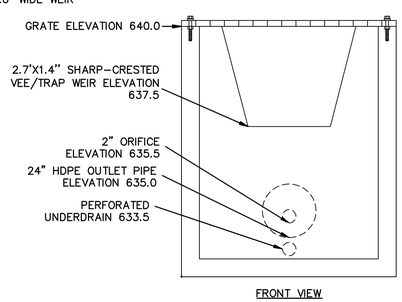
PRECAST REINFORCED CONCRETE 3-SIDED BOX CULVERT DETAIL
NTS





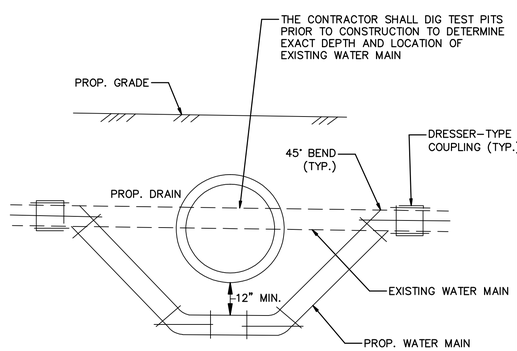
FRONT VIEW

OUTLET CONTROL STRUCTURE-DETENTION BASIN DETAIL
NTS



FRONT VIEW

OUTLET CONTROL STRUCTURE-INILTRATION BASIN DETAIL
NTS



TYPICAL WATER MAIN OFFSET
NTS

NOT FOR CONSTRUCTION
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3	11/17/19	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
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WORCESTER CONSERVATION COMMISSION APPROVED:

BEING A MAJORITY OF THE WORCESTER CONSERVATION COMMISSION:

ENDORSED APPROVED DATE: _____

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COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT DETAIL SHEET

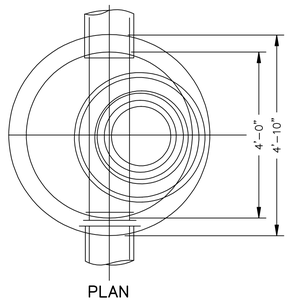
APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 11/1/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

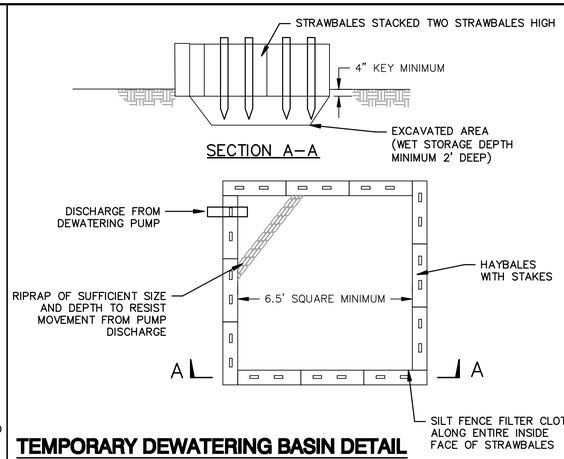
JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 24 OF 35

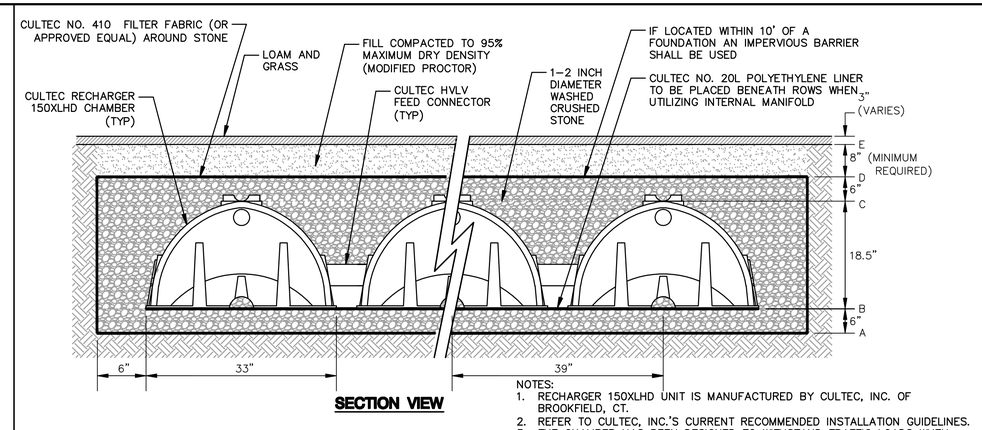


PLAN



TEMPORARY DEWATERING BASIN DETAIL

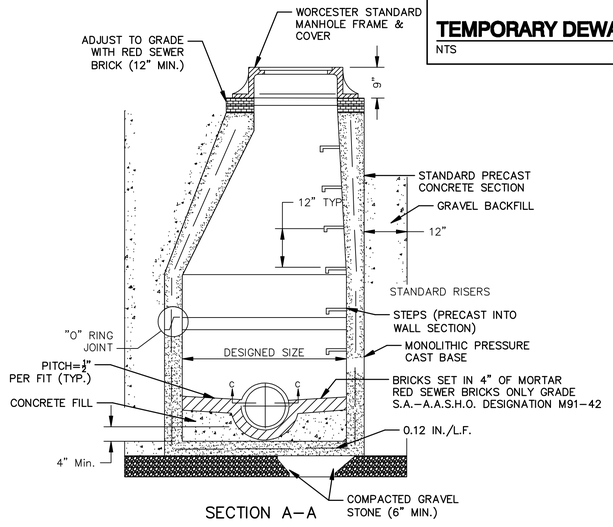
NTS



NOTES:
1. RECHARGER 150XLHD UNIT IS MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT.
2. REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
3. THE CHAMBER HAS BEEN DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
4. ELEVATIONS WILL VARY PER LOCATION.

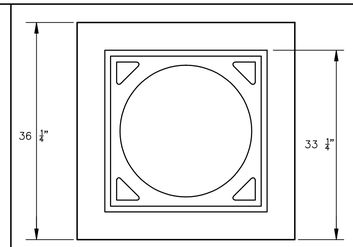
CULTEC RECHARGER 150XLHD CHAMBER SYSTEM

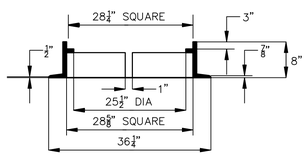
NTS



SANITARY SEWER MANHOLE DETAIL

NTS

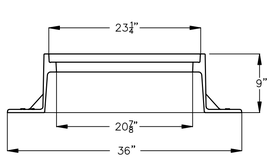


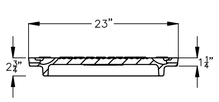


NOTE:
GRATE SHALL BE EJIW 7288Z1 (3 FLANGE), EJIW 7288Z (4 FLANGE), LEBARON LF288 OR EQUAL.

CATCH BASIN FRAME DETAIL

NTS

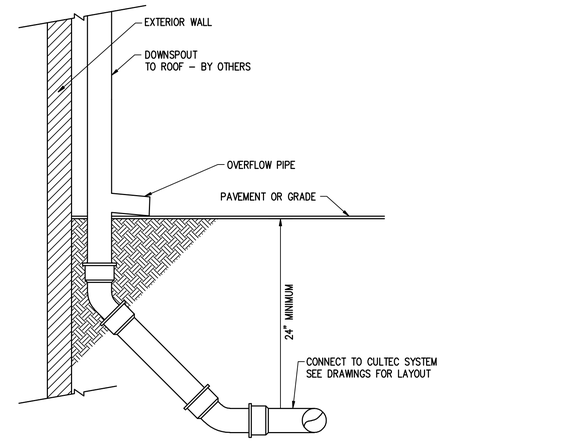




NOTES:
1. USE LEBARON LK 110 CAST IRON FRAME AND COVER (OR APPROVED EQUAL) WITH ON–PENETRATING PICK HOLES.
2. SET FRAME ON A FULL BED OF MORTAR.
3. MANHOLE COVER SHALL HAVE DIAMOND PATTERN WITH THE WORD "DRAIN" CAST IN 3" LETTERS.

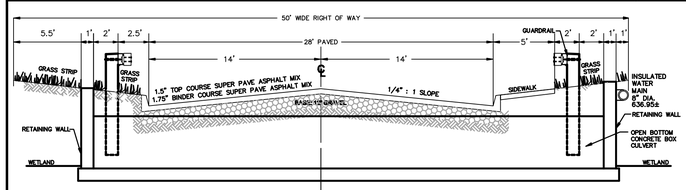
STANDARD MANHOLE FRAME & COVER

NTS



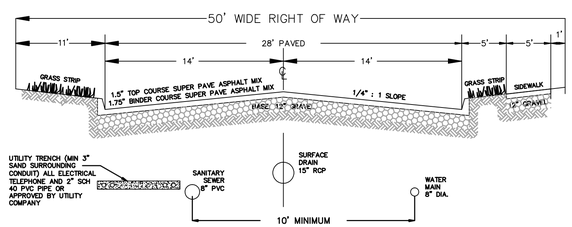
DOWNSPOUT CONNECTION AND OVERFLOW

N.T.S.



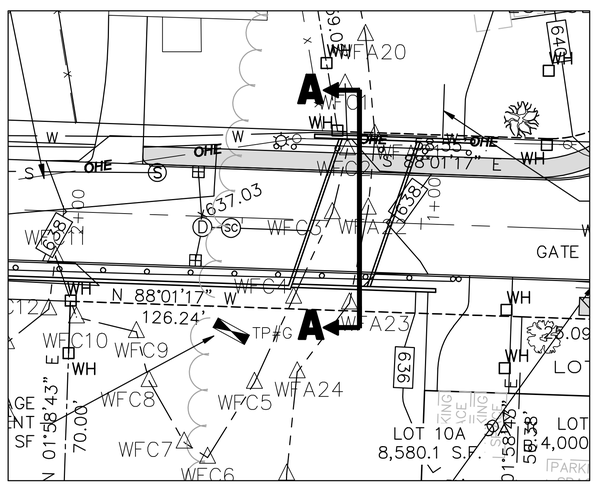
WETLAND ROADWAY CROSS SECTION A-A

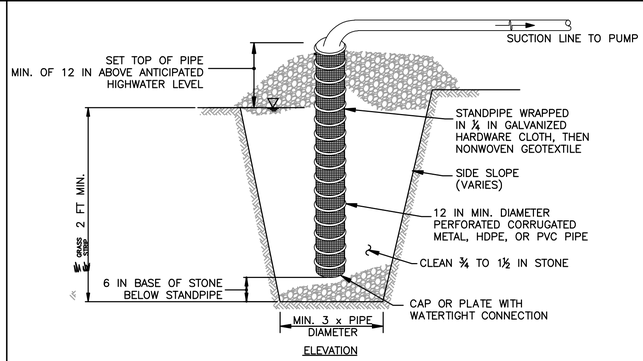
NTS



TYPICAL ROADWAY CROSS SECTION

NTS





CONSTRUCTION SPECIFICATIONS

1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC STANDPIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

DEWATERING SUMP PIT DETAIL

NTS

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIWAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

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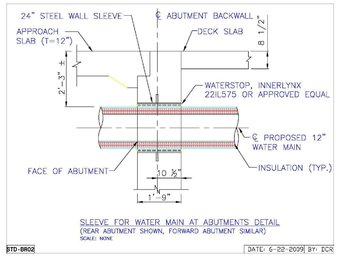
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT DETAIL SHEET

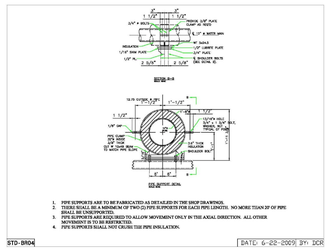
APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 11/1/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639–124
ZONE: RL–7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	25 OF 35
DWG NUMBER: 5004			



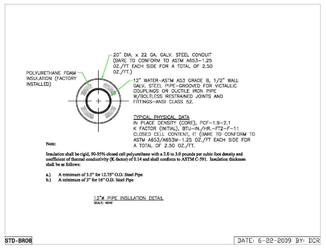
SLEEVE FOR WATER MAIN AT ABUTMENTS DETAIL
(REAR ABUTMENT SHOWN, FORWARD ABUTMENT SIMILAR)
SCALE: NONE

STD-BR02 DATE: 6-22-2009 BY: DCR



1. PIPE SUPPORTS ARE TO BE FABRICATED AS DETAILED IN THESE SHOP DRAWINGS.
2. THERE SHALL BE A MINIMUM OF TWO (2) PIPE SUPPORTS FOR EACH PIPE LENGTH. NO MORE THAN 20' OF PIPE SHALL BE UNSUPPORTED.
3. PIPE SUPPORTS ARE DESIGNED AND DETAILED TO ALLOW MOVEMENT ONLY IN THE AXIAL DIRECTION. ALL OTHER MOVEMENT IS TO BE RESTRICTED.
4. PIPE SUPPORTS SHALL NOT CRUSH THE PIPE INSULATION.

STD-BR04 DATE: 6-22-2009 BY: DCR



TYPICAL PHYSICAL DATA
IN PLACE DENSITY (CORE), PCF - 1.8-2.1
K FACTOR (INITIAL), BTU-IN./HR.-FT2-F-1.1
CLOSED CELL CONTENT, % (SAME TO CONFORM TO ASTM D1622) - 90% MIN.
ACTUAL GALVANIZING - 2.50 OZ./FT EACH SIDE FOR ASTM A 53 GR. B PIPE

Note:
Insulation shall be rigid, 90-95% closed cell polyurethane with a 2.0 to 3.0 pounds per cubic foot density and coefficient of thermal conductivity (K-factor) of 0.14 and shall conform to ASTM C-591. Insulation thickness shall be as follows:

a.) A minimum of 2.5" for 12.75" O.D. Steel Pipe
b.) A minimum of 2" for 16" O.D. Steel Pipe

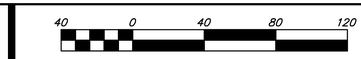
12"ø PIPE INSULATION DETAIL
NOT TO SCALE

STD-BR08 DATE: 6-22-2009 BY: DCR

TYPICAL INSULATED WATERLINE AT WETLAND CROSSING
NTS

PIPE SUPPORT ASSEMBLIES
PIPE SUPPORT ASSEMBLIES SHALL BE FABRICATED AS DETAILED ON THE PLANS AND SHALL BE COMPLETE IN ALL RESPECTS INCLUDING ALL MATERIALS, CADMIUM PLATED SHOULDER AND CLAMP BOLTS, FASTENERS AND NUTS. THE SUPPORT ASSEMBLY CLAMP, SEAT PLATE ("LUBRITE" PLATE) AND SHIMS SHALL ALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A-123, LATEST REVISION THEREOF. NO FIELD WELDING OF GALVANIZED STEEL PIPE WILL BE PERMITTED. THERE SHALL BE A MINIMUM OF TWO (2) PIPE SUPPORTS FOR EACH PIPE LENGTH.

INSULATION AND OUTER PROTECTIVE JACKET
INSULATION SHALL BE MINIMUM THREE AND ONE-HALF (3-1/2") FOR 12.75" O.D. STEEL PIPE AND MINIMUM THREE INCHES (3") FOR 16" O.D. STEEL PIPE OF A MINIMUM DENSITY OF 2 POUNDS PER CUBIC FOOT OF POLYURETHANE FOAM FACTORY APPLIED TO COMPLETELY FILL THE SPACE BETWEEN THE PIPE AND THE OUTER WEATHERPROOF JACKET. THE OUTER JACKET SHALL BE GALVANIZED STEEL OF THE DIMENSIONS SHOWN ON THE PLANS. THE OUTER JACKET SHALL BE A MINIMUM 24 GAUGE GALVANIZED STEEL, SPIRAL LOCK SEAM CONSTRUCTION. TO ASSURE NO VOIDS IN THE FOAM INSULATION ARE PRESENT, AN INFRARED OR X-RAY INSPECTION OF EACH PREINSULATED UNIT AT THE FACTORY IS REQUIRED.
EXTERIOR PIPE COATING ON 24" O.D., OR LARGER, STEEL WATER MAINS SHALL BE APPLIED IN ACCORDANCE WITH ANSI/AWWA C203-91, "COAL-TAR PROTECTIVE COATINGS AND LININGS FOR STEEL WATER PIPELINES - ENAMEL AND TAPE - HOT APPLIED" CONSISTING OF THE FOLLOWING:
1) COAL TAR PRIMER - TYPE A;
2) COAL TAR ENAMEL - TYPE A, 1/32" THICK;
3) FIBROUS GLASS MAT;
4) 2ND COAT OF COAL TAR ENAMEL - TYPE A, 1/32" THICK;
5) 2ND LAYER OF FIBROUS GLASS MAT;
6) A COAT OF HEAVY BODIED COAL TAR EMULSION; AND
7) TWO (2) FINISH COATS OF ALUMINUM PAINT.
IN LIEU OF THE ABOVE, CONTRACTOR MAY FURNISH A FACTORY PREINSULATED SPRAY APPLIED POLYURETHANE FOAM INSULATION, THICKNESS AS INDICATED ABOVE, WITH A FIBERGLASS REINFORCED POLYESTER RESIN (FRP) JACKET APPLIED DIRECTLY OVER THE FOAM INSULATION. EXTERIOR PIPE COATING IS NOT REQUIRED. THE SYSTEM HEREIN SPECIFIED SHALL BE ONE WHICH IS DESIGNED TO BE SUPPORTED DIRECTLY ON THE FIBERGLASS JACKET AND PIPE SUPPORTS.
PIPE JOINTS, INCLUDING EXPANSION JOINTS AND SUPPORT AREAS, AND PIPE BETWEEN THE BACKWALLS OF THE BRIDGE ABUTMENTS SHALL BE FIELD INSULATED WITH FIBERGLASS OR PREFORMED POLYURETHANE FOAM (OR FRP IF APPLICABLE) AND JACKETED WITH GALVANIZED STEEL BANDED OVER ADJACENT JACKET. ALL FIELD APPLIED INSULATION SHALL BE INSTALLED TO FULLY FILL ANY VOIDS. FIELD PLACED INSULATION AND JACKET SHALL BE REMOVABLE IN ORDER TO PERFORM MAINTENANCE OR MAKE ADJUSTMENTS TO THE PACKING GLAND OF THE EXPANSION JOINT(S).
BURIED PIPE BEYOND THE BACKWALLS OF THE BRIDGE ABUTMENTS HAVING LESS THAN FOUR AND ONE-HALF (4-1/2') FEET OF COVER SHALL BE INSULATED WITH A MINIMUM OF A ONE (1) FOOT INSULATION ENVELOPE EQUAL TO "WITCOLITE" OR "GILSULATE 500XR."
THE VOID BETWEEN THE SLEEVE AND THE STEEL WATER MAIN THROUGH EACH BRIDGE ABUTMENT WALL SHALL BE FILLED WITH JUTE PACKING AND SEALED AT BOTH ENDS WITH THREE (3") INCHES OF NON-SHRINKING GROUT AS SHOWN IN THE "SLEEVE PACKING DETAIL" ON THE PLANS.



HORIZONTAL SCALE 1"=40'

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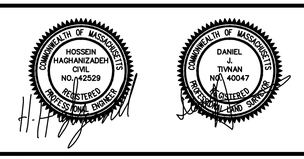

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75 HAMMOND STREET - 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT DETAIL SHEET

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

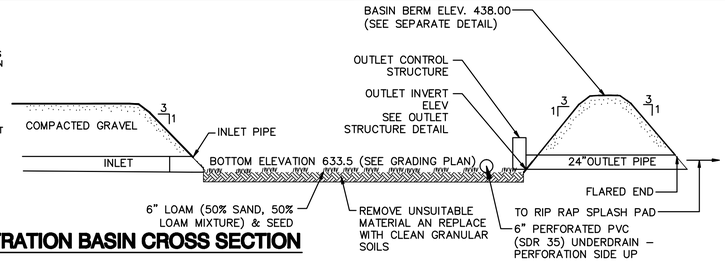
DATE: 11/1/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 26 OF 35

NOTES:
1. INFILTRATION BASINS ARE TO BE CONSTRUCTED PRIOR TO ROADWAY AND ANY ASSOCIATED UTILITIES.
2. LIGHT EARTH MOVING EQUIPMENT IS TO BE USED DURING CONSTRUCTION TO REDUCE COMPACTION OF BASIN BOTTOM.
3. BASIN FLOOR IS TO BE DEEPLY TILLED AFTER FINAL GRADING.
4. PROPER EROSION SEDIMENT CONTROLS SHOULD BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT AND/OR DEBRIS FROM ENTERING THE BASIN.
5. 75% OF RIPRAP STONE SHALL BE 70–100 LBS.



SOUTHERN INFILTRATION BASIN CROSS SECTION

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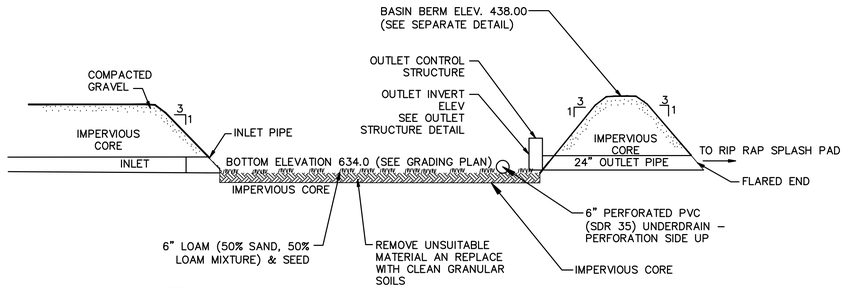
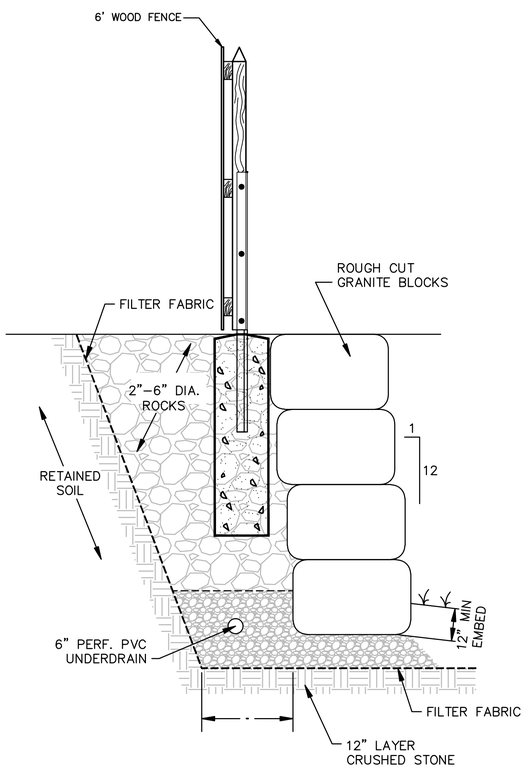


NOTES:
1. DETENTIONS BASINS ARE TO BE CONSTRUCTED PRIOR TO ROADWAY AND ANY ASSOCIATED UTILITIES.
2. LIGHT EARTH MOVING EQUIPMENT IS TO BE USED DURING CONSTRUCTION TO REDUCE COMPACTION OF BASIN BOTTOM.
3. BASIN FLOOR AND SIDE SLOPES TO BE LINED WITH IMPERVIOUS CLAY BARRIER.
4. PROPER EROSION SEDIMENT CONTROLS SHOULD BE UTILIZED DURING CONSTRUCTION TO PREVENT SEDIMENT AND/OR DEBRIS FROM ENTERING THE BASIN.
5. 75% OF RIPRAP STONE SHALL BE 70–100 LBS.

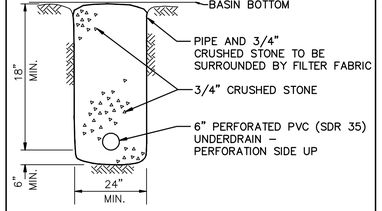
NORTHERN DETENTION BASIN CROSS SECTION

NTS



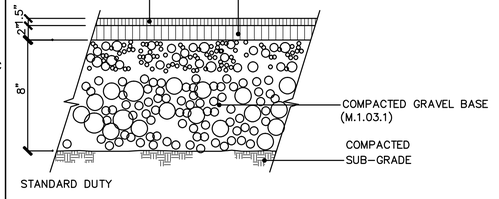
STONE RETAINING WALL WITH FENCE

NTS



UNDERDRAIN DETAIL

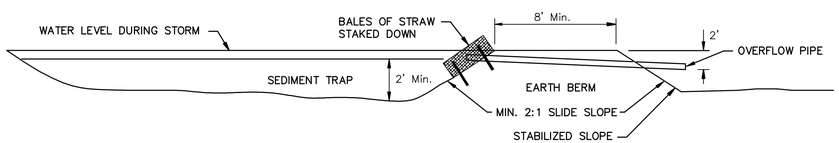
NTS



STANDARD DUTY

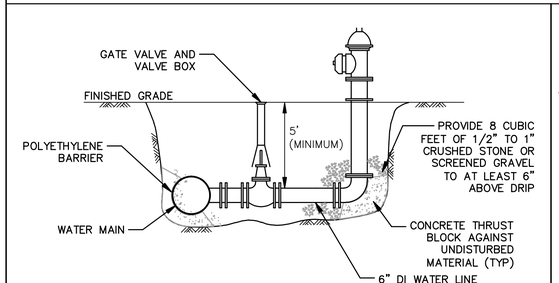
BITUMINOUS CONCRETE PAVEMENT FOR ROADWAYS/DRIVEWAYS

NOT TO SCALE



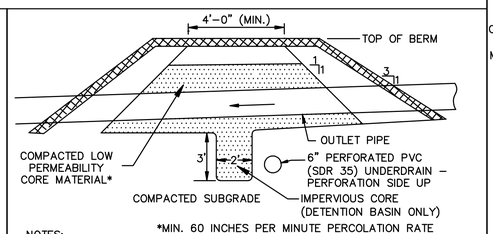
TYPICAL TEMPORARY SEDIMENT BASIN

NTS



TYPICAL HYDRANT

NTS



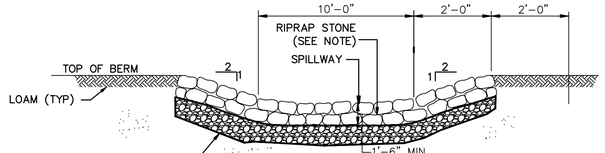
*MIN. 60 INCHES PER MINUTE PERCOLATION RATE

NOTES:
1. PIPES PENETRATING THE LOW PERMEABILITY CORE SHALL BE BEDDED IN THE LOW PERMEABILITY CORE MATERIAL.
2. THE BERM SECTION MAY BE SUBJECT TO CHANGE AND ANY CHANGES WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

DETENTION BASIN BERM SECTION

N.T.S.

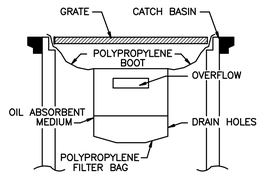
NOTE:
ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF WORCESTER DEPARTMENT OF PUBLIC WORKS AND ENGINEERING STANDARDS.



NOTE:
75% OF RIPRAP STONE SHALL BE 70 TO 100 LBS. STONE SHALL BE HAND CHINKED TO LEAVE A SMOOTH SURFACE ALONG THE TOP OF THE DIKE AND A ROUGH SURFACE ALONG DOWNSTREAM SURFACE AND TOE OF THE DIKE.

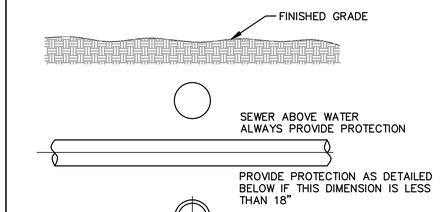
EMERGENCY SPILLWAY

NTS

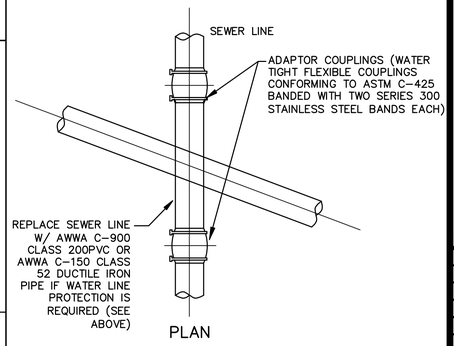


TEMPORARY OIL & SEDIMENT CATCH BASIN PROTECTION:

NOT TO SCALE



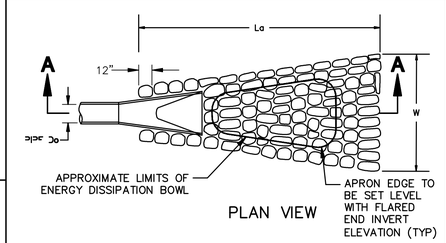
SECTION



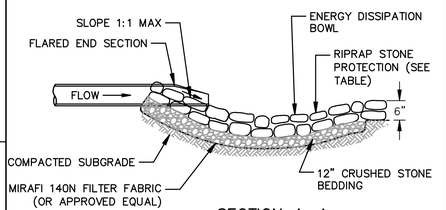
PLAN

SEWER CROSSING DETAI

NTS



PLAN VIEW



SECTION A–A

FES–1 GIVEN: Do= 2.0 FT
Q=0.2 cfs
Tw=.98FT (Tw=49% OF Do)
La = 16.1 FT
W= 22.1 FT

FES–2 GIVEN: Do= 2.0 FT
Q=1.4 cfs
Tw=.98FT (Tw=49% OF Do)
La = 16.8 FT
W= 22.8 FT

FLARED END SECTION PROTECTION

NTS

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

NOTE:
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PLAN REVISIONS:

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1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW

WORCESTER CONSERVATION COMMISSION APPROVED:

BEING A MAJORITY OF THE WORCESTER CONSERVATION COMMISSION:

ENDORSED APPROVED DATE:

COMMONWEALTH OF MASSACHUSETTS HOSSEIN HAGHANIZADEH CIVIL NO. 42529 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS DANIEL J. TIVNAN NO. 40047 REGISTERED PROFESSIONAL LAND SURVEYOR

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ZONE: RL–7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 27 OF 35

WETLAND REPLICATION CONSTRUCTION PROTOCOL:

Introduction:
The following descriptions and protocol were prepared by Arthur Allen (Certified Professional Soil & Wetland Scientist) of EcoTec, Inc. This information is based on an evaluation of the proposed impact and replication areas performed on March 20, 2019. The descriptions and protocol are based on the Massachusetts Inland Wetland Replication Guidelines (issued March, 2002 by the MA Dept. of Environmental Protection), are in accordance with the General Performance Standards of the Massachusetts Wetlands Protection Act Regulations at 310 CMR 10.55(4)(b) and serve to protect the interests of the Wetlands Protection Act.

Descriptions:
The wetland areas proposed to be altered (vicinity wetland flag 9B) consists of a narrow finger that appears to be associated with runoff from Whipporwill Drive. The wetland finger is in a mowed and historically disturbed condition. The proposed culvert crossing will fully span the Banks of the stream. No Bordering Vegetated Wetland (BVW) exists at the proposed culvert crossing. The upland area(s) proposed for replication consists of a raised mound between the area to be altered and the existing stream. It is located as close as possible to the area proposed to be altered. The proposed replication area is in the same reach of the wetland system and at approximately the same elevation as the area to be altered. The area is presently vegetated with small aspen (*Populus tremuloides*) saplings and hayscented fern (*Dennstaedtia punctilobula*). Little or no tree cutting is required to access and excavate the replication area. Soil conditions and hydrology within the proposed replication area were established in a test pit as described in the attached Soil Suitability Assessment Form 11. These descriptions are indicative of a seasonal high-water table at approximately 18 inches. No restrictive layers were noted to at least 30 inches below ground surface.

Table no. 1 below summarizes the interests of the Wetlands Protection Act which the wetland to be altered is presently serving and predicts the value of the proposed replication area to those interests.

Table 1. Public Interests:	Value of Area To Be Altered:	Value of Replication Area:
Public and Private Water Supply, Groundwater Supply	YES. Recharges groundwater through infiltration. Seasonally recharges surface water through overland flow. Overland flow will be maintained through culverts.	YES. Will also recharge groundwater through infiltration into friable subsoil and substrate.
Flood control and Storm Damage Prevention	YES. Some storage of runoff in seasonally saturated soils.	YES. Seasonally saturated soils will store greater volumes of runoff.
Prevention of Pollution	YES. Contaminants and excess nutrients retained in, and degraded by, mineral and organic components of hydric soils.	YES. Contaminants and excess nutrients will also be retained in, and degraded by, mineral and organic components of replicated hydric soils.
Fisheries	N/A. No perennial waterway or waterbody.	N/A. No perennial waterway or waterbody.
Wildlife Habitat	NO. Existing wetland to be altered in a disturbed condition.	YES. Replicated soil structure and plantings will provide opportunities for wildlife shelter and forage.

Wetland Replication Construction Protocol:

1. The following protocol conforms to the general performance standards in the MA Wetlands Protection Act Regulations at 310 CMR 10.55(4)(b) as summarized in Table 2 below.

Table no. 2

Performance Standard:	Standards Met Within Replication Area:
Equal surface areas (30 s.f. altered).	YES. Slightly greater surface area (490 s.f. replicated).
Similar groundwater and surface elevations.	YES. Similar elevations.
Location relative to Bank.	YES. Closer to bordering stream Bank.
Unrestricted hydraulic connection.	YES. Unrestricted connection to same bordering wetland.
Same general location.	YES. As close as possible to impacted wetland.
Minimum 75% cover of native wetland plants within two growing seasons and prevention of soil erosion.	YES. To be insured by following construction and planting protocol combined with annual monitoring and re-planting and/or modifications as necessary. Plantings designed to replicate lost area(s) in-kind. Erosion prevented with siltation barriers, 3:1 side slopes and mulch. Invasive species will be monitored and removed as necessary.

2. The wetland boundaries (i.e., downgradient edges of the wetland replication area) will be marked in the field.

3. Prior to the start of earth-moving activities in the replication area, an erosion control barrier of properly installed siltation fence (i.e., the bottom few inches of the siltation fence installed in a narrow, trench and the trench filled with soil around the siltation fence) will be installed along the wetland boundaries between the wetland and the wetland replication area. The project Wetland Scientist will evaluate the replication area prior to clearing and determine if any existing trees can be saved. The wetland replication area will then be cleared and grubbed, with the exception of any trees that have been marked to be saved.

4. The proposed final grade for the replication area should approximate the elevation of the adjacent wetland areas, as noted on the site plans. The replication area will be excavated to the level of the existing, buried topsoil (Ab layer). The excavation and planting work will be closely supervised by a qualified Wetland Scientist. Modifications to the proposed grading may be made in the field by the Wetland Scientist in response to observed subsurface hydrologic conditions. All excavated material will be disposed of away from all wetland resource areas and protected from erosion.

5. Topsoil in the replication area will be supplemented with a 1:1 mixture of high quality, loamy topsoil and leaf mold compost, as necessary, to approximate at least 6 inches in thickness throughout the replication area. The substrate will be roughly graded to provide an appropriate microtopography. A minimum of 4 inches of loamy topsoil will be applied to the side-slopes of the wetland replication area. The side slopes should be stabilized as necessary to prevent erosion.

6. An erosion control barrier comprising only toed-in siltation fence will be properly installed between the completed replication area and the adjacent upland sideslopes.

7. Planting will be done only during the beginning (April 15 through June 1) or end (September 15 to November 1) of the growing season. Planting in the mid-growing season is only acceptable if irrigation is provided. The native plant species identified in the table below will be planted in the replication area either by transplant or from nursery stock. The saplings will be distributed throughout the area. The shrubs will be planted randomly throughout the area in clumps of two to three with the average spacing between shrub clumps approximately 5 feet on-center. The woody vegetation should not be planted in rows. The herbaceous species will be planted between the shrubs and saplings.

Planting Plan for 490 S.F. Wetland Replication Area

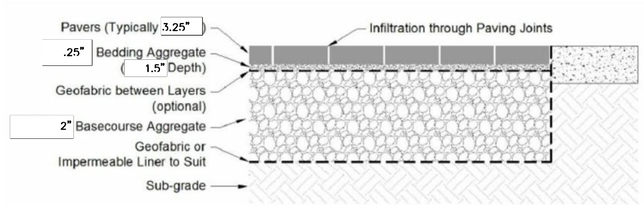
SPECIES; SIZE; SPACING	NUMBER
Saplings, 6 to 8' height, container or balled, burlapped, 15' on-center avg.	
Red Maple (*Acer rubrum*)	1
Yellow birch (*Betula alleghenienisis*)	1
Shrubs; 2.5 to 3' in height, container; 5' on-center average spacing	
Highbush Blueberry (*Vaccinium corymbosum*)	8
Winterberry (*Ilex verticillata*)	8
Herbaceous; containerized; 5' on-center average spacing	
Cinnamon fern (*Osmunda cinnamomea*)	12

8. The planted replication area will be mulched with 1 to 2 inches of shredded leaves or weed-free straw to simulate a forest floor and to provide for temporary erosion control and moisture retention.

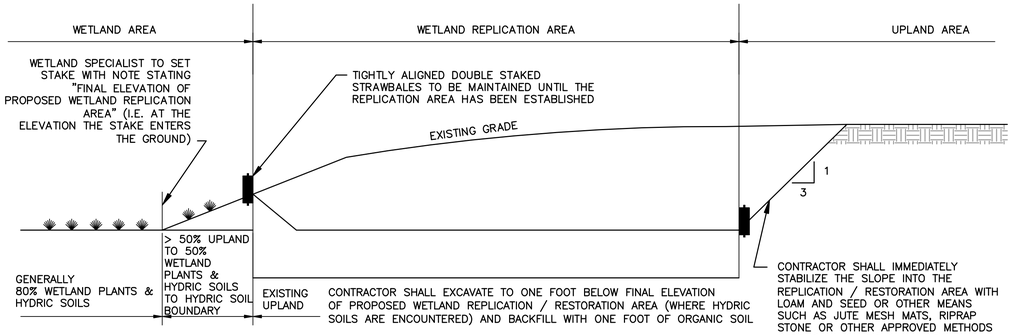
9. The side-slopes of the wetland replication area will be seeded with a grass/wildflower mixture designed to provide permanent cover. After seeding, the side-slopes will be mulched with a thin layer of weed-free straw to provide for temporary erosion control.

10. The replication areas will be inspected, by a qualified Wetland Scientist, at the end of each growing season for a minimum of two years or until such time as the required 75% of vegetative cover with wetland species has been established. If invasive species are noted (e.g., knotweed, phragmites, etc.) these species will be removed by either hand-pulling the entire plant out by the roots or by cutting the above-ground portion and applying glyphosate herbicide to the stem with a drip applicator. The cut or pulled plants will be properly disposed of outside the wetlands and buffer zones and care will be taken not to distribute any seeds or berries that may be present.

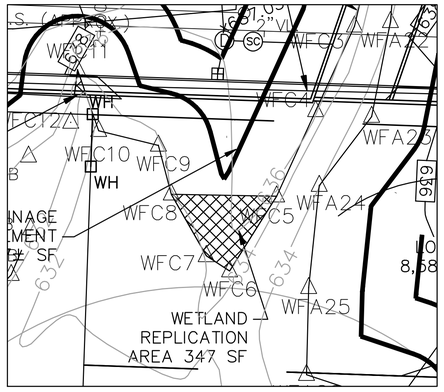
11. After the wetland replication area has become vegetatively stabilized, and following approval of the issuing authority, the siltation fence and all wooden stakes will be removed and disposed of properly.



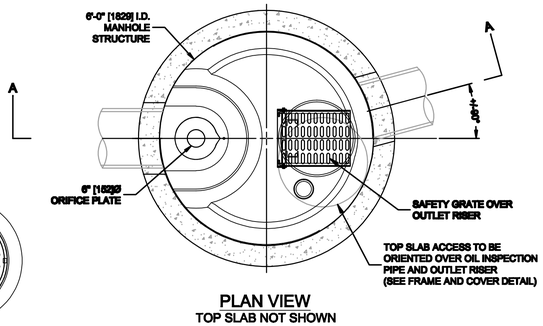
PERVIOUS PAVERS
NTS



WETLAND REPLICATION DETAIL
NTS

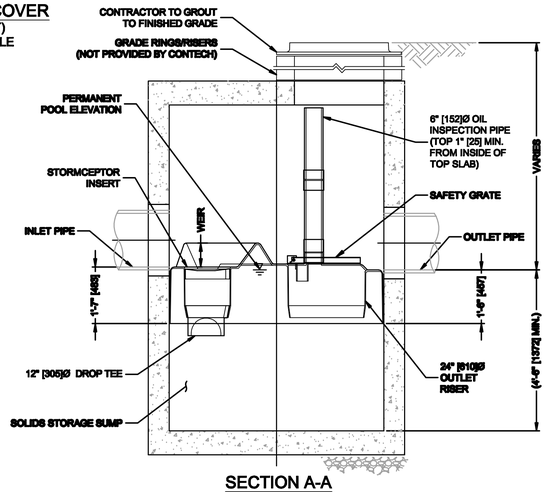


WETLAND REPLICATION PLAN VIEW
NTS



PLAN VIEW
TOP SLAB NOT SHOWN

FRAME AND COVER
(MAY VARY)
NOT TO SCALE



SECTION A-A

GENERAL NOTES
1. **CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.**
2. **FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com**
3. **STORMCEPTOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.**
4. **STORMCEPTOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.**
5. **STORMCEPTOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.**
6. **ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].**

INSTALLATION NOTES
- A. **ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.**
- B. **CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMCEPTOR MANHOLE STRUCTURE.**
- C. **CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.**
- D. **CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.**
- E. **CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.**

STORMSCEPTOR 900
NTS

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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3	11/17/19	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW

WORCESTER CONSERVATION COMMISSION APPROVED:

BEING A MAJORITY OF THE WORCESTER CONSERVATION COMMISSION:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS — HOSSEIN HAGHANIZADEH — CIVIL — NO. 42529 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — DANIEL J. TIVNAN — NO. 40047 — REGISTERED PROFESSIONAL LAND SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
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MALDEN WOODS SUBDIVISION AMENDMENT
DETAIL SHEET/WETLAND REPLICATION

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JOB NUMBER: 5956
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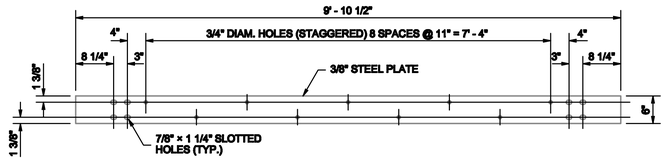
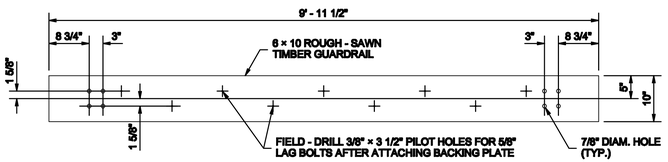
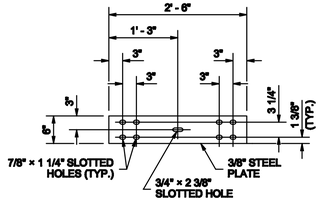
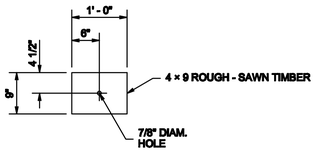
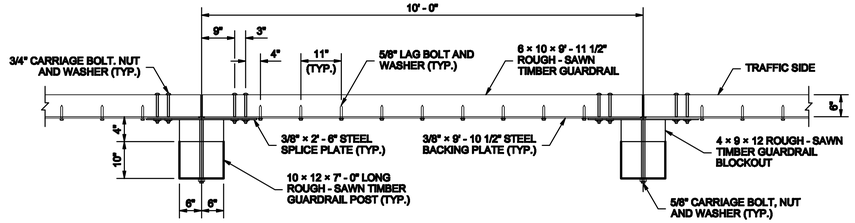
SHEET NUMBER 28 OF 35

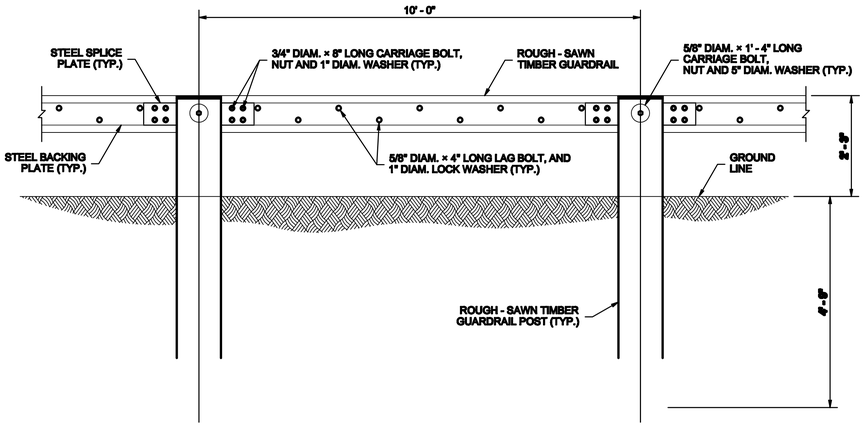






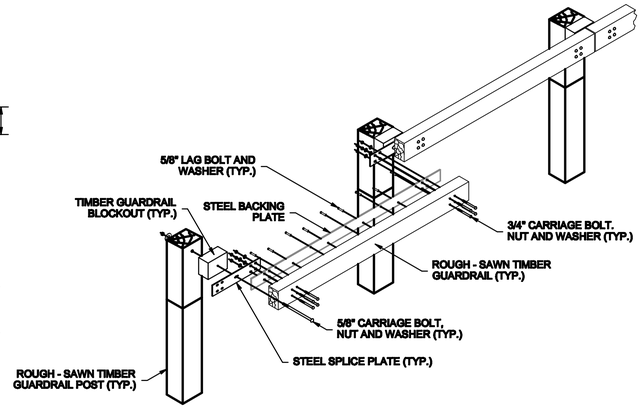


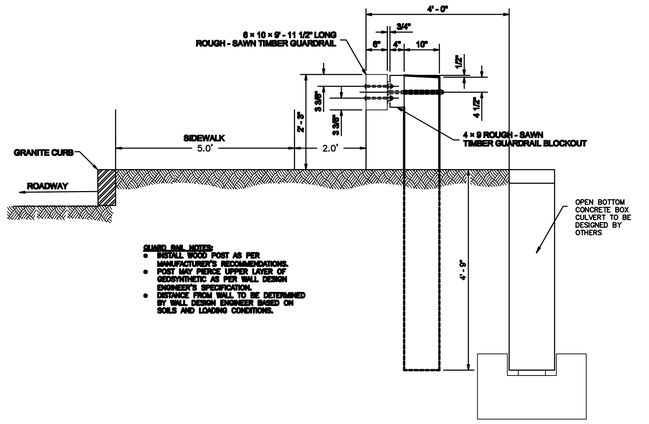


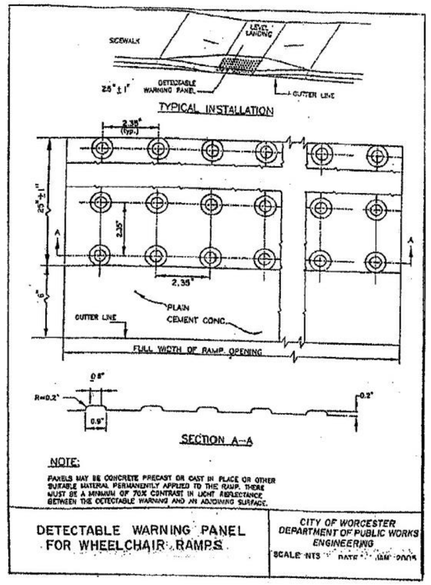


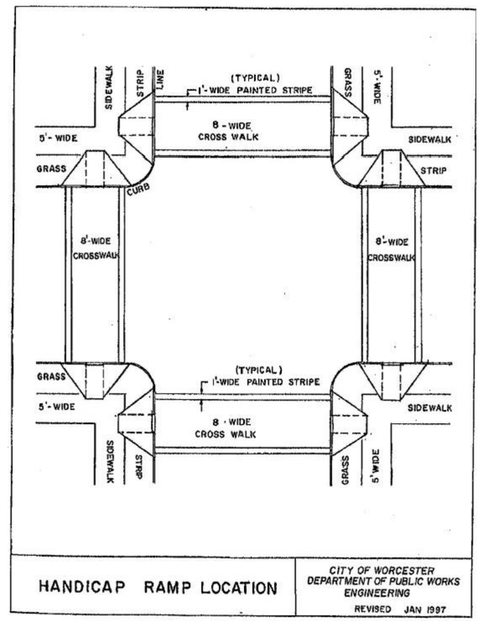
WOOD GUARDRAIL

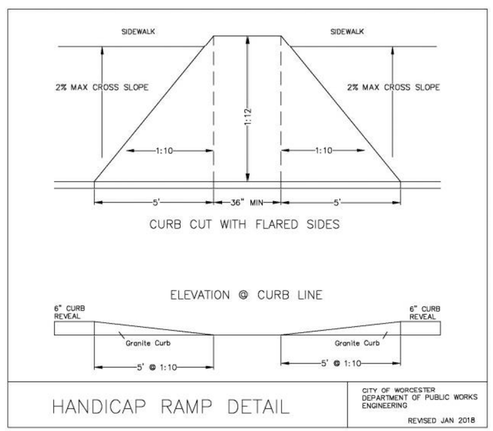
NTS

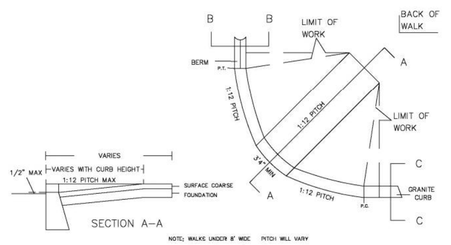






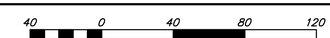






HANDICAP RAMP DETAILS

NTS



HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

NOTE:
ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF WORCESTER DEPARTMENT OF PUBLIC WORKS AND ENGINEERING STANDARDS.

THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

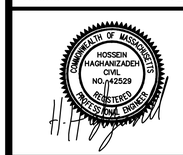
PLAN REVISIONS:

NO.	DATE	DESCRIPTION	BY
9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	3/27/2020	CITY COMMENTS	LLW
3	11/17/19	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW

WORCESTER CONSERVATION COMMISSION APPROVED:

BEING A MAJORITY OF THE WORCESTER CONSERVATION COMMISSION:

ENDORSED APPROVED DATE: _____



H. S. & T. GROUP, INC.
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WORCESTER, MASSACHUSETTS 01610–1723
PHONE: (508) 757–4944 FAX: (508) 752–8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT
DETAIL SHEET/GUARDRAIL

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 11/1/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639–124
ZONE: RL–7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 29 OF 35

PHASE 1: UTILITIES AND ROADWAY CONSTRUCTION:

PHASE 1 WORK INCLUDES ROADWAY CONSTRUCTION ON DANIELLE'S WAY STA 0+00 TO 6+00, ASSOCIATED UTILITIES AND DRAINAGE INFRASTRUCTURE. ACCESS WILL BE FROM CASTINE STREET.

1. CONTRAQCTOR SHALL FOLLOW THE CONSTRUCTION SEQUENCE. THE SEQUENCE SHALL BE REVIEWED PRIOR TO THE CONSTRUCTION COMMENCEMENT.
2. OWNER OR CONTRACTOR SHALL OBTAIN APPLICABLE PERMITS AND ATTEND A PRE-CONSTRUCTION MEETING WITH THE CITY OF WORCESTER.
3. DURING PHASES 1&2 CONSTRUCTION VEHICLES SHALL ACCESS THE SITE VIA CASTINE STREET AND SHALL NOT USE WHIPPOORWILL DRIVE.
4. INSTALL PHASE 1 EROSION CONTROL, STAKE OR FLAG EXISTING WETLANDS AND BUFFER ZONES AS REQUIRED, STAKE OR FLAG LIMIT OF WORK LINE.
5. BEGIN TREE CUTTING, CLEARING AND GRUBBING. NO STUMPING TO OCCUR UNTIL INDIVIDUAL BUILDING UNITS BEGIN CONSTRUCTION.
6. ROUGH GRADE SITE AND DETENTION BASIN, STOCKPILE SOIL.
7. DEMOLISH AND REMOVE EXISTING PAVED AREAS FROM SITE.
8. INSTALL SUBSURFACE UTILITY MAINS, SERVICE STUBS TO BUILDINGS AND DRAINAGE.
9. COMPACT ROADWAY AND SIDEWALK SUBGRADE, INSTALL GRAVEL BASE AND BINDER COURSE.
10. INSPECT EROSION CONTROL EVERY TWO WEEKS AND AFTER STORM EVENTS OF 1/2 INCH OF PRECIPITATION OR MORE. REPAIR AND MAINTAIN EROSION CONTROL AS NECESSARY.
11. NO STOCKPILING SHOULD OCCUR WITHIN THE 100 FOOT BUFFER ZONE.

GENERAL SITE CONSTRUCTION:

1. COMPLETE DETENTION BASIN CONSTRUCTION.
2. INSTALL FRAMES, GRATES AND COVERS ON UTILITIES.
3. INSTALL SIDEWALK, CURBS, DRIVEWAYS AND STREET LIGHTING.
4. INSTALL ROADWAY TOP COURSE.
5. PLANT STREET TREES AND ESTABLISH OTHER VEGETATION.
6. REMOVE TEMPORARY SEDIMENT BASINS AND SILT FENCE AND HAYBALES.
7. INSPECT EROSION CONTROL EVERY TWO WEEKS AND AFTER STORM EVENTS OF 1/2 INCH OF PRECIPITATION OR MORE. REPAIR AND MAINTAIN EROSION CONTROL AS NECESSARY.

INDIVIDUAL LOT CONSTRUCTION:

1. INSTALL SILT FENCE AND HAYBALES AT LOTS PRIOR TO COMMENCING CONSTRUCTION ON THE LOT.
2. MOVE TEMPORARY SEDIMENT BASINS AND TEMPORARY DIVERSION SWALES AS NECESSARY DURING CONSTRUCTION OF INDIVIDUAL LOTS.
3. ROUGH GRADE INDIVIDUAL LOTS.
4. EXCAVATE AND POUR FOUNDATIONS.
5. CONNECT SERVICE UTILITIES, BEGIN FRAMING HOMES.
6. FINISH GRADE LOTS AND LOAM AND SEED.
7. REMOVE TEMPORARY EROSION CONTROL ONCE SITE IS STABILIZED.

CONSTRUCTION SEQUENCE:-EXSTENDED SHUT DOWN -ENTIRE LOT AND INDIVIDUAL LOTS

THE FOLLOWING SHOULD BE PERFORMED PRIOR TO AND DURING EXTENDED PERIOD WHERE CONSTRUCTION IS NOT UNDERWAY DUE TO WEATHER, ECONOMIC CONDITIONS OR OTHER FACTORS.

1. INSPECT AND REPAIR PERIMETER HAYBALE AND SILT FENCE EROSION CONTROL AND EROSION CONTROL BLANKETS.
2. PROVIDE LOAM AND SEED OR OTHER VEGETATIVE COVER OVER EXPOSED SOIL AREAS.
3. PROVIDE VEGETATIVE COVER OR TARPS OVER STOCKPILED SOILS AND ERODABLE MATERIALS.
4. PROVIDE COVER OVER DUMPSTER
5. INSPECT SITE ONCE PER WEEK AND AFTER SIGNIFICANT RAINFALL EVENTS TO CONFIRM SEDIMENT AND EROSION CONTROL MEASURES ARE PERFORMING AS DESIGNED.

O DEWATERING BASIN

TEMP SWALE TO TEMP SEDIMENT BASIN

TEMPORARY SEDIMENT BASIN (TBS1&2)
BASIN TO DISCHARGE OVERLAND
TOWARD PROPOSED DETENTION AREA
OR WETLANDS (TYP)
SIZED TO ACCOMMODATE DISTURBED AREA OF 74,380 SF * 1"=6,174 CF
VOLUME OF BASIN = 7,175 CF (AREA OF 2,050 SF*3.5FT)

PROPOSED SILT FENCE WITH HAYBALES (TYP)

BOTTOM OF BASIN SHALL NOT BE EXCAVATED BELOW ELEVATION 636 PRIOR TO ROADWAY ASPHALT BASE COAT BEING INSTALLED

TBS1

PROPOSED SILT SACKS IN CATCH BASIN (TYP)

GRADE TO DRAIN PROVIDE TEMPORARY SWALES AND BERMS (TYP)

PROPOSED CONSTRUCTION ENTRANCE

TEMPORARY SEDIMENT BASIN (TBS1&2)
BASIN TO DISCHARGE OVERLAND
TOWARD PROPOSED DETENTION AREA
OR WETLANDS (TYP)
SIZED TO ACCOMMODATE DISTURBED AREA OF 74,380 SF * 1"=6,174 CF
VOLUME OF BASIN = 7,175 CF (AREA OF 2,050 SF*3.5FT)

TEMPORARY SEDIMENT BASIN (TBS4)
BASIN TO DISCHARGE OVERLAND
TOWARD PROPOSED DETENTION AREA
OR WETLANDS (TYP)
SIZED TO ACCOMMODATE DISTURBED
AREA OF 35,086 SF * 1"=2,912 CF
VOLUME OF BASIN = 3,000 CF (AREA OF 1,000 SF*3FT)

PHASE 1

PROPOSED SILT FENCE WITH HAYBALES (TYP)

TBS2

EQUIPMENT STAGING AREA

TBS4

TBS3

DANIELLE'S WAY
(PRIVATE 50' ROW)

TEMPORARY STOCKPILE AREA (TYP)

PROPOSED CONSTRUCTION SIGNAGE

TEMPORARY SEDIMENT BASIN (TBS3)
BASIN TO DISCHARGE OVERLAND
TOWARD PROPOSED DETENTION AREA
OR WETLANDS (TYP)
SIZED TO ACCOMMODATE DISTURBED AREA OF 57,149 SF * 1"=4,743 CF
VOLUME OF BASIN = 5,100 CF (AREA OF 1,700 SF*3FT)

CASTINE STREET
(PRIVATE 50' ROW)

AROOSTO

PROPOSED CONSTRUCTION PERIMETER FENCING

PHASE 1

WHIPPOORWILL DRIVE
(PRIVATE 50' ROW)

1. EXCAVATE FOOTINGS, REMOVE FILL, PREPARE SUBGRADE FOR CULVERT FOOTING INSTALLATION. STABILIZE DURING DRY PERIOD.
2. POUR CONCRETE FOR FOOTINGS.
3. STABALIZE AREA UNTIL BOX CULVERT CAN BE
4. INSTALLED IN PHASE 3.
5. INSTALL 6" PVC FOR WATERLINE.

100' DIAMETER
TEMPORARY TURNAROUND
TO BE DECOMMISSIONED AFTER
THE COMPLETION OF PHASE TWO

BORDERING VEGETATED WETLAND (BVW) "C" FLAG SERIES

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE METHODS AND MATERIALS SHOWN ON THESE DRAWINGS ARE MINIMUM REQUIREMENTS FOR EROSION AND SEDIMENTATION CONTROL. ACTUAL SITE CONDITIONS, SEASONAL OR CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS AS DIRECTED BY THE ENGINEER OR CITY OF WORCESTER AGENT.
2. AFTER EROSION AND SEDIMENTATION CONTROLS ARE IN PLACE AND INSPECTED BY THE CITY, THE CONTRACTOR MAY STRIP SOILS AS REQUIRED. ALL STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL DEVICES THAT SHALL INCLUDE A MINIMUM OF A SILT FENCE WITH HAYBALE SUPPORT. OTHER METHODS MAY INCLUDE STOCKPILE COVERS, MULCHING OR OTHER METHODS THAT PREVENT EROSIVE CONDITIONS.
3. ALL DISTURBED SOILS NOT SUBJECT TO CONSTRUCTION SHALL BE IMMEDIATELY STABILIZED BY MULCHING OR TEMPORARY SEEDING.
4. ALL PROPOSED SLOPES (EXCLUDING ANY RIPRAP SLOPES) STEEPER THAN 3:1 SHALL BE STABILIZED WITH A CURLEX EROSION CONTROL MATTING BY AMERICAN EXCELSIOR COMPANY (OR ENGINEER APPROVED EQUAL) AND PROTECTED FROM EROSION. ADDITIONALLY, THESE AREAS ARE TO BE HYDROSEEDED.
5. DURING BUILDING AND ROADWAY CONSTRUCTION, ALL SITE RUNOFF SHALL BE DIRECTED TOWARD TEMPORARY SEDIMENT BASINS BY MEANS OF TEMPORARY SWALES, DITCHES AND/OR WATER BARS, AS NECESSARY. NO RUNOFF SHALL BE ALLOWED TO EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
6. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ONSITE AT ALL TIMES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE.
7. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL NOT BE REMOVED UNTIL ALL DISTURBED SURFACES HAVE BEEN FULLY STABILIZED WITH VEGETATION.
8. THE CONSTRUCTION ENTRANCE SHALL BE LOCATED AS SHOWN ON THE PLANS, OR AS FIELD DIRECTED BY THE ENGINEER.
9. CONTRACTOR SHALL CONTROL AIRBORNE DUST WITH USE OF SPRAYED WATER AS REQUIRED TO MINIMIZE IMPACT ON NEIGHBORING PROPERTIES.
10. THE CONTRACTOR SHALL STRIP TOPSOIL AND STOCKPILE ON-SITE FOR REUSE. SOIL STOCKPILES SHALL BE NO HIGHER THAN 8 FEET. STOCKPILES SHALL BE ENCLOSED BY HAYBALES AND SILT FENCE TO PREVENT TRAVEL OF SEDIMENT.
11. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

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EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

40 0 40 80 120
HORIZONTAL SCALE 1"=40'

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

PLAN NO.	REVISIONS: DATE	DESCRIPTION	BY
6	8/17/2020	CITY COMMENTS	LLW
5	7/13/2020	CITY COMMENTS	LLW
4	6/16/2020	CITY COMMENTS	LLW
3	3/27/2020	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW

MALDEN WOODS SUBDIVISION AMENDMENT
MALDEN WOODS
PHASE 1

OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

APPLICANT:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 08/08/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: PJB	FLD. BK:	639-124
ZONE: RESIDENCE A	REV'D: DJT/HH	DWG:	MALDENWOODS NOI REV1
JOB NUMBER: 59596		SHEET NUMBER	30 OF 35
DWG NUMBER: 5004			

PHASE 2: BUILDING, LANDSCAPING AND ROADWAY FINISH CONSTRUCTION:

PHASE 2 WORK INCLUDES ROADWAY CONSTRUCTION ON CASTINE STREET, DANIELLE'S WAY STA 6+00 TO END, ASSOCIATED UTILITIES AND DRAINAGE INFRASTRUCTURE CONTINUED FROM PHASE 1 AND DWELLING CONSTRUCTION ON CASTINE STREET AND DANIELLE'S WAY. A MAXIMUM OF 4 BUILDINGS TO BE CONSTRUCTED AT ONCE. ADDITIONAL SITES TO BE OPENED ONLY ONCE THE STABILIZATION IS ESTABLISHED IN THE PRIOR UNITS. ACCESS WILL BE FROM CASTINE STREET AND DOWN THE NEWLY CONSTRUCTED PORTION OF DANIELLE'S WAY.

GENERAL SITE CONSTRUCTION:

1. COMPLETE DETENTION BASIN CONSTRUCTION.
2. INSTALL FRAMES, GRATES AND COVERS ON UTILITIES.
3. INSTALL SIDEWALK, CURBS, DRIVEWAYS AND STREET LIGHTING.
4. INSTALL ROADWAY TOP COURSE.
5. PLANT STREET TREES AND ESTABLISH OTHER VEGETATION.
6. REMOVE TEMPORARY SEDIMENT BASINS AND SILT FENCE AND HAYBALES.
7. INSPECT EROSION CONTROL EVERY TWO WEEKS AND AFTER STORM EVENTS OF 1/2 INCH OF PRECIPITATION OR MORE. REPAIR AND MAINTAIN EROSION CONTROL AS NECESSARY.
8. DURING PHASES 1&2 CONSTRUCTION VEHICLES SHALL ACCESS THE SITE VIA CASTINE STREET AND SHALL NOT USE WHIPPOORWILL DRIVE.

INDIVIDUAL LOT CONSTRUCTION:

1. INSTALL SILT FENCE AND HAYBALES AT LOTS PRIOR TO COMMENCING CONSTRUCTION ON THE LOT.
2. MOVE TEMPORARY SEDIMENT BASINS AND TEMPORARY DIVERSION SWALES AS NECESSARY DURING CONSTRUCTION OF INDIVIDUAL LOTS.
3. ROUGH GRADE INDIVIDUAL LOTS.
4. EXCAVATE AND POUR FOUNDATIONS.
5. CONNECT SERVICE UTILITIES, BEGIN FRAMING HOMES.
6. FINISH GRADE LOTS AND LOAM AND SEED.
7. REMOVE TEMPORARY EROSION CONTROL ONCE SITE IS STABILIZED.

UTILITIES AND ROADWAY CONSTRUCTION:

1. OWNER OR CONTRACTOR SHALL OBTAIN APPLICABLE PERMITS AND ATTEND A PRE-CONSTRUCTION MEETING WITH THE CITY OF WORCESTER.
2. INSTALL PHASE 1 EROSION CONTROL, STAKE OR FLAG EXISTING WETLANDS AND BUFFER ZONES AS REQUIRED, STAKE OR FLAG LIMIT OF WORK LINE.
3. BEGIN TREE CUTTING, CLEARING AND GRUBBING. NO STUMPING TO OCCUR UNTIL INDIVIDUAL BUILDING UNITS BEGIN CONSTRUCTION.
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9. NO STOCKPILING SHOULD OCCUR WITHIN THE 100 FOOT BUFFER ZONE.

CONSTRUCTION SEQUENCE:-EXSTENDED SHUT DOWN -ENTIRE LOT AND INDIVIDUAL LOTS

THE FOLLOWING SHOULD BE PERFORMED PRIOR TO AND DURING EXTENDED PERIOD WHERE CONSTRUCTION IS NOT UNDERWAY DUE TO WEATHER, ECONOMIC CONDITIONS OR OTHER FACTORS.

1. INSPECT AND REPAIR PERIMETER HAYBALE AND SILT FENCE EROSION CONTROL AND EROSION CONTROL BLANKETS.
2. PROVIDE LOAM AND SEED OR OTHER VEGETATIVE COVER OVER EXPOSED SOIL AREAS.
3. PROVIDE VEGETATIVE COVER OR TARPS OVER STOCKPILED SOILS AND ERODABLE MATERIALS.
4. PROVIDE COVER OVER DUMPSTER
5. INSPECT SITE ONCE PER WEEK AND AFTER SIGNIFICANT RAINFALL EVENTS TO CONFIRM SEDIMENT AND EROSION CONTROL MEASURES ARE PERFORMING AS DESIGNED.

DEWATERING BASIN

TEMP SWALE TO TEMP SEDIMENT BASIN

EROSION AND SEDIMENTATION CONTROL NOTES

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4. ALL PROPOSED SLOPES (EXCLUDING ANY RIPRAP SLOPES) STEEPER THAN 3:1 SHALL BE STABILIZED WITH A CURLEX EROSION CONTROL MATTING BY AMERICAN EXCELSIOR COMPANY (OR ENGINEER APPROVED EQUAL) AND PROTECTED FROM EROSION. ADDITIONALLY, THESE AREAS ARE TO BE HYDROSEEDED.
5. DURING BUILDING AND ROADWAY CONSTRUCTION, ALL SITE RUNOFF SHALL BE DIRECTED TOWARD TEMPORARY SEDIMENT BASINS BY MEANS OF TEMPORARY SWALES, DITCHES AND/OR WATER BARS, AS NECESSARY. NO RUNOFF SHALL BE ALLOWED TO EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
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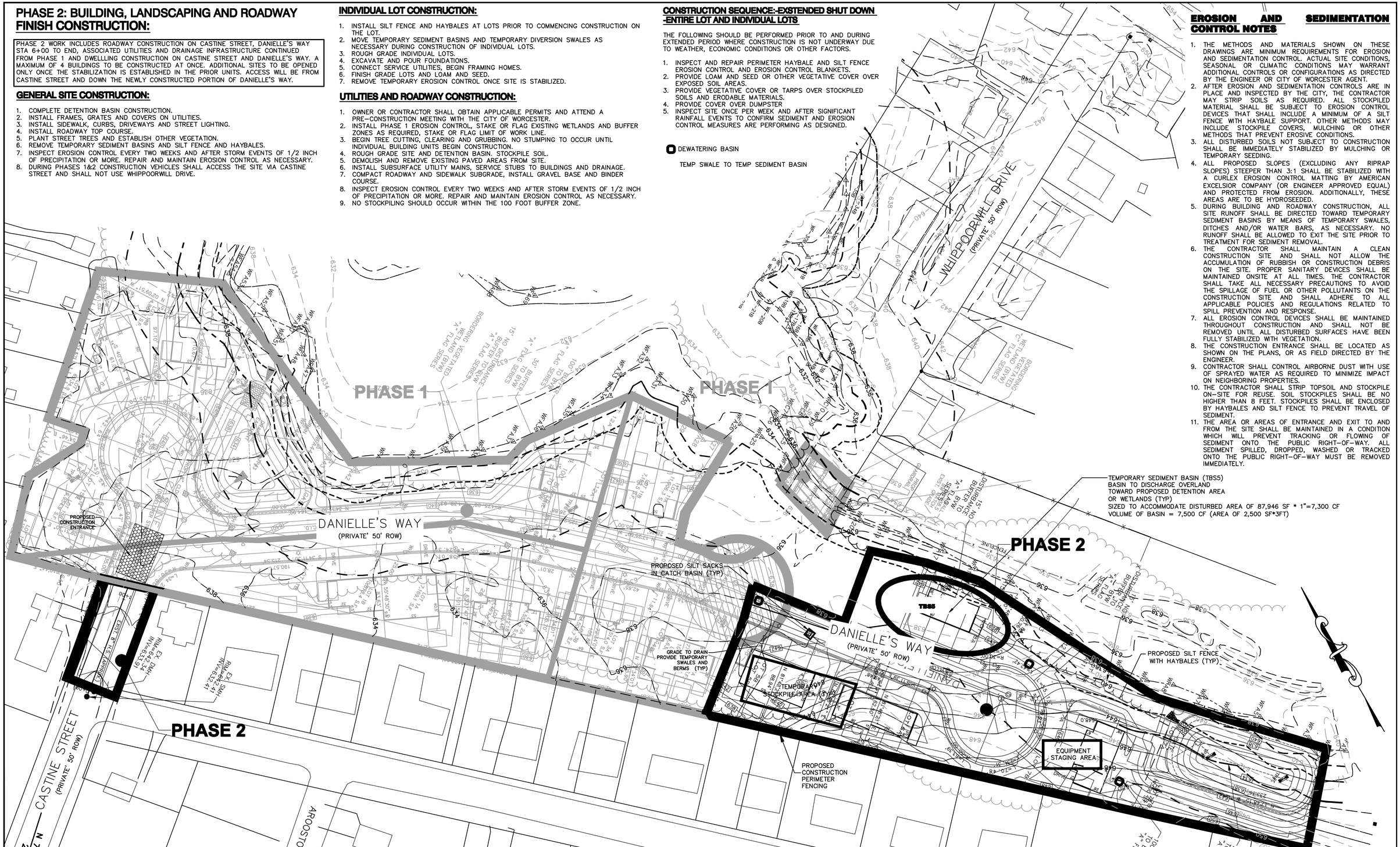

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WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

PLAN	REVISIONS:		
6	8/17/2020	CITY COMMENTS	LLW
5	7/13/2020	CITY COMMENTS	LLW
4	6/16/2020	CITY COMMENTS	LLW
3	3/27/2020	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
NO.	DATE	DESCRIPTION	BY

MALDEN WOODS SUBDIVISION AMENDMENT
MALDEN WOODS
PHASE 2

OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

APPLICANT:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 08/08/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: PJB	FLD. BK:	639-124
ZONE: RESIDENCE A	REV'D: DJT/HH	DWG:	MALDENWOODS NOI REV1
JOB NUMBER:		SHEET NUMBER	31 OF 35
DWG NUMBER:			

PHASE 3: CULVERT INSTALLATIONS

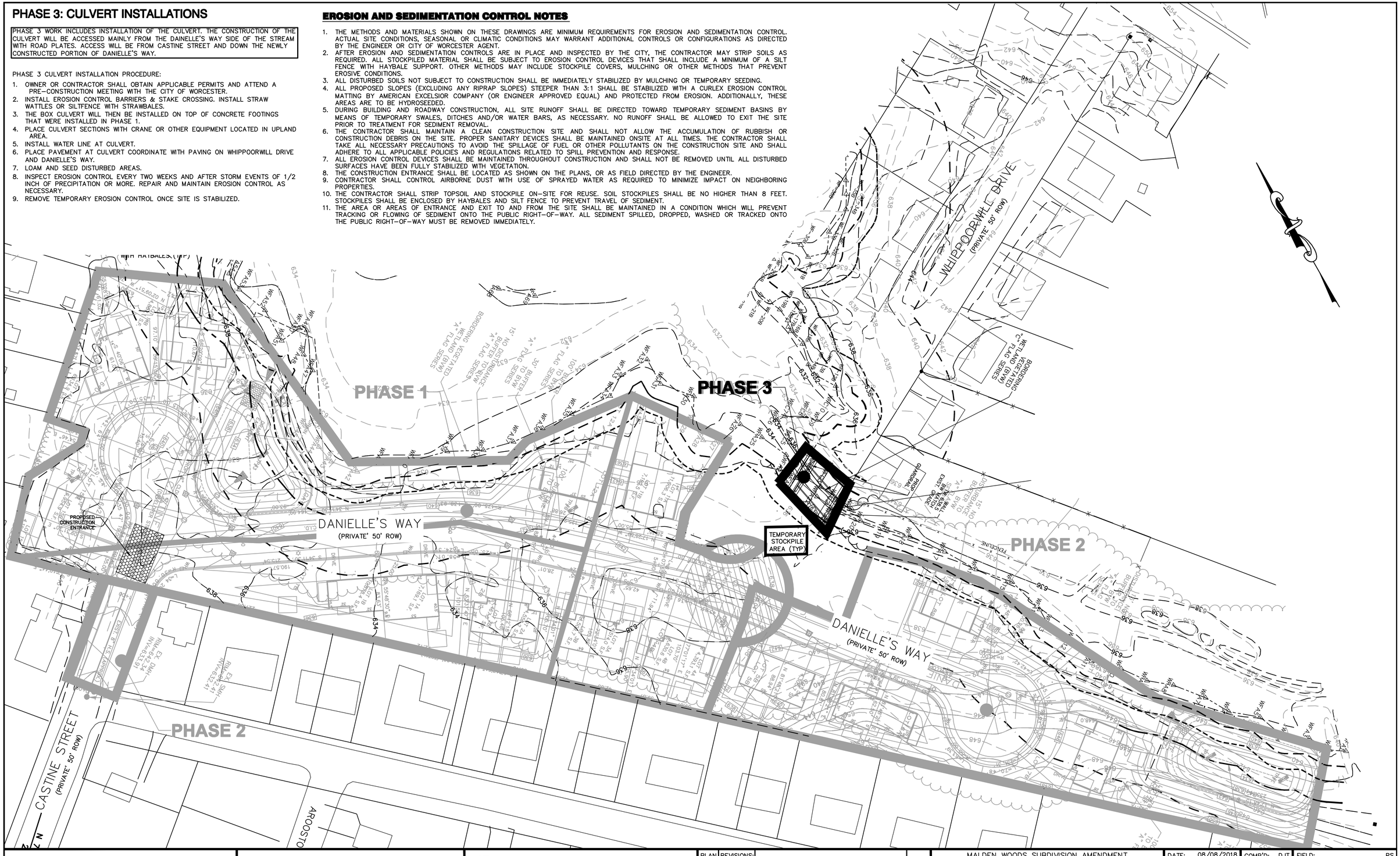
PHASE 3 WORK INCLUDES INSTALLATION OF THE CULVERT. THE CONSTRUCTION OF THE CULVERT WILL BE ACCESSED MAINLY FROM THE DAINELLE'S WAY SIDE OF THE STREAM WITH ROAD PLATES. ACCESS WILL BE FROM CASTINE STREET AND DOWN THE NEWLY CONSTRUCTED PORTION OF DANIELLE'S WAY.

PHASE 3 CULVERT INSTALLATION PROCEDURE:

1. OWNER OR CONTRACTOR SHALL OBTAIN APPLICABLE PERMITS AND ATTEND A PRE-CONSTRUCTION MEETING WITH THE CITY OF WORCESTER.
2. INSTALL EROSION CONTROL BARRIERS & STAKE CROSSING. INSTALL STRAW WATTLES OR SILTFENCE WITH STRAWBALES.
3. THE BOX CULVERT WILL THEN BE INSTALLED ON TOP OF CONCRETE FOOTINGS THAT WERE INSTALLED IN PHASE 1.
4. PLACE CULVERT SECTIONS WITH CRANE OR OTHER EQUIPMENT LOCATED IN UPLAND AREA.
5. INSTALL WATER LINE AT CULVERT.
6. PLACE PAVEMENT AT CULVERT COORDINATE WITH PAVING ON WHIPPOORWILL DRIVE AND DANIELLE'S WAY.
7. LOAM AND SEED DISTURBED AREAS.
8. INSPECT EROSION CONTROL EVERY TWO WEEKS AND AFTER STORM EVENTS OF 1/2 INCH OF PRECIPITATION OR MORE. REPAIR AND MAINTAIN EROSION CONTROL AS NECESSARY.
9. REMOVE TEMPORARY EROSION CONTROL ONCE SITE IS STABILIZED.

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE METHODS AND MATERIALS SHOWN ON THESE DRAWINGS ARE MINIMUM REQUIREMENTS FOR EROSION AND SEDIMENTATION CONTROL. ACTUAL SITE CONDITIONS, SEASONAL OR CLIMATIC CONDITIONS MAY WARRANT ADDITIONAL CONTROLS OR CONFIGURATIONS AS DIRECTED BY THE ENGINEER OR CITY OF WORCESTER AGENT.
2. AFTER EROSION AND SEDIMENTATION CONTROLS ARE IN PLACE AND INSPECTED BY THE CITY, THE CONTRACTOR MAY STRIP SOILS AS REQUIRED. ALL STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL DEVICES THAT SHALL INCLUDE A MINIMUM OF A SILT FENCE WITH HAYBALE SUPPORT. OTHER METHODS MAY INCLUDE STOCKPILE COVERS, MULCHING OR OTHER METHODS THAT PREVENT EROSIVE CONDITIONS.
3. ALL DISTURBED SOILS NOT SUBJECT TO CONSTRUCTION SHALL BE IMMEDIATELY STABILIZED BY MULCHING OR TEMPORARY SEEDING.
4. ALL PROPOSED SLOPES (EXCLUDING ANY RIPRAP SLOPES) STEEPER THAN 3:1 SHALL BE STABILIZED WITH A CURLEX EROSION CONTROL MATTING BY AMERICAN EXCELSIOR COMPANY (OR ENGINEER APPROVED EQUAL) AND PROTECTED FROM EROSION. ADDITIONALLY, THESE AREAS ARE TO BE HYDROSEEDED.
5. DURING BUILDING AND ROADWAY CONSTRUCTION, ALL SITE RUNOFF SHALL BE DIRECTED TOWARD TEMPORARY SEDIMENT BASINS BY MEANS OF TEMPORARY SWALES, DITCHES AND/OR WATER BARS, AS NECESSARY. NO RUNOFF SHALL BE ALLOWED TO EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
6. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS ON THE SITE. PROPER SANITARY DEVICES SHALL BE MAINTAINED ONSITE AT ALL TIMES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID THE SPILLAGE OF FUEL OR OTHER POLLUTANTS ON THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL APPLICABLE POLICIES AND REGULATIONS RELATED TO SPILL PREVENTION AND RESPONSE.
7. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL NOT BE REMOVED UNTIL ALL DISTURBED SURFACES HAVE BEEN FULLY STABILIZED WITH VEGETATION.
8. THE CONSTRUCTION ENTRANCE SHALL BE LOCATED AS SHOWN ON THE PLANS, OR AS FIELD DIRECTED BY THE ENGINEER.
9. CONTRACTOR SHALL CONTROL AIRBORNE DUST WITH USE OF SPRAYED WATER AS REQUIRED TO MINIMIZE IMPACT ON NEIGHBORING PROPERTIES.
10. THE CONTRACTOR SHALL STRIP TOPSOIL AND STOCKPILE ON-SITE FOR REUSE. SOIL STOCKPILES SHALL BE NO HIGHER THAN 8 FEET. STOCKPILES SHALL BE ENCLOSED BY HAYBALES AND SILT FENCE TO PREVENT TRAVEL OF SEDIMENT.
11. THE AREA OR AREAS OF ENTRANCE AND EXIT TO AND FROM THE SITE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.



PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET - 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

40 0 40 80 120
HORIZONTAL SCALE 1"=40'

NOTE:
THE APPLICANT WILL PROVIDE AT NO COST TO THE CITY ALL FACILITIES SHOWN ON THE PLAN INCLUDING BUT NOT LIMITED TO ROADWAYS, BURBS, BOUNDS, DRAINAGE SYSTEMS, SANITARY SEWER SYSTEMS, UTILITIES, STREET LIGHTS AND EARTHWORKS, EXCEPT AS OTHERWISE NOTED.

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MALDEN WOODS SUBDIVISION AMENDMENT
MALDEN WOODS
PHASE 3

OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

APPLICANT:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 08/08/2018	COMP'D: DJT	FIELD:	PS
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ZONE: RESIDENCE A	REV'D: DJT/HH	DWG:	MALDENWOODS NOI REV1
JOB NUMBER:		SHEET NUMBER	32 OF 35
DWG NUMBER:			

PHASE 4: IMPROVEMENTS TO WHIPPOORWILL DRIVE

PHASE 4 WORK INCLUDES ROADWAY RECONSTRUCTION ON WHIPPOORWILL DRIVE AND ASSOCIATED UTILITIES AND DRAINAGE INFRASTRUCTURE. CONSTRUCTION OF DWELLING UNITS NUMBER 9 & 10. ACCESS WILL BE FROM MALDEN STREET ONTO WHIPPOORWILL DRIVE.

1. OWNER OR CONTRACTOR SHALL OBTAIN APPLICABLE PERMITS AND ATTEND A PRE-CONSTRUCTION MEETING WITH THE CITY OF WORCESTER.
2. INSTALL PHASE 3 EROSION CONTROL, STAKE OR FLAG EXISTING WETLANDS AND BUFFER ZONES AS REQUIRED, STAKE OR FLAG LIMIT OF WORK LINE.
5. DEMOLISH AND REMOVE EXISTING PAVED AREAS FROM SITE AS NECESSARY.
6. BEGIN ROADWAY PREPARATION FOR RECONSTRUCTION.
7. ROUGH GRADE ROADWAY. STOCKPILE SOIL.
8. INSTALL SUBSURFACE UTILITIES AND DRAINAGE STRUCTURES.
9. COMPACT ROADWAY SUBGRADE, INSTALL GRAVEL BASE.
10. RECONSTRUCT DRIVEWAY ENTRANCES IMPACTED BY CONSTRUCTION.
11. INSTALL BINDER COURSE.
12. INSTALL TOP COAT AND SIDEWALKS COORDINATE WITH PHASE 4 CULVERT INSTALLATION.
13. LOAM AND SEED DISTURBED AREAS.
14. INSPECT EROSION CONTROL EVERY TWO WEEKS AND AFTER STORM EVENTS OF 1/2 INCH OF PRECIPITATION OR MORE. REPAIR AND MAINTAIN EROSION CONTROL AS NECESSARY.
7. REMOVE TEMPORARY EROSION CONTROL ONCE SITE IS STABILIZED.

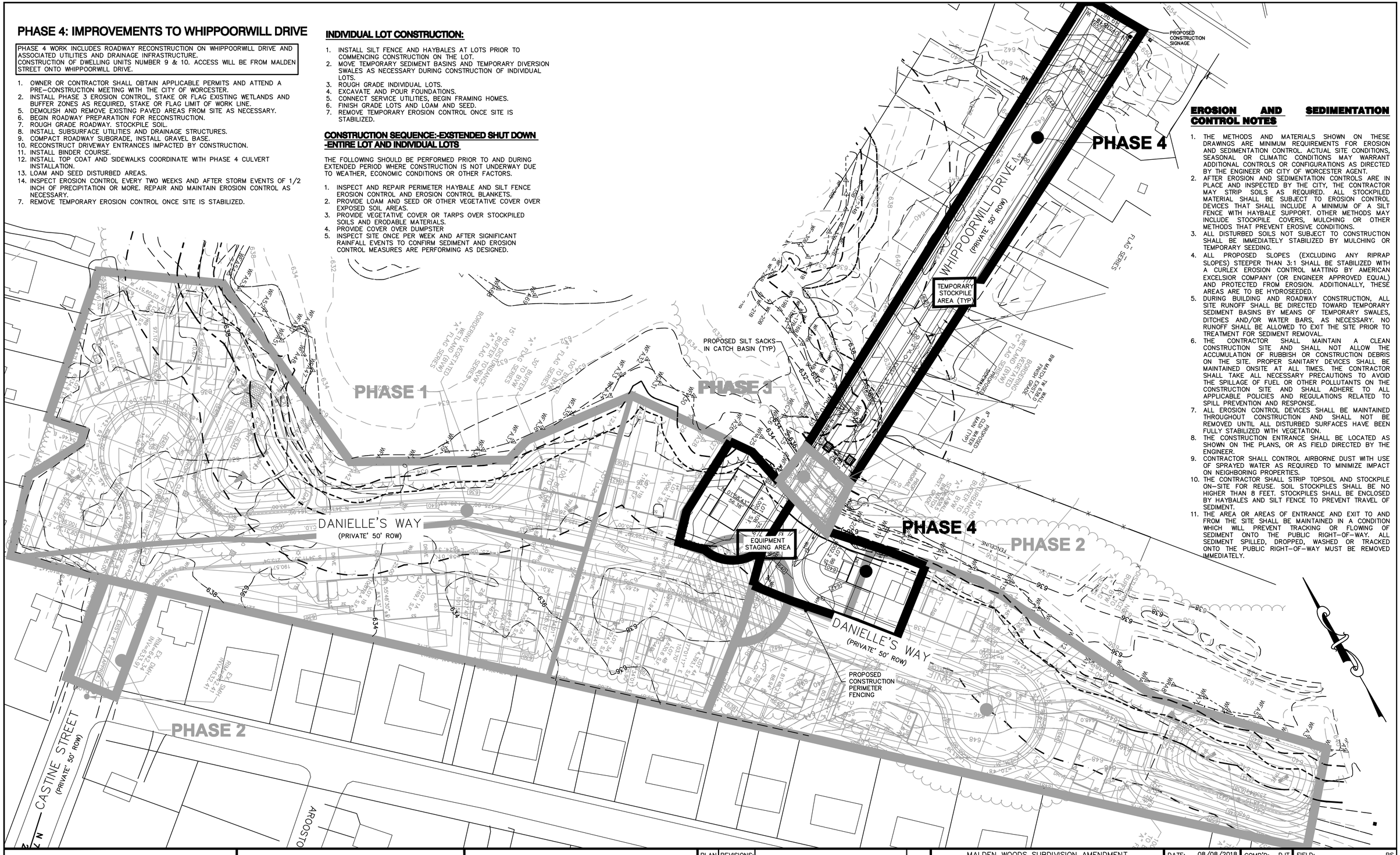
INDIVIDUAL LOT CONSTRUCTION:

1. INSTALL SILT FENCE AND HAYBALES AT LOTS PRIOR TO COMMENCING CONSTRUCTION ON THE LOT.
2. MOVE TEMPORARY SEDIMENT BASINS AND TEMPORARY DIVERSION SWALES AS NECESSARY DURING CONSTRUCTION OF INDIVIDUAL LOTS.
3. ROUGH GRADE INDIVIDUAL LOTS.
4. EXCAVATE AND POUR FOUNDATIONS.
5. CONNECT SERVICE UTILITIES, BEGIN FRAMING HOMES.
6. FINISH GRADE LOTS AND LOAM AND SEED.
7. REMOVE TEMPORARY EROSION CONTROL ONCE SITE IS STABILIZED.

CONSTRUCTION SEQUENCE:-EXSTENDED SHUT DOWN -ENTIRE LOT AND INDIVIDUAL LOTS

THE FOLLOWING SHOULD BE PERFORMED PRIOR TO AND DURING EXTENDED PERIOD WHERE CONSTRUCTION IS NOT UNDERWAY DUE TO WEATHER, ECONOMIC CONDITIONS OR OTHER FACTORS.

1. INSPECT AND REPAIR PERIMETER HAYBALE AND SILT FENCE EROSION CONTROL AND EROSION CONTROL BLANKETS.
2. PROVIDE LOAM AND SEED OR OTHER VEGETATIVE COVER OVER EXPOSED SOIL AREAS.
3. PROVIDE VEGETATIVE COVER OR TARPS OVER STOCKPILED SOILS AND ERODABLE MATERIALS.
4. PROVIDE COVER OVER DUMPSTER
5. INSPECT SITE ONCE PER WEEK AND AFTER SIGNIFICANT RAINFALL EVENTS TO CONFIRM SEDIMENT AND EROSION CONTROL MEASURES ARE PERFORMING AS DESIGNED.



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HORIZONTAL SCALE 1"=40'

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2	11/17/19	CITY COMMENTS	LLW
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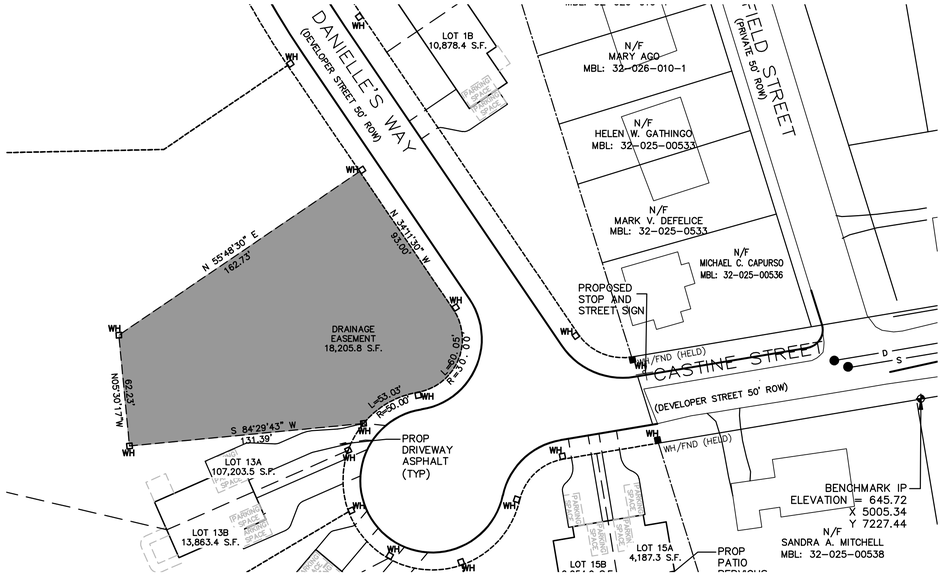
MALDEN WOODS SUBDIVISION AMENDMENT
MALDEN WOODS
PHASE 4

OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

APPLICANT:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

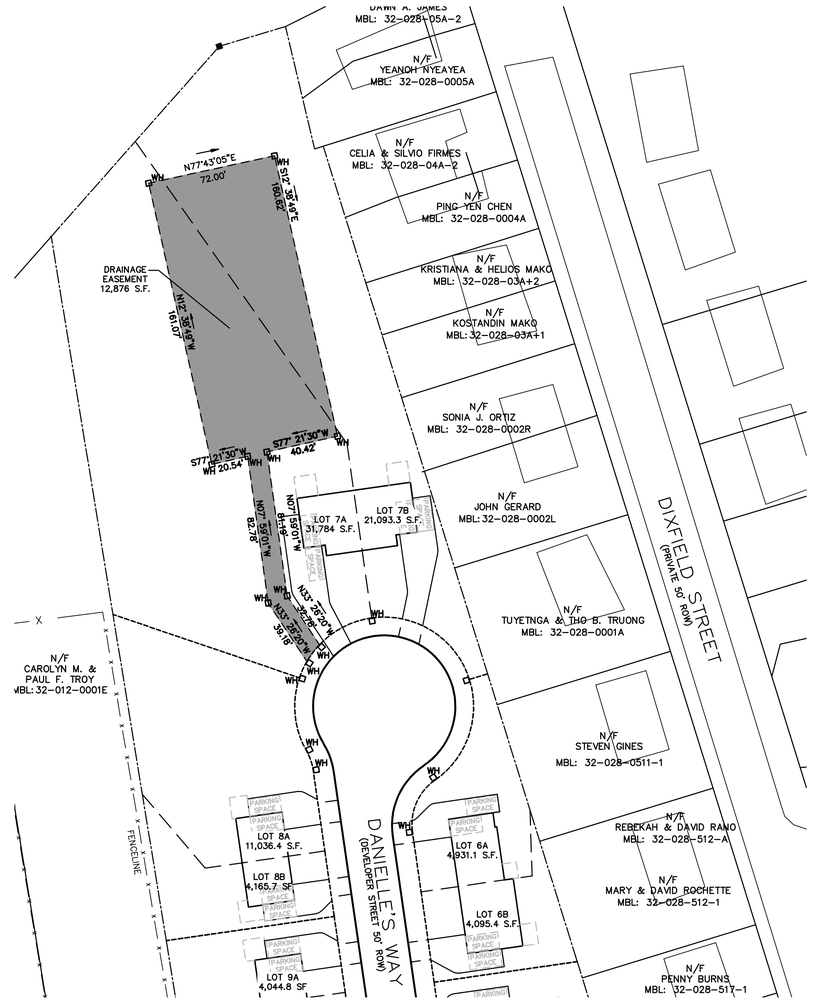
DATE: 08/08/2018 | COMP'D: DJT | FIELD: PS
SCALE: 1"=40' | CAD: PJB | FLD. BK: 639-124
ZONE: RESIDENCE A | REV'D: DJT/HH | DWG: MALDENWOODS NOI REV1
JOB NUMBER:
DWG NUMBER:

SHEET NUMBER
33 OF 35



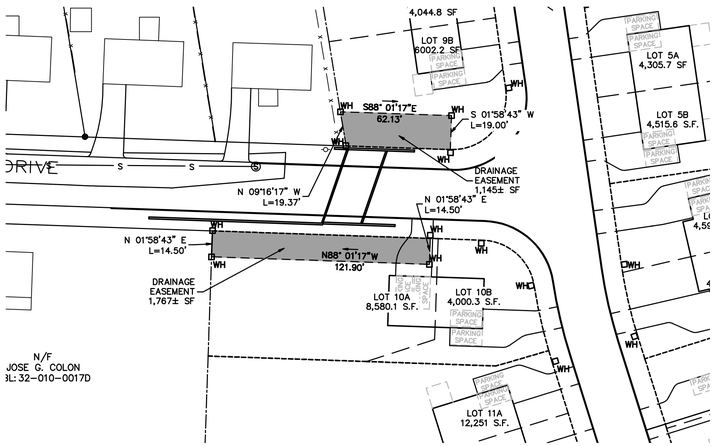
SOUTHERN DETENTION BASIN

SCALE 1"=40'



NORTHERN DETENTION BASIN

SCALE 1"=40'



WETLAND CROSSING

SCALE 1"=40'

40 0 40 80 120

HORIZONTAL SCALE 1"=40'

NOT FOR CONSTRUCTION

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4	04/18/19	CITY COMMENTS	LLW
3	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW
2	8/8/18	CITY COMMENTS	PJB
1	7/2/18	CITY COMMENTS	PJB

WORCESTER PLANNING BOARD APPROVED:

BEING A MAJORITY OF THE WORCESTER PLANNING BOARD:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS
HOSSEIN HAGHANIZADEH
CIVIL
NO. 42529
REGISTERED
PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
DANIEL J. TIVNAN
NO. 40047
REGISTERED
PROFESSIONAL SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
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EASEMENT PLAN

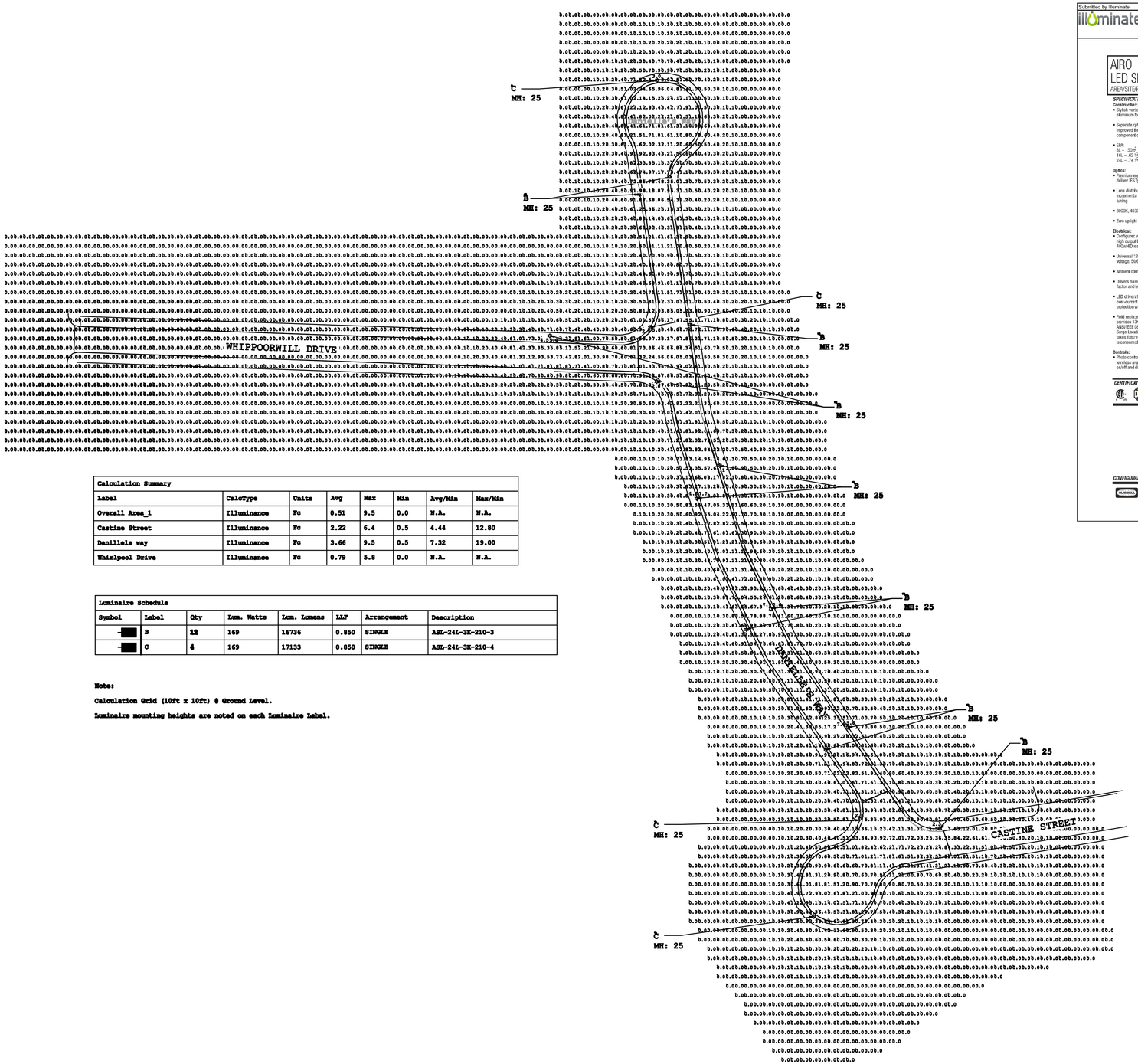
APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 04/19/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=40'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND

JOB NUMBER: 5956

DWG NUMBER: 5004

SHEET NUMBER 34 OF 35



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Area_1	Illuminance	Fc	0.51	9.5	0.0	N.A.	N.A.
Castine Street	Illuminance	Fc	2.22	6.4	0.5	4.44	12.80
Daniilels way	Illuminance	Fc	3.66	9.5	0.5	7.32	19.00
Whirlpool Drive	Illuminance	Fc	0.79	5.8	0.0	N.A.	N.A.

Luminaire Schedule							
Symbol	Label	Qty	Lum. Watts	Lum. Lumens	LLF	Arrangement	Description
▬	B	12	169	16736	0.850	SINGLE	ASL-24L-3K-210-3
▬	C	4	169	17133	0.850	SINGLE	ASL-24L-3K-210-4

Note:

Calculation Grid (10ft x 10ft) @ Ground Level.

Luminaire mounting heights are noted on each Luminaire Label.

Submitted by Illuminate

illuminate

Job Name: MALDEN WOODS
Engineer: HS&T (Worcester)

Catalog Number: ASL-24L-3K-210-2
Notes:

Type: A

4.1.19-87728

AIRO LED SERIES
AREA/STEP/ROAD LIGHTER

Cat.#
Job
Type

HUBBELL Outdoor Lighting

Approvals

SPECIFICATIONS

Construction:
- Stylish vertically finned die-cast and extruded aluminum for maximum heat dissipation
- Separate optical and electrical compartment for improved thermal management and optimum component operation
- EPA:
  8L – .50ft²
  16L – .62 ft²
  24L – .74 ft²

Optics:
- Premium engineered individual acrylic lenses deliver IES Type II, III, IV and V distributions
- Lens distributions are field rotatable (in 90° increments) or exchangeable for job site fine-tuning
- 3000K, 4200K, or 5000K (70 CRI) CCT
- Zero uplight

Electrical:
- Configures with 8, 16, or 24 high current and high output LEDs to replace 150, 250 and 400wMH respectively
- Universal 120-277 vAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40° C to 40° C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short-circuit protection with auto recovery
- Field replaceable surge protection device provides 13KA and 10KV protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3. Automatically takes fail;s e off-line for protection when device is consumed

Controls:
- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V dimming leads available for use with control devices (provided by others, must specify lead length)
- In addition, AIRO can be specified with SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbelllighting.com/sitesync for more details.

Installation:
- Tool-less entry to wiring/driver compartment
- Universal mounting block works with #2 drill pattern (See page 4 illustration)
- Fixture ships with slotted mounting block to accommodate wide range of drill patterns for easy retrofit opportunities (See page 4 illustration for dimensions)
- Must arm filter accessory or option available for 2-3/8" OD brackets

Finish:
- TGIC thermoset polyester powder paint finish applied at nominal 2.5 mil thickness

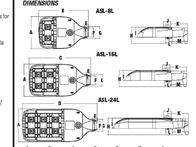
Warranty:
Five year limited warranty.for more information visit: http://www.hubbelloutdoor.com/resources/warranty/

Listings:
- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures.
- 3G rated for ANSI C136.31 high vibration applications
- IP65 optical assembly
- IDA approved

CERTIFICATIONS/LISTINGS

PRODUCT IMAGE(S)

DIMENSIONS



A	B	C	D	E	F	G
1'3"	17'25"	22.4"	26.6"	1.5"	3.1"	4.9"
267 mm	438 mm	569 mm	675 mm	38 mm	78 mm	109mm

H	I	J	K	L	M
5.9"	3.6"	2.5"	2.4"	2.3"	6.7"
149 mm	91 mm	63 mm	188 mm	58 mm	170 mm

SHIPPING INFORMATION

Catalog Number	# Units/ CTN	Carton Dimensions: Length inch (cm)	Width inch (cm)	Height inch (cm)
ASL-8L	1	15 (38.0)	15 (38.0)	6.9375 (17.6)
ASL-16L	1	25 (63.5)	15 (38.0)	6.9375 (17.6)
ASL-24L	1	34.5 (87.6)	15 (38.0)	6.9375 (17.6)

CONFIGURABLE ORDERING INFORMATION NEXT PAGE

HUBBELL Outdoor Lighting • Hubbell Outdoor Lighting • 701 Millennium Boulevard • Greenville, SC 29607 • Phone: 864-678-1000

Due to our continued efforts to improve our products, product specifications are subject to change without notice.
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40 0 40 80 120

HORIZONTAL SCALE 1"=40'

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9	8/17/2020	CITY COMMENTS	LLW
8	7/13/2020	CITY COMMENTS	LLW
7	6/16/2020	CITY COMMENTS	LLW
6	3/27/2020	CITY COMMENTS	LLW
5	11/17/19	CITY COMMENTS	LLW
4	3/27/2020	CITY COMMENTS	LLW
3	11/17/19	CITY COMMENTS	LLW
2	04/18/19	CITY COMMENTS	LLW
1	11/1/18	CITY COMMENTS/NOI SUBMISSION	LLW

WORCESTER CONSERVATION COMMISSION APPROVED:

BEING A MAJORITY OF THE WORCESTER CONSERVATION COMMISSION:

ENDORSED APPROVED DATE: _____

COMMONWEALTH OF MASSACHUSETTS — HOSSEIN HAGHANIZADEH — CIVIL — NO. 42529 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — DANIEL J. TIVNAN — NO. 40047 — REGISTERED PROFESSIONAL SURVEYOR

H. S. & T. GROUP, INC.
PROFESSIONAL CIVIL ENGINEERS & LAND SURVEYORS
75 HAMMOND STREET – 2ND FLOOR
WORCESTER, MASSACHUSETTS 01610-1723
PHONE: (508) 757-4944 FAX: (508) 752-8895
EMAIL: INFO@HSTGROUP.NET WWW.HSTGROUP.NET

MALDEN WOODS SUBDIVISION AMENDMENT LIGHTING SHEET

APPLICANT/OWNER:
WHIPPOOR, LLC
10 UNION STREET, SUITE 3B, NATICK, MA 01760

DATE: 11/1/2018	COMP'D: DJT	FIELD:	PS
SCALE: 1"=80'	CAD: STF	FLD. BK:	639-124
ZONE: RL-7	REV'D: HH	DWG:	MALDENWOODSSUBAMEND
JOB NUMBER: 5956		SHEET NUMBER	35 OF 35
DWG NUMBER: 5004			